

REVISTA SAÚDE COMPLETA

**ANAIS DO SIMPÓSIO DE INICIAÇÃO CIENTÍFICA EM SAÚDE (SICS 2026)
COLETÂNEA DE RESUMOS CIENTÍFICOS**

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EMOTIONAL IMPACT OF EUTHANASIA ON VETERINARY MEDICINE STUDENTES: A CROSS-SECTIONAL STUDY

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RESUMO

Euthanasia is a humane procedure intended to prevent unnecessary suffering in animals with irreversible diseases or poor prognosis. In Veterinary Medicine, this practice involves not only technical and ethical responsibilities but also important emotional challenges for professionals and students. Frequent exposure to animal suffering, complex decision-making, and tutors' grief may contribute to emotional distress, anxiety, and psychological burden. Despite the relevance of this topic in veterinary practice, studies evaluating the technical, ethical, and emotional preparedness of Veterinary Medicine undergraduates remain limited. Therefore, this study aims to assess the preparedness and perceptions of Veterinary Medicine students regarding euthanasia. This cross-sectional exploratory study with a quantitative approach will be conducted with approximately 100 to 200 students enrolled in different semesters of the Veterinary Medicine course at the University of Marília (UNIMAR). Data collection will be performed through a structured self-administered questionnaire composed of objective questions and Likert-scale statements addressing technical knowledge, ethical perceptions, emotional responses, and confidence related to euthanasia procedures. Participation will be voluntary and anonymous, following acceptance of the Informed Consent Form. The collected data will be analyzed using descriptive statistics and presented in tables and graphs. In addition, a selective literature review on euthanasia, bioethics, and mental health in Veterinary Medicine will be carried out to support the discussion of the findings. The expected results include identifying possible gaps in undergraduate training related to euthanasia, particularly regarding emotional preparedness and ethical decision-making. It is anticipated that students in advanced semesters will demonstrate greater technical knowledge; however, emotional discomfort and insecurity associated with euthanasia-related situations may still persist. The findings may contribute to discussions on improving veterinary education by encouraging teaching strategies that integrate technical, ethical, and emotional training for future professionals.

Palavras-chave: Euthanasia; Veterinary Medicine; Veterinary Students; Mental Health; Bioethics.

INSULIN RESISTANCE AS A METABOLIC LINK IN THE PATHOPHYSIOLOGY OF ALZHEIMER'S DISEASE

André Duarte Bezerra

RESUMO

Introduction: Alzheimer's Disease (DA) is one of the most common neurodegenerative diseases, and substantial evidence has supported the relationship between peripheral insulin resistance (IR)

and the development of DA. Often referred to as Type 3 Diabetes, the role of metabolic dysfunction in the pathophysiology of DA is highlighted. Insulin resistance is strongly associated with alterations in neuronal survival, synaptic plasticity, and memory formation, facilitating the progression of neurodegeneration. Objectives: This work aims to evaluate how IR contributes to the neurodegeneration of brain areas related to memory and its relationship with the pathophysiology of DA. Methods: This study is a literature review in which PubMed was used as a database. Reviews and articles published within the last 5 years were included primarily. The following descriptors were used for the search: Alzheimer's disease, Insulin resistance in the brain, neurodegeneration, and Insulin receptor signaling. Results: The reviewed data show that insulin resistance in the brain causes the PI3K/Akt pathway to be deactivated, and consequently the GSK-3 β enzyme. This enzyme is one of the main agents responsible for the hyperphosphorylation of the Tau protein, leading to the formation of neurofibrillary tangles and collapse of the neuronal cytoskeleton, while insulin and beta-amyloid protein compete for Insulin-Degrading Enzyme (IDE), favoring the accumulation of senile plaques in states of hyperinsulinemia. In addition to protein accumulation, it was observed that metabolic failure induces severe mitochondrial dysfunction, increasing oxidative stress and activating microglia cells. This activation triggers meta-inflammation that degrades the blood-brain barrier (BBB) and accelerates the loss of synaptic connections. It was seen that it is possible to correct this metabolic environment through drugs that mimic insulin or improve its sensitivity, potentially delaying the progression of brain atrophy. Conclusion: Through this work, it was possible to observe that insulin resistance is an intrinsic and possibly primary component in the pathogenesis of Alzheimer's disease (DA). The transition from a healthy metabolic state to central insulin resistance precedes the symptoms of dementia, making this metabolic link a signal for early diagnosis and treatment. Understanding Alzheimer's disease in this way allows for the development of new treatment strategies that primarily act by restoring neuronal bioenergetics, offering a promising way to slow neurodegeneration.

Palavras-chave: Alzheimer's Disease; Insulin Resistance In The Brain; Neurodegeneration; Insulin Receptor Signaling.

THE GUT-BRAIN AXIS AND EXERCISE MOTIVATION: THE EMERGING ROLE OF THE GUT MICROBIOME

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RESUMO

Introduction: The interaction between the gut microbiota and the central nervous system, mediated by the gut-brain axis, has highlighted the central role of the gut microbiota in regulating behavioral and metabolic functions, including the motivation to engage in physical exercise. Metabolites produced by gut microorganisms, such as short-chain fatty acids and lipid-derived compounds, act as mediators in bidirectional communication between the gut and the central nervous system, influencing neurobiological pathways related to reward, fatigue, and adaptation to physical exertion. **Objectives:** To analyze the role of the gut microbiota in modulating motivation for physical exercise, highlighting the mechanisms of the gut-brain axis and its behavioral and metabolic implications. **Materials and Methods:** This is a narrative review of the literature based on recent articles indexed in PubMed, including experimental studies and systematic reviews published in the last five years, selected using search terms related to the gut microbiota, gut-brain

axis, and physical exercise. Results: Evidence suggests that the gut microbiota directly influences motivation for exercise by producing metabolites capable of activating peripheral sensory pathways and afferent neural pathways, thereby stimulating dopaminergic signaling in brain regions associated with reward, such as the ventral striatum. Experimental studies demonstrate that gut metabolites can increase exercise endurance and willingness to engage in physical activity, establishing a functional connection between the microbiota and motor behavior. Furthermore, regular exercise promotes beneficial changes in the composition and diversity of the microbiota, with increased microbial diversity and bacteria producing anti-inflammatory metabolites, reinforcing a bidirectional cycle between exercise and the microbiome. On the other hand, a sedentary lifestyle is associated with reduced microbial diversity, intestinal dysbiosis, and metabolic and neuroendocrine changes, which can negatively impact motivation and physical performance. Conclusion: The gut microbiota plays a significant role in regulating motivation for physical exercise, acting as an integrative link between metabolism and behavior via the gut-brain axis. Understanding these processes opens up new avenues for therapeutic interventions based on modulating the gut microbiome, with the aim of improving adherence to physical activity and performance; however, further clinical studies in humans are needed to validate and better elucidate these mechanisms and their applicability.

Palavras-chave: Gut Microbiota Gut-brain Axis Physical Exercise Motivation Metabolic Regulation.

NEUROINFLAMMATION AS A DRIVER OF NEURODEGENERATION: MECHANISMS OF GLIAL ACTIVATION AND THE ROLE OF THE NLRP3 INFLAMMASOME - A NARRATIVE REVIEW

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RESUMO

A neuroinflamação, antes considerada apenas uma consequência, é hoje vista como um fator central no desenvolvimento de doenças neurodegenerativas como Alzheimer, Parkinson, ELA e Huntington. Inicialmente protetora, essa resposta inflamatória pode se tornar crônica e prejudicial, levando à perda progressiva de neurônios. Esse processo envolve a ativação contínua de células do sistema nervoso, como micróglia e astrócitos, além do papel importante do inflamassoma NLRP3, que intensifica a produção de substâncias inflamatórias e agrava a formação de proteínas anormais no cérebro. Também contribuem para o dano neuronal a disfunção da barreira hematoencefálica e o aumento do estresse oxidativo. Diante disso, novas terapias buscam controlar a inflamação e restaurar o estado protetor das células, mostrando que a neuroinflamação não é apenas consequência, mas uma das causas da neurodegeneração.

Palavras-chave: Neuroinflammation Degenerative Diseases Microglia Neurodegeneration.

ADIPONECTIN, METABOLIC SYNDROME, AND CARDIOVASCULAR RISK: A NARRATIVE REVIEW ON THE LINK BETWEEN METABOLIC DYSFUNCTION AND VASCULAR COMPLICATIONS

Rafael Gago Paulino / Ana Luiza Fracone Milani¹; Sandra Maria Barbalho; ¹Universidade de Marília (UNIMAR)

RESUMO

ADIPONECTIN, METABOLIC SYNDROME, AND CARDIOVASCULAR RISK: A NARRATIVE REVIEW ON THE LINK BETWEEN METABOLIC DYSFUNCTION AND VASCULAR COMPLICATIONS Rafael Gago Paulino^{1 2}, Ana Luiza Fracone Milani¹, Sandra Maria Barbalho^{1 3} ¹Universidade de Marília (UNIMAR), Marília, SP; ² Graduated in Medicine from the University Center of Votuporanga-SP - Medical Course (UNIFEV), Brazil; ³Post- graduate Program in Structural and Functional Interactions in Rehabilitation, University of Marília (UNIMAR), Marília, São Paulo, Brazil Abstract: Introduction: Adiponectin is an adipokine with anti-inflammatory, insulin-sensitizing, and vasculoprotective effects. In metabolic syndrome, its circulating levels are reduced, contributing to insulin resistance and endothelial dysfunction. Adiponectin activates AMPK and PPAR- α , promoting fatty acid oxidation and improving glucose metabolism. Its deficiency favors chronic inflammation, with increased pro-inflammatory cytokines. Furthermore, it reduces nitric oxide bioavailability, impairing vascular function. Hypoadiponectinemia is associated with oxidative stress and atherogenesis. These effects contribute to greater arterial stiffness and progression of atherosclerosis. Adiponectin also modulates vascular endothelial and smooth muscle cells. Low levels of this adipokine correlate with a higher risk of cardiovascular events. Thus, it represents an important link between metabolic dysfunction and increased vascular risk. Objective: Considering the role of this adipokine, the aim of this study was to conduct a narrative review on the role of this marker in metabolic syndrome and cardiovascular complications. Methods: This narrative review was based on a structured search in PubMed/MEDLINE and Scopus, covering the period from 2021 to 2026. The keywords included “adiponectin,” “metabolic syndrome,” and “cardiovascular risk.” Relevant original studies and reviews were selected, and the data were qualitatively synthesized, focusing on metabolic and vascular mechanisms. Discussion: Adiponectin is a hormonal protein secreted mainly by adipocytes in white adipose tissue, acting through AdipoR1 and AdipoR2 receptors. AdipoR1 predominates in skeletal muscle, endothelial cells, and cardiomyocytes, whereas AdipoR2 is mainly expressed in the liver. Hypoadiponectinemia impairs signaling through AdipoR1/AdipoR2, decreasing insulin sensitivity by reducing AMPK and PPAR- α activation. It also reduces glucose uptake via GLUT-4 and increases hepatic glucose production by stimulating gluconeogenic enzymes, such as G6Pase and PEPCK. In lipid metabolism, reduced adiponectin signaling decreases free fatty acid oxidation through mechanisms involving acetyl-CoA carboxylase. It may also reduce HDL-C levels by decreasing hepatic apolipoprotein A-I expression. In the endothelium, hypoadiponectinemia favors the adhesion of atherogenic molecules, such as ICAM-1, VCAM-1, and E-selectin. It may also decrease nitric oxide production through PI3K and AMPK pathways and impair M2 macrophage polarization, which is involved in atherosclerotic plaque stability. Adiponectin plays a relevant role in the anti-inflammatory response by inhibiting reactive oxygen species, promoting the release of anti-inflammatory cytokines, such as IL-10 and IL-1RA, suppressing pro-inflammatory cytokines, such as TNF- α , IL-6, and IL-8, increasing nitric oxide bioavailability, and inhibiting the activation of nuclear factor kappa B, or NF- κ B. Metabolic syndrome comprises metabolic risk factors, including abdominal obesity, arterial hypertension,

insulin resistance, and dyslipidemia. Thus, hypoadiponectinemia is related to metabolic syndrome through the modulation of multiple pathophysiological pathways. This metabolic stress contributes to diseases associated with high cardiovascular risk, such as obesity, type 2 diabetes, hypertension, atherosclerosis, and coronary syndromes. Conclusion: Adiponectin regulates glucose and lipid metabolism, as well as angiogenesis, inflammatory stress, and oxidative stress. These mechanisms participate in the pathogenesis of metabolic syndrome, linking hypoadiponectinemia to vascular complications. Therefore, adiponectin represents a marker and possible mediator of cardiometabolic risk, reinforcing the endocrine role of adipose tissue.

Keywords: Adiponectin; Metabolic syndrome; Insulin resistance; Endothelial dysfunction; Cardiovascular risk. **Palavras-chave:** Adiponectina; Metabolic Syndrome; Insulin Resistance; Endothelial Dysfunction; Cardiovascular Risk.

ADIPOSE TISSUE AS A NEUROIMMUNE MODULATOR: THE ROLE OF INFLAMMATORY MEDIATORS IN NEUROINFLAMMATION

André Duarte Bezerra

RESUMO

Introduction: Among the specialized tissues that make up our body is adipose tissue. In addition to performing functions such as thermal regulation and energy storage, it is also capable of acting as an endocrine and immunometabolic organ through the secretion of cytokines and adipokines that have anti- and pro-inflammatory roles, impacting the most diverse tissues present in our body, with nervous tissue being one of the most susceptible to these effects. **Objective:** This work aims to identify the main inflammatory mediators produced by adipose tissue that are capable of affecting nervous tissue and what the possible effects are on the functioning of this tissue. **Methods:** This study consists of a literature review using the PubMed database. Review articles published in the last five years were included. The following descriptors were used for the search strategy: adipose tissue, neuroinflammation, and inflammatory mediators. **Results:** The literature shows that adipose tissue is responsible for the production of inflammatory mediators such as TNF- α (Tumor Necrosis Factor Alpha), IL-6 (Interleukin-6), IL-1 β (Interleukin-1 beta), Leptin, Resistin, MCP-1 (Monocyte Chemotaxis Protein-1), and Fatty Acids, with TNF- α , IL-6, MCP-1, Leptin, and Fatty Acids being able to affect the functioning of the nervous system. These factors can be organized into two main axes: (1) classic pro-inflammatory cytokines, which are activators of pathways such as TLR4 (Toll-like receptor 4), and (2) adipokines and lipid metabolites, which modulate blood-brain barrier permeability and glial cell activation. Articles already indicate the role of these mediators in activating receptors of immune system cells, such as TLR4 (Toll-like receptor 4). This activation is capable of triggering a cascade of reactions that further increase the production of inflammatory mediators, leaving the organism in a state of chronic inflammation. The presence of these cytokines would affect nervous tissue in two ways: firstly, due to the existence of nerve structures that are outside the blood-brain barrier, and secondly, due to the altered permeability of this barrier, which would result in the entry of more and more cytokines into the nervous tissue. The exposure of nerve cells, such as microglia and astrocytes, would lead to the activation of these cells, resulting in the production of more mediators, which would significantly affect this tissue. The presence of inflammatory mediators and the activation of glial cells have been linked to neurodegenerative conditions and also to alterations in neurodevelopment. **Conclusion:** This study

demonstrated the importance of adipose tissue as a gland capable of acting as a neuroimmune modulator. When dysfunctional, this modulator impacts the functioning of nervous tissue due to increased secretion of inflammatory mediators. It was shown that systemic inflammation and the circulation of these mediators in the body can impact the functioning of nervous tissue, which is related to some neurodegenerative conditions and alterations in neurodevelopment. Further studies should be conducted to specify how each of these mediators affects nervous tissue so that we can develop therapeutic strategies to mitigate these damages.

Palavras-chave: Adipose Tissue; Inflammatory Mediators; Neuroinflammation.

ADIPOSE TISSUE AS A NEUROIMMUNE MODULATOR: THE ROLE OF INFLAMMATORY MEDIATORS IN NEUROINFLAMMATION.

André Duarte Bezerra

RESUMO

Introduction: Among the specialized tissues that make up our body is adipose tissue. In addition to performing functions such as thermal regulation and energy storage, it is also capable of acting as an endocrine and immunometabolic organ through the secretion of cytokines and adipokines that have anti- and pro-inflammatory roles, impacting the most diverse tissues present in our body, with nervous tissue being one of the most susceptible to these effects. **Objective:** This work aims to identify the main inflammatory mediators produced by adipose tissue that are capable of affecting nervous tissue and what the possible effects are on the functioning of this tissue. **Methods:** This study consists of a literature review using the PubMed database. Review articles published in the last five years were included. The following descriptors were used for the search strategy: adipose tissue, neuroinflammation, and inflammatory mediators. **Results:** The literature shows that adipose tissue is responsible for the production of inflammatory mediators such as TNF- α (Tumor Necrosis Factor Alpha), IL-6 (Interleukin-6), IL-1 β (Interleukin-1 beta), Leptin, Resistin, MCP-1 (Monocyte Chemotaxis Protein-1), and Fatty Acids, with TNF- α , IL-6, MCP-1, Leptin, and Fatty Acids being able to affect the functioning of the nervous system. These factors can be organized into two main axes: (1) classic pro-inflammatory cytokines, which are activators of pathways such as TLR4 (Toll-like receptor 4), and (2) adipokines and lipid metabolites, which modulate blood-brain barrier permeability and glial cell activation. Articles already indicate the role of these mediators in activating receptors of immune system cells, such as TLR4 (Toll-like receptor 4). This activation is capable of triggering a cascade of reactions that further increase the production of inflammatory mediators, leaving the organism in a state of chronic inflammation. The presence of these cytokines would affect nervous tissue in two ways: firstly, due to the existence of nerve structures that are outside the blood-brain barrier, and secondly, due to the altered permeability of this barrier, which would result in the entry of more and more cytokines into the nervous tissue. The exposure of nerve cells, such as microglia and astrocytes, would lead to the activation of these cells, resulting in the production of more mediators, which would significantly affect this tissue. The presence of inflammatory mediators and the activation of glial cells have been linked to neurodegenerative conditions and also to alterations in neurodevelopment. **Conclusion:** This study demonstrated the importance of adipose tissue as a gland capable of acting as a neuroimmune modulator. When dysfunctional, this modulator impacts the functioning of nervous tissue due to increased secretion of inflammatory mediators. It was shown that systemic inflammation and the

circulation of these mediators in the body can impact the functioning of nervous tissue, which is related to some neurodegenerative conditions and alterations in neurodevelopment. Further studies should be conducted to specify how each of these mediators affects nervous tissue so that we can develop therapeutic strategies to mitigate these damages.

Palavras-chave: Adipose Tissue; Inflammatory Mediators; Neuroinflammation.

ANXIETY AS A FACTOR ASSOCIATED WITH TEMPOROMANDIBULAR DYSFUNCTION IN ADULTS: A LITERATURE REVIEW

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RESUMO

Introduction: Temporomandibular dysfunction (TMD) refers to a set of alterations affecting the temporomandibular joint and masticatory muscles, characterized by orofacial pain, functional limitation, and joint noises. It is a condition of multifactorial etiology, involving biological, mechanical, and psychosocial factors. Among these, anxiety has been widely associated with the development and worsening of TMD, as it promotes physiological and behavioral changes capable of directly impacting the stomatognathic system. **Objectives:** Based on recent scientific literature, this study addresses the relationship between anxiety and temporomandibular dysfunction in adults, highlighting its role as a factor associated with the development and intensification of the condition. **Materials and Methods:** A narrative literature review was conducted based on studies published in the PubMed database in the last two years. Articles addressing the association between anxiety and TMD in adults were included, considering aspects such as pain, muscle activity, and parafunctional habits. **Results:** The literature shows that individuals with high levels of anxiety have a higher prevalence of signs and symptoms of TMD, including muscle pain, limitation of mandibular movements, and joint discomfort. Anxiety is observed to be related to increased muscle tension in the masticatory region, especially in the masseter and temporal muscles, contributing to fatigue and pain. Furthermore, parafunctional habits, such as bruxism and teeth clenching, are frequently associated with anxiety, favoring overload of the temporomandibular joint. Another relevant aspect is the influence of anxiety on pain modulation, reducing the pain threshold and increasing the perception of discomfort. **Conclusion:** Recent evidence indicates that anxiety is strongly associated with temporomandibular dysfunction in adults, contributing to its development and worsening through increased muscle tension, the occurrence of parafunctional habits, and the intensification of pain; therefore, TMD should be understood as a multifactorial condition, and it is essential to consider emotional factors in the clinical approach for more effective and comprehensive management.

Palavras-chave: Temporomandibular Dysfunction; Anxiety; Orofacial Pain; Bruxism; Psychosocial Factors.

ASSOCIAÇÃO ENTRE TEMPO DE TELA E SAÚDE MENTAL EM ADOLESCENTES: UMA REVISÃO DE LITERATURA

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RESUMO

Mental health among adolescents constitutes a significant public health concern, as approximately one in seven individuals in this age group have mental disorders. Increased screen time has been associated with negative outcomes, including depressive and anxiety symptoms, behavioral problems, and impairments in psychosocial development. Additionally, excessive use of electronic devices is linked to poorer sleep quality, a factor associated with the development of mental disorders. Adolescence itself represents a period of heightened emotional and psychological vulnerability. This study aimed to analyze the association between screen time and mental health in adolescents. A literature review was conducted using the PubMed and Scopus databases, employing the search terms “screen time,” “social media,” “adolescents,” “anxiety,” “depression,” and “emotional regulation,” combined with the Boolean operators AND and OR. Six articles published between 2016 and 2024, in English and involving adolescents were included. A qualitative analysis of the selected studies was performed, synthesizing the main findings related to screen time and its effects on adolescent mental health. The analyzed studies demonstrate a consistent association between increased screen time and poorer mental health outcomes in adolescents. Higher screen time was associated with a greater prevalence of depressive and anxiety symptoms, suicidal behaviors, and poorer sleep quality, with approximately 35% of adolescents presenting inadequate sleep in some studies. The average screen time was approximately 7 hours per day, with an increase of up to 52% during the COVID-19 pandemic. Adolescents with lower screen time tended to demonstrate better academic performance and better sleep patterns. Possible mechanisms include reduced time spent on physical activity, fewer face-to-face social interactions, and alterations in sleep patterns. The findings indicate that increased screen time is associated with poorer mental health outcomes in adolescents, including depressive symptoms, sleep disturbances, and suicidal behaviors. These effects appear to depend not only on exposure duration, but also on the type of use and associated behavioral factors. These results reinforce the importance of educational strategies, supervision of digital media use, and further studies to better understand the mechanisms underlying this association.

Palavras-chave: Adolescents Screen Time Mental Health Depression Anxiety.

ASSOCIATION BETWEEN ORAL BEHAVIOR AND PSYCHOLOGICAL SYMPTOMS IN TEMPOROMANDIBULAR DISORDERS

Ana Julia Rossigalli Bolfi / Letícia Zanoni Moreira; Andressa Natalino Marins; Jéssica Gimenes de Araújo Lopes; Rachel Gomes Eleutério; Eliana de Souza Bastos Mazuqueli Pereira

RESUMO

Introduction: Temporomandibular disorders (TMD) are multifactorial conditions frequently associated with chronic pain and psychological changes such as anxiety, depression, and stress. In parallel, oral behaviors, including awake bruxism and teeth clenching, have been widely observed

in individuals with TMD. Evidence suggests that these behaviors may be related to emotional and psychological states, reflecting a complex interaction between mind and musculoskeletal system. However, the nature of this association is not yet fully established in the literature. Objective: To analyze, through a literature review, the association between oral behaviors and psychological symptoms in individuals with TMD (Temporomandibular Disorder). Material and method: A narrative literature review was conducted using the PubMed database. Descriptors related to oral behaviors, psychological symptoms, and temporomandibular dysfunction were used. Articles published in the last 5 years, in English, involving studies in humans were included, considering observational studies, clinical trials, and systematic reviews. Results: The literature shows a consistent association between a higher frequency of oral behaviors and elevated levels of anxiety, depression, and psychological stress. Individuals with TMD exhibit a higher prevalence of these behaviors when compared to the general population, especially in contexts of greater emotional stress. Furthermore, studies indicate that psychological symptoms can influence the intensity and frequency of oral behaviors, suggesting a bidirectional relationship. However, most studies have a cross-sectional design, limiting causal inferences. Conclusion: The findings suggest that oral behaviors are significantly associated with psychological symptoms in individuals with TMD, reinforcing the interaction between emotional and behavioral factors in the pathophysiology of these conditions. Understanding this relationship highlights the importance of integrated approaches in the management of TMD, including psychological assessment and behavioral modification strategies. Longitudinal studies are needed to better elucidate the direction and mechanisms of this association.

Palavras-chave: Oral Behavior; Psychological Symptoms; Temporomandibular Dysfunction; Oral Parafunction.

ATRIAL FIBRILLATION AND COGNITIVE DECLINE: A RELATIONSHIP BETWEEN UNTREATED AF AND DEMENTIA PROGRESSION, EVALUATING THE ROLE OF DOACS IN THESE CASES.

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RESUMO

Introduction: Atrial fibrillation (AF) impairs atrial function and cerebral perfusion, contributing to cognitive decline. Untreated AF may accelerate dementia via thromboembolism. Direct oral anticoagulants may reduce this risk. Objectives: Assess the association between untreated AF, dementia, and the role of DOACs. Methods: This is a systematic literature review encompassing articles from 2022 to 2025 from the PubMed (MEDLINE) database. In total, from the 15 previously selected articles, 10 were chosen using the descriptors "Atrial Fibrillation", "Dementia" and "DOACs". Meta-analyses, reviews and systematic reviews in English that related AF, dementia and DOACs were included. Results: Patients with untreated atrial fibrillation (AF) have a higher risk of cognitive decline and dementia progression, possibly related to cerebral microemboli and hypoperfusion resulting from the arrhythmia. Studies demonstrate that the use of direct oral anticoagulants (DOACs) is associated with a decrease in these risks compared to warfarin or the absence of treatment, in addition to preventing thromboembolic events and protecting cognitive

function. Genetic factors, such as the APOE ϵ 4 allele, may also influence bleeding events and cognitive decline. Furthermore, adherence to anticoagulation therapy appears to be a key factor in reducing cognitive impairment among AF patients. Individuals consistently treated with DOACs showed a slower rate of cognitive decline compared to those with irregular or no treatment. Additionally, DOACs demonstrated a more favorable safety profile, with lower rates of intracranial hemorrhage, reinforcing their potential benefit in long-term management and prevention of dementia progression. **Conclusions:** Untreated atrial fibrillation (AF) is associated with an increased risk of cognitive decline and dementia, likely due to cerebral hypoperfusion and thromboembolic events. Direct oral anticoagulants (DOACs) reduce these risks and demonstrate a safer profile, especially regarding intracranial bleeding. Therefore, proper management and adherence to anticoagulation are essential to prevent cardiovascular and cognitive complications.

Palavras-chave: Atrial Fibrillation Cognitive Decline DOACs.

AVALIAÇÃO POR TOMOGRAFIA COMPUTADORIZADA DA CALCIFICAÇÃO DE ARTÉRIAS INTRACRANIANAS E SUA RELAÇÃO COM O DECLÍNIO COGNITIVO EM PACIENTES DIABÉTICOS

Geovana Fernandes Ribeiro / Israel Abraão Nascimento - Graduando de biomedicina.; Paulo Roberto Giardulli Grespan - Graduado de farmácia.

RESUMO

Introdução: A calcificação arterial detectada por tomografia computadorizada (TC) é um marcador de aterosclerose e envelhecimento vascular, sendo mais frequente em pacientes com diabetes mellitus (DM). **Objetivo:** Avaliar a relação entre calcificação arterial intracraniana e declínio cognitivo em populações diabéticas. **Metodologia:** Revisão qualitativa da literatura realizada nas bases PubMed, SciELO e Google Acadêmico. Utilizaram-se os descritores “calcificação arterial”, “diabetes mellitus”, “declínio cognitivo” e “tomografia computadorizada”. Foram identificados 100 artigos publicados entre 2010 e 2025, dos quais 50 foram selecionados para leitura completa após aplicação dos critérios de inclusão e exclusão. Ao final, 15 estudos compuseram a análise final. **Resultados:** Os estudos demonstraram associação entre maior carga calcificada e pior desempenho cognitivo, além de lesões de substância branca cerebral. Em pacientes com DM tipo 1 e 2, elevados escores de cálcio relacionaram-se ao declínio de memória verbal e comprometimento cognitivo em longo prazo. **Conclusão:** A carga calcificada vascular apresenta potencial como biomarcador de risco para declínio cognitivo em diabéticos, porém a escassez de estudos específicos intracranianos e a heterogeneidade metodológica limitam sua aplicação clínica imediata.

Palavras-chave: Calcificação Arterial Diabetes Mellitus Declínio Cognitivo Tomografia Computadorizada.

BEYOND SARCOPENIA: DRUG-INDUCED OROFACIAL PAIN AS A MODULATING FACTOR OF BITE FORCE IN THE ELDERLY - A LITERATURE REVIEW

LEANDRO DI MARCHI HERREIRA / Gabrielly Pohl¹; Maria Luiza Ribeiro Borelli; Letícia Zanoni Moreira; Jéssica Gimenes de Araújo Lopes; Eliana de Souza Bastos Mazuqueli Pereira

RESUMO

ABSTRACT Introduction: Sarcopenia is a progressive condition characterized by the loss of muscle mass, strength, and function, associated with reduced mobility. Despite its clinical relevance, diagnosis still presents limitations, with late identification of the disease. In this context, interest in early functional markers is growing. Masticatory function, especially maximum bite force (MBF), has been proposed as an indicator of systemic muscle health. Associated with this, clinical factors such as orofacial pain and temporomandibular disorders (TMD) can directly interfere with masticatory function. Based on this premise, masticatory muscle pain is associated with neuromuscular alterations and reduced bite force, since mandibular limitations and muscle alterations compromise stomatognathic functions. The influence of medications is also noteworthy, since drug-induced oral alterations are associated with orofacial pain and can impair chewing and swallowing. Objectives: To analyze the relationship between masticatory function and sarcopenia in elderly individuals, considering the influence of drug-induced orofacial pain as an associated factor. Materials and Methods: This is an integrative literature review, with studies published between 2021 and 2025, selected from the PubMed and SciELO databases, using the descriptors "sarcopenia", "bite force", "chewing" and "elderly". In addition, some older studies were included due to a lack of articles on the subject. Results: Preserved masticatory function is associated with a lower prevalence of sarcopenia and better nutritional status. Reduced maximum bite force compromises masticatory efficiency, contributing to malnutrition and frailty. Decreased occlusal force with aging is related to atrophy of the masticatory muscles and functional decline, with masticatory musculature being a relevant systemic marker. Additionally, orofacial pain has a high prevalence and significant impact on quality of life, being associated with masticatory pain and functional alterations. Evidence indicates that pain can reduce bite force and alter muscle function, especially in individuals with TMD (temporomandibular disorders). Direct oral alterations include hyposalivation causing xerostomia, usually induced by drugs acting on the central nervous system, which also play a relevant role, as they can interfere with pain modulation and the autonomic function of the salivary glands, hindering chewing, swallowing, and food intake. Recent studies demonstrate an association between drug-induced xerostomia and orofacial pain, suggesting that medications can influence both salivation and pain modulation, reinforcing the importance of an integrated approach to solving the condition. Therefore, these factors can negatively impact maximum bite force and masticatory function. Conclusion: Masticatory function, especially maximum bite force, presents itself as a promising functional marker of sarcopenia in the elderly. Orofacial pain and the effects of medications, such as xerostomia and hyposalivation, can negatively interfere with mastication and bite force. An interdisciplinary approach is essential for early screening and appropriate clinical management, and longitudinal studies are needed for a better understanding of these relationships.

Palavras-chave: Sarcopenia; Chewing; Bite Force; Orofacial Pain; Elderly.

CALF CIRCUMFERENCE AS A SCREENING TOOL FOR LOW MUSCLE MASS: A COMPARATIVE STUDY WITH ACCESSIBLE METHODS

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São Paulo; Brazil; Karina Quesada - Professor at the University of Marília (UNIMAR) and Doctoral Student in the Interdisciplinary Program in Structural and Functional Interactions in Rehabilitation (UNIMAR).; Cláudia Rucco Penteado Detregiachi - Professor of the Nutrition course and the Interdisciplinary Graduate Program in Structural and Functional Interactions in Rehabilitation at UNIMAR; Marília - São Paulo. Research Productivity Fellow in Technological Development and Innovative Extension - CNPq.

RESUMO

Muscle mass (MM) is recognized as an important biomarker associated with relevant clinical outcomes, including functionality, morbidity, and mortality. Despite its importance, MM assessment in clinical practice is still limited by the low availability of gold-standard methods, such as dual-energy X-ray absorptiometry (DXA), computed tomography, and magnetic resonance imaging, especially in resource-constrained settings. In this scenario, more accessible methods, such as anthropometric measurements and predictive equations, have been widely used due to their low cost, ease of execution, and good clinical applicability. This study aimed to compare the classification of muscle mass obtained through calf circumference (CC), arm circumference (AC), and a predictive equation in adults and older adults. This is a cross-sectional study conducted using an anonymized database, previously approved by the Ethics Committee of the University of Marília (Opinion nº 7.929.131). Individuals of both sexes aged 45 years or older were included, considering the age limits of the evaluation techniques employed. CC was classified into percentiles (P) according to reference values stratified by sex and age, considering low MM when $P < 50$ and adequate when $P \geq 50$. AC was classified according to specific cut-off points, with low MM considered when < 25 cm in women and < 28 cm in men. Muscle mass was estimated (in kg) using a predictive equation, with the value adjusted by height to calculate the muscle mass index (MMI) [$\text{MM (kg)/height (m)}^2$], classified as reduced when $< 7 \text{ kg/m}^2$ for men and $< 5.5 \text{ kg/m}^2$ for women. The sample consisted of 169 individuals (80% female), with a mean age of $63,1 \pm 10,7$ years. Adequate MM classification was observed in 85% ($n=144$) of individuals when assessed by CC, 96% ($n=162$) by AC, and 100% by MMI. In the comparative analysis, a statistically significant difference was observed between the classification obtained by CC and MMI ($p < 0.0001$), while there was no significant difference between AC and MMI ($p = 0.0606$). Considering the importance of early identification of MM impairment, these data suggest that CC identified a higher proportion of individuals with reduced muscle mass compared to the other methods, indicating potential utility as a screening tool in clinical contexts. Additional studies are needed to evaluate its diagnostic accuracy.

Palavras-chave: Muscle Mass; Anthropometry; Calf Circumference; Arm Circumference; Nutritional Assessment.

CANCER-RELATED COGNITIVE IMPAIRMENT: NEUROINFLAMMATORY MECHANISMS AND CLINICAL IMPLICATIONS

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RESUMO

Introduction: Cancer-related cognitive impairment (CRCI), or “chemobrain,” is a prevalent condition affecting up to 75% of cancer patients. It is characterized by significant deficits in

memory, attention, and executive function. As a multifactorial syndrome, CRCI involves direct neurotoxicity and chronic neuroinflammation. Despite its profound impact on survivors' quality of life, the underlying biological mechanisms remain incompletely understood, highlighting the need for enhanced diagnostic and management strategies. Objective: This study focuses on understanding the effects of inflammatory mechanisms inside the nervous system while patients are undergoing chemotherapy treatment, also known as chemobrain. Methods: A comprehensive literature review was conducted across major scientific databases, including PubMed and Semantic Scholar. Targeted search strategies addressed key domains of cancer-related cognitive impairment (CRCI), including biological, psychological, and treatment-related mechanisms, as well as clinical features, diagnostic approaches, and management. Alternative terminology, such as "chemobrain," and related concepts were also incorporated. Fifty studies were included based on their relevance to CRCI mechanisms and clinical outcomes. Results: Cancer-related cognitive impairment (CRCI) affects a considerable proportion of cancer survivors and is commonly associated with difficulties in memory, attention, processing speed and executive function. While neuroinflammation is widely considered a central mechanism, largely due to chronic activation of the innate immune system and increased levels of inflammatory cytokines, the extent to which it alone accounts for cognitive decline remains uncertain. Other mechanisms, including direct neurotoxicity, oxidative stress, and mitochondrial dysfunction, are also likely to contribute, particularly in the context of chemotherapeutic agents capable of crossing the blood-brain barrier. Evidence from neuroimaging and biomarker studies supports the presence of structural and functional brain alterations, such as reduced gray matter volume and disrupted connectivity in the prefrontal cortex, as well as elevated inflammatory markers in plasma and cerebrospinal fluid, though these findings are not always consistent across studies. Clinically, CRCI has a significant impact on quality of life, social functioning, and work performance. Interestingly, patients' subjective cognitive complaints often do not align with objective neuropsychological test results. Conclusion: CRCI is a prevalent and significant condition among cancer patients, associated with cognitive deficits. Neurotoxicity, neuroinflammation, genetic, and psychosocial factors contribute to symptom severity. Despite research advances, gaps remain regarding diagnostic criteria, biomarkers, and therapeutic interventions, emphasizing the need for further studies to improve detection, management, and patients' quality of life.

Palavras-chave: Cancer-related Cognitive Impairment; Chemobrain; Cognitive Dysfunction; Cancer Survivorship.

CARDIOVASCULAR ALTERATIONS AND COGNITIVE DECLINE: MECHANISTIC LINKS BETWEEN VASCULAR DYSFUNCTION AND BRAIN HEALTH

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RESUMO

Abstract Introduction: Cognitive decline and dementia are major global health challenges, with increasing prevalence driven by population aging. Growing evidence indicates that cardiovascular alterations play a central role in the pathogenesis of cognitive impairment, highlighting the concept of a heart-brain axis. Conditions such as hypertension, atherosclerosis, heart failure, and arterial stiffness have been consistently associated with reduced cognitive performance and increased risk of dementia. Objective: To examine the relationship between cardiovascular alterations and

cognitive decline, focusing on underlying pathophysiological mechanisms. Discussion: Cardiovascular dysfunction contributes to cognitive impairment through multiple interconnected pathways. Chronic hypertension is associated with small vessel disease, endothelial dysfunction, and reduced cerebral perfusion, leading to white matter damage and impaired neuronal function. Atherosclerosis and arterial stiffness further compromise cerebral blood flow and promote ischemic injury. In heart failure, reduced cardiac output results in chronic cerebral hypoperfusion, which has been linked to deficits in memory, attention, and executive function. In addition, vascular dysfunction promotes blood-brain barrier disruption, facilitating neuroinflammation and oxidative stress. Elevated levels of inflammatory mediators, such as TNF- α and IL-6, and increased reactive oxygen species production contribute to neuronal damage and synaptic dysfunction. Metabolic factors commonly associated with cardiovascular disease, including insulin resistance and dyslipidemia, further exacerbate these processes. Epidemiological studies consistently demonstrate that individuals with cardiovascular risk factors have a higher incidence of mild cognitive impairment and dementia, including Alzheimer's disease. Importantly, early vascular changes may precede clinical cognitive symptoms, suggesting a window of opportunity for prevention. Conclusion: Cardiovascular alterations are closely linked to cognitive decline through mechanisms involving impaired cerebral perfusion, inflammation, and vascular dysfunction. These findings support integrating cardiovascular and neurological approaches to prevent and manage cognitive impairment. Targeting cardiovascular risk factors may represent a key strategy to reduce the global burden of dementia.

Palavras-chave: Cardiovascular Disease Cognitive Decline Cerebral Perfusion Endothelial Dysfunction Vascular Dementia.

CARDIOVASCULAR ALTERATIONS AND SARCOPENIA: MECHANISTIC LINKS BETWEEN VASCULAR DYSFUNCTION AND SKELETAL MUSCLE LOSS

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RESUMO

Sarcopenia, caracterizada pela perda progressiva de massa, força e função do músculo esquelético, é um dos principais contribuintes para a incapacidade, fragilidade e mortalidade em populações idosas. Evidências crescentes sugerem que alterações cardiovasculares desempenham um papel crítico no desenvolvimento e progressão da sarcopenia, reforçando o conceito de um eixo músculo-corção. Condições como hipertensão, insuficiência cardíaca, aterosclerose e disfunção endotelial têm sido consistentemente associadas à redução da massa muscular e ao comprometimento do desempenho físico. O objetivo deste estudo é examinar a relação entre alterações cardiovasculares e sarcopenia, focando nos mecanismos fisiopatológicos subjacentes que ligam a disfunção vascular ao comprometimento do músculo esquelético. Este estudo é uma revisão narrativa baseada na literatura atual indexada no PubMed, incluindo estudos epidemiológicos, ensaios clínicos e pesquisas experimentais. A estratégia de busca incluiu descritores relacionados a doenças cardiovasculares ("cardiovascular disease", "heart failure", "hypertension", "atherosclerosis") combinados com termos associados à sarcopenia ("sarcopenia", "muscle loss", "muscle strength",

“frailty”), utilizando operadores booleanos (AND/OR). A disfunção cardiovascular contribui para a sarcopenia através de múltiplos mecanismos interligados. A insuficiência cardíaca crônica está associada à redução do débito cardíaco e ao comprometimento da perfusão periférica, levando à diminuição da oferta de oxigênio e nutrientes ao músculo esquelético, promovendo assim a atrofia muscular e a redução da capacidade funcional. A disfunção endotelial compromete ainda mais a microcirculação, prejudicando o metabolismo e a regeneração muscular. Além disso, a inflamação sistêmica desempenha um papel central, com níveis elevados de citocinas pró-inflamatórias, como $\text{TNF-}\alpha$ e IL-6, contribuindo para a degradação proteica, disfunção mitocondrial e prejuízo na síntese muscular. O estresse oxidativo exacerba esses efeitos ao promover danos celulares e reduzir a eficiência mitocondrial. Alterações metabólicas frequentemente observadas em doenças cardiovasculares, incluindo resistência à insulina e dislipidemia, aceleram ainda mais a perda muscular e o declínio funcional. Não obstante, a redução da atividade física devido a limitações cardiovasculares contribui para o desuso muscular e exacerba a sarcopenia. Estudos epidemiológicos demonstram consistentemente que indivíduos com doenças cardiovasculares apresentam uma maior prevalência de sarcopenia, a qual, por sua vez, está associada a piores desfechos clínicos, aumento das hospitalizações e maior mortalidade. Notadamente, alterações cardiovasculares e metabólicas precoces podem preceder a sarcopenia clinicamente evidente, destacando uma potencial janela para estratégias preventivas. As alterações cardiovasculares estão estreitamente associadas ao desenvolvimento e progressão da sarcopenia por meio de mecanismos que envolvem perfusão prejudicada, inflamação, estresse oxidativo e disfunção metabólica. Esses achados apoiam a integração de abordagens cardiovasculares e musculoesqueléticas na prevenção e no manejo da sarcopenia. O enfoque nos fatores de risco cardiovasculares pode representar uma estratégia fundamental para preservar a saúde muscular e melhorar os desfechos clínicos em populações idosas.

Palavras-chave: Doenças Cardiovasculares; Sarcopenia; Perda Muscular; Inflamação; Disfunção Endotelial.

CARDIOVASCULAR IMPLICATIONS OF CHRONIC INFLAMMATION IN RHEUMATOID ARTHRITIS

GUSTAVO SILVEIRA PIRES / Vinicius Willian Calderon da Silva¹; Filipe Gabriel Januario²; Amauri Pereira de Oliveira¹

RESUMO

Introduction: Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease characterized by persistent synovial inflammation and progressive joint destruction. Beyond musculoskeletal impairment, RA is strongly associated with increased cardiovascular risk, with epidemiological data indicating a 50-70% higher incidence of cardiovascular disease compared to the general population. Chronic systemic inflammation plays a central role in this process, promoting endothelial dysfunction, arterial stiffness, accelerated atherosclerosis, and myocardial remodeling. **Objective:** The objective of this review is to synthesize current evidence on the relationship between RA, systemic inflammation, and cardiovascular risk. **Materials and methodology:** A narrative review was conducted using PubMed. Articles published between 2023 and 2026 in English were included and descriptively analyzed, focusing on inflammatory, vascular, and metabolic mechanisms underlying increased cardiovascular risk in RA. **Discussion:** Rheumatoid arthritis (RA) is consistently associated with increased cardiovascular morbidity and mortality,

contributing to a reduction in life expectancy of 5-18 years, primarily due to cardiovascular diseases (CVD). Patients with RA present a markedly elevated risk of cardiovascular events, including myocardial infarction (MI), stroke, and heart failure (HF), with incidence rates up to 48% higher than in the general population and events occurring approximately a decade earlier, reinforcing RA as an independent cardiovascular risk factor. This excess risk is largely driven by persistent systemic inflammation, which plays a central role in vascular dysfunction and atherosclerosis progression. Pro-inflammatory cytokines such as IL-1, IL-6, IL-8, IL-17, and TNF- α contribute to endothelial dysfunction, increased arterial stiffness, and lipid metabolism alterations, while elevated C-reactive protein (CRP) levels reflect the underlying inflammatory burden. Additionally, the interaction between systemic inflammation and traditional cardiovascular risk factors further amplifies atherogenesis and its complications. Although comorbidities such as hypertension, smoking, dyslipidemia, obesity, and diabetes are more prevalent in RA patients and contribute to cardiovascular risk, they do not fully explain its magnitude and are frequently underdiagnosed and suboptimally managed. In this context, controlling inflammatory activity appears to be essential for reducing cardiovascular risk. However, evidence suggests that this alone may be insufficient, highlighting the importance of also addressing comorbidities and modifiable risk factors. Conclusion: Chronic systemic inflammation in rheumatoid arthritis is a key determinant of increased cardiovascular risk, contributing to earlier and more severe outcomes. Understanding this relationship supports better disease control and more effective risk reduction. Although inflammation control is essential, reducing cardiovascular morbidity and mortality in RA requires a multidisciplinary approach, including early detection, prevention, and management of cardiovascular conditions, as well as control of modifiable risk factors and lifestyle interventions.

Palavras-chave: Rheumatoid Arthritis; Systemic Inflammation; Cardiovascular Risk; Endothelial Dysfunction; Atherosclerosis.

CHILDHOOD MEDICALIZATION AND ADHD: OVERDIAGNOSIS, PRESCRIBING TRENDS, AND ETHICAL IMPLICATIONS - A LITERATURE REVIEW

Rafael Adolfo Ruiz Donega / Giovanna de Oliveira Borelli; Gabriel Raab da Silva Gonçalves; Carlos Henrique Marzola Bissoli Junior; Igor Augusto Donega; Enzo Gonsales Rodrigues

RESUMO

This literature review examines the medicalization of childhood through attention-deficit/hyperactivity disorder (ADHD), focusing on overdiagnosis, psychostimulant prescribing trends, and ethical-clinical implications. Based on four selected MEDLINE/PubMed studies published between 2020 and 2025, the work discusses how broader diagnostic criteria, greater social recognition of ADHD, educational pressures, performance-related expectations, and pharmaceutical expansion may contribute both to the identification of previously neglected cases and to the risk of diagnosis and treatment in mild or subclinical presentations. The review emphasizes the need for rigorous diagnostic assessment centered not only on symptom presence, but also on persistence, contextual expression, functional impairment, and benefit-risk evaluation, aiming to reduce excessive medicalization while preserving access to treatment for children with substantial impairment.

Palavras-chave: Attention Deficit Disorder With Hyperactivity; Overdiagnosis; Medicalization; Psychostimulants; Child Psychiatry.

CHRONIC LOW-GRADE INFLAMMATION, METABOLIC AND PERIODONTAL DISEASES: SYSTEMIC AND ORAL INTERACTIONS

Marina Gonçalves Lima da Silva / Manuela Maceno Villares Delphino¹; Ana Júlia Rossigalli Bolfi²; Letícia Zanoni Moreira²; Jéssica Gimenes de Araújo Lopes³

RESUMO

Introduction: Chronic low-grade inflammation is a persistent systemic process characterized by the continuous production of inflammatory mediators, being one of the main mechanisms involved in the pathophysiology of metabolic diseases such as obesity and type 2 diabetes mellitus (DM2). This inflammatory state compromises the homeostasis of oral tissues, favoring alterations in the oral microbiota, dysbiosis, and exacerbated immune responses, contributing to the development and progression of periodontal diseases. **Objectives:** To relate low-grade chronic inflammation and metabolic diseases to periodontal alterations, emphasizing their impacts on oral health. **Materials and Methods:** This is a narrative literature review based on studies published in the PubMed database. The search was conducted using the descriptors "low-grade chronic inflammation," "type II diabetes mellitus," "obesity," and "periodontitis." Original and review articles published in the last three years were included. **Results:** Recent evidence demonstrates that low-grade systemic inflammation promotes an increase in pro-inflammatory cytokines, such as interleukin6 and tumor necrosis factor alpha, in addition to intensifying oxidative stress and insulin resistance. Obesity stands out as a central factor in this process, since excess adipose tissue acts as an active endocrine organ, promoting meta-inflammation through the elevation of pro-inflammatory adipokines, such as leptin, resistin, TNF- α , and IL-6, associated with a reduction in adiponectin. This imbalance intensifies immunological alterations, favors oral dysbiosis, and increases susceptibility to periodontitis. In patients with type 2 diabetes mellitus (DM2), an increase in inflammatory proteins is observed in the gingival crevicular fluid and saliva, reflecting exacerbated immune responses and an altered oral microbiome, with proliferation of opportunistic and periodontopathogenic microorganisms. This scenario favors periodontal tissue destruction, reduces therapeutic response, and consolidates a bidirectional relationship between obesity, type 2 diabetes, and periodontal disease. Furthermore, periodontitis, as a chronic inflammatory condition, can contribute to systemic complications, including cardiovascular diseases such as atherosclerosis, acute myocardial infarction, and stroke. **Conclusion:** Chronic low-grade inflammation plays a central role in the interaction between metabolic and periodontal diseases, increasing systemic and oral risks. Understanding these mechanisms highlights the importance of integrated, multidisciplinary, and preventive therapeutic approaches, focusing on a systemic assessment of the patient.

Palavras-chave: Chronic Inflammation; Metabolic Diseases; Periodontal Disease.

CHRONIC PERIODONTITIS AND ALZHEIMER'S DISEASE: INTERACTIONS BETWEEN ORAL DYSBIOSIS, NEUROINFLAMMATION AND COGNITIVE DEGENERATION

Rafaella Fontana Zampieri / Laís Pires dos Santos; Giulia Coqueiro Rossi; Letícia Zanoni Moreira; Jessica Gimenes de Araújo Lopes; Eliana de Souza Bastos Mazuqueli Pereira

RESUMO

Introduction: Periodontitis, characterized as a multifactorial chronic inflammatory disease resulting from dental biofilm dysbiosis and an exacerbated host immunoinflammatory response, has been extensively investigated not only for its local impacts but also for its possible relationship with systemic diseases, including Alzheimer's disease (AD). Recent evidence suggests that periodontal pathogens and periodontal inflammatory mediators may contribute to neuroinflammatory and neurodegenerative processes. **Objective:** To analyze the relationship between chronic periodontal inflammation, mechanisms of oral dysbiosis, and their possible contribution to the progression of Alzheimer's disease. **Materials and Methods:** This study consists of a narrative literature review, conducted using publications indexed in the PubMed database over the last two years. The search terms used were "periodontitis" and "Alzheimer's," including original articles, systematic reviews, and meta-analyses. **Results:** Periodontitis develops from an imbalance in the oral biofilm, favoring the proliferation of pro-inflammatory microbial agents, mainly **Porphyromonas gingivalis**, capable of deregulating immunological mechanisms, perpetuating local inflammation, and releasing endotoxins such as lipopolysaccharides (LPS). LPS are components of the outer membrane of periodontopathogenic Gram-negative bacteria and are released into the systemic circulation, playing a central role in inducing inflammatory responses through the activation of Toll-like receptor 4 (TLR4). Recurrent exposure to LPS promotes systemic inflammation, microglial activation, and neuroinflammation. The identification of these biomolecules in brain regions of patients with Alzheimer's disease reinforces their possible participation in the formation of beta-amyloid plaques, tauopathies, and neurodegenerative progression, associating them with cognitive decline. Furthermore, genetic factors linked to inflammation, such as alterations in genes of pro-inflammatory cytokines, were identified in common in periodontitis and Alzheimer's disease, reinforcing the relationship between the two. **Conclusion:** Chronic periodontal inflammation has the potential to play a modifiable risk factor for Alzheimer's disease through mechanisms involving oral dysbiosis, systemic dissemination of inflammatory mediators, and possible brain invasion by periodontal pathogens. Thus, preventive and therapeutic strategies aimed at maintaining periodontal health can contribute not only to the preservation of oral health but also to the reduction of systemic inflammation and the risk of progression of neurodegenerative diseases, such as AD.

Palavras-chave: Periodontitis; Alzheimer's; Disease; Chronic Inflammation; Oral Dysbiosis.

CHRONIC PERIODONTITIS AND ALZHEIMER'S DISEASE: INTERACTIONS BETWEEN ORAL DYSBIOSIS, NEUROINFLAMMATION AND COGNITIVE DEGENERATION FACTORS - LITERATURE REVIEW

Rafaella Fontana Zampieri / Giulia Coqueiro Rossi; Laís Pires dos Santos; Letícia Zanoni Moreira; Jéssica Gimenes de Araújo Lopes; Eliana de Souza Bastos Mazuqueli Pereira

RESUMO

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between chronic periodontal inflammation, mechanisms of oral dysbiosis, and their possible contribution to the progression of Alzheimer's disease. **Materials and Methods:** This study consists of a narrative literature review, conducted using publications indexed in the PubMed database over the last two years. The search terms used were "periodontitis" and "Alzheimer's," including original articles, systematic reviews, and meta-analyses. **Results:** Periodontitis develops from an imbalance in the oral biofilm, favoring the proliferation of pro-inflammatory microbial agents, mainly **Porphyromonas gingivalis**, capable of deregulating immunological mechanisms, perpetuating local inflammation, and releasing endotoxins such as lipopolysaccharides (LPS). LPS are components of the outer membrane of periodontopathogenic Gram-negative bacteria and are released into the systemic circulation, playing a central role in inducing inflammatory responses through the activation of Toll-like receptor 4 (TLR4). Recurrent exposure to LPS promotes systemic inflammation, microglial activation, and neuroinflammation. The identification of these biomolecules in brain regions of patients with Alzheimer's disease reinforces their possible participation in the formation of beta-amyloid plaques, tauopathies, and neurodegenerative progression, associating them with cognitive decline. Furthermore, genetic factors linked to inflammation, such as alterations in genes of pro-inflammatory cytokines, were identified in common in periodontitis and Alzheimer's disease, reinforcing the relationship between the two. **Conclusion:** Chronic periodontal inflammation has the potential to play a modifiable risk factor for Alzheimer's disease through mechanisms involving oral dysbiosis, systemic dissemination of inflammatory mediators, and possible brain invasion by periodontal pathogens. Thus, preventive and therapeutic strategies aimed at maintaining periodontal health can contribute not only to the preservation of oral health but also to the reduction of systemic inflammation and the risk of progression of neurodegenerative diseases, such as AD.

Palavras-chave: Periodontitis; Alzheimer's Disease; Chronic Inflammation; Oral Dysbiosis.

CLASSIFICATION OF CLINICAL AND PRE-CLINICAL OBESITY IN OUTPATIENTS

Dauane Cristine Orso Toscan Rodrigues / Cláudia Rucco Penteado Detregiachi Faculty member in the Nutrition program and the Graduate Program in Structural and Functional Interactions in Rehabilitation (PPGIS) at the University of Marília; Marília; São Paulo; Brazil. Recipient of a Productivity; Technological Development; and Innovative Extension Fellowship - CNPq.; Adriano Cressoni Araujo Faculty member in the Biomedicine; Pharmacy; and Medicine programs and the Graduate Program in Structural and Functional Interactions in Rehabilitation (PPGIS) at the University of Marília; Marília; São Paulo; Brazil.

RESUMO

Obesity is a major public health problem, especially due to its association with increased cardiovascular risk (CVR). Although body mass index (BMI) is widely used for diagnosis, it has limitations in stratifying CVR. Consequently, a new classification of obesity has been proposed, based not only on BMI but also on clinical, metabolic, and functional parameters, allowing for a more comprehensive assessment of the disease's impact. Thus, the objective of this study was to assess CVR according to the classification of preclinical and clinical obesity in outpatients. This is an ongoing observational study that includes obese patients of both sexes, aged 30 to 65 years, who are treated at the specialty outpatient clinic of the University of Marília (UNIMAR). Participants are classified as having preclinical or clinical obesity according to criteria proposed by Rubino et al. (2025), based on clinical, laboratory, and functional data. CVD risk is estimated using the Global Risk and PREVENT scores. To date, a preliminary analysis of the first patients included has been

conducted, and the partial results are presented here. Six patients, with a mean age of 51.4 ± 11.5 years, were preliminarily evaluated. Of these, five were classified as clinically obese and only one as preclinically obese. LDL-cholesterol levels averaged 99.8 mg/dL, ranging from 54 to 135 mg/dL, while the mean fasting blood glucose was 100.6 mg/dL, with values ranging from 81 to 123 mg/dL. Due to the small number of patients classified as having preclinical obesity to date, it has not yet been possible to perform comparative analyses between the groups. However, difficulty was observed in identifying obese patients without associated metabolic, clinical, or functional abnormalities, which may reflect the high prevalence of cardiometabolic impairments in this outpatient population. Although the low frequency of individuals with preclinical obesity limits comparative analyses, it raises the hypothesis that obese outpatients often already exhibit associated metabolic and clinical consequences. The study is ongoing to expand the sample and better evaluate the relationship between the new classification of obesity and cardiovascular risk.

Palavras-chave: Obesity; Obesity Paradox; Cardiovascular Risk.

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consequences. The study is ongoing to expand the sample and better evaluate the relationship between the new classification of obesity and cardiovascular risk.

Palavras-chave: Heart Disease Risk Factors; Obesity; Obesity Paradox.

CLIMATE CHANGE AND CANCER: LINKING ENVIRONMENTAL EXPOSURE TO RISK

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RESUMO

Introduction: Cancer incidence is increasing worldwide and is expected to rise substantially in the coming decades, representing a major public health challenge and placing significant pressure on healthcare systems, particularly in low- and middle-income countries. This growing burden is driven not only by population aging and lifestyle factors but also by environmental changes. In this context, climate change has emerged as a critical and pervasive determinant of human health, with accumulating evidence suggesting its role in modulating cancer risk at the population level. **Objective:** To examine the relationship between climate change and cancer risk, highlighting environmental, biological, and systemic pathways that may contribute to the increasing global cancer burden. **Methods:** This is a narrative literature review, with searches conducted in PubMed, EMBASE, and Cochrane using descriptors related to climate change, carcinogenic potential, environmental exposure, and air pollution. Clinical studies, experimental studies, and relevant reviews addressing the interaction between those descriptors were included. **Discussion:** Climate-related environmental changes, including rising temperatures, extreme weather events, and ecosystem disruption, contribute to increased human exposure to carcinogenic factors. The intensification of wildfires and worsening air quality have been associated with higher concentrations of fine particulate matter (PM_{2.5}), a well-established risk factor for lung cancer. Additionally, increased ultraviolet radiation exposure, influenced by both environmental and behavioral factors, may increase the incidence of skin cancer. Climate conditions also favor the proliferation of foodborne toxins such as aflatoxins, which are strongly associated with hepatocellular carcinoma. Furthermore, changes in temperature and precipitation patterns may influence the distribution of oncogenic pathogens, including hepatitis viruses, thereby contributing to cancer development. Beyond these direct mechanisms, climate change can indirectly affect cancer outcomes by disrupting healthcare systems, limiting access to screening, delaying diagnosis, and impairing timely treatment. These disruptions may lead to more advanced disease at presentation and poorer prognoses. Importantly, the impact of climate change on cancer risk is not evenly distributed. Vulnerable populations, particularly those in resource-limited settings, are disproportionately affected due to increased exposure to environmental hazards and reduced access to healthcare services. This interaction between environmental and social determinants further amplifies existing health inequalities. **Conclusion:** Climate change represents an emerging and multifaceted contributor to the global cancer burden. Its influence extends beyond environmental exposure to include systemic and socioeconomic dimensions. Addressing this challenge requires integrated, multidisciplinary strategies that combine environmental sustainability, cancer prevention, and equitable public health policies to reduce both exposure and vulnerability.

Palavras-chave: Climate Change; Cancer Risk; Environmental Exposure; Air Pollution; Health Disparities.

COMPARISON OF BONE AND PERIOSTEAL EXTRACELLULAR MATRIX PROCESSING FOR THE DEVELOPMENT OF OSTEOREGENERATIVE BIOMATERIALS

Giovanna Pires Marzola / João Paulo Ruiz Lucio de Lima Parra (Laboratory of Regenerative Medicine; University of Marília; Gabrielly Pires Marzola (Laboratory of Regenerative Medicine; University of Marília and School of Medicine; University of Marília); Rodrigo Paolo Flores Abuna (Laboratory of Regenerative Medicine; University of Marília)

RESUMO

Introduction: Decellularized extracellular matrix (dECM) has been widely explored in tissue bioengineering because it preserves structural and bioactive components involved in cell adhesion, migration, proliferation, and differentiation. In bone regeneration, both bone tissue and periosteum are relevant ECM sources; however, their structural composition strongly influences processing requirements. Bone tissue is highly mineralized, rigid, and rich in type I collagen, requiring prior decalcification before downstream processing. In contrast, the periosteum is a specialized connective tissue associated with bone repair, composed of a fibrous layer and a cambial layer related to osteogenic progenitors, vascularization, and regenerative signaling. We hypothesized that periosteal ECM would be more efficiently processed than bone ECM and would present biological advantages for future osteoregenerative biomaterial development. **Objective:** This study aimed to compare bone and periosteal ECM processing by evaluating tissue preparation time, histological preservation, residual genomic DNA content, and the qualitative relative presence of major ECM proteins associated with bone repair and homeostasis. **Methodology:** Bone samples were first decalcified before decellularization using EDTA for approximately three months or nitric acid for approximately two months. After decalcification, bone fragments and periosteal fragments were subjected to a three-day physical-chemical and detergent-based decellularization protocol. Processing efficiency was evaluated by hematoxylin and eosin staining, focusing on nuclear removal and matrix preservation. Residual genomic DNA was quantified and compared between decellularized bone and periosteal matrices using Student's t-test. When applicable, one-way ANOVA followed by Tukey's post hoc test was also performed. Statistical significance was set at $p < 0.05$. In parallel, a literature-based qualitative review was conducted in PubMed using the descriptors "periosteum extracellular matrix," "bone extracellular matrix," "extracellular matrix proteins," and "bone regeneration"; original articles, systematic reviews, and meta-analyses published between 1993 and 2025 were included. **Results/Discussion:** Bone tissue required prolonged decalcification before decellularization, reflecting its mineralized composition and structural rigidity. In contrast, periosteal tissue did not require decalcification and was directly processed through the three-day decellularization protocol. Hematoxylin and eosin analysis showed marked cellular reduction in both tissues after decellularization. However, periosteum showed more efficient processing, preserved connective matrix organization, and lower residual genomic DNA content compared with decellularized bone tissue. The literature-based analysis indicated that both tissues share important ECM components, including type I collagen, fibronectin, biglycan, decorin, BMPs, and TGF- β . However, periosteal ECM is relatively enriched in periostin, tenascin-C, type III collagen, and type VI collagen, supporting roles in stem-cell niche

regulation, mechanosensing, immune modulation, and rapid repair. Bone ECM is characterized by high mineralization, abundant type I collagen, SIBLING proteins such as BSP, osteopontin, DMP1, DSPP, and MEPE, as well as osteonectin/SPARC and osteocalcin, supporting mineral homeostasis, remodeling, and load-bearing function. Conclusion: The periosteum demonstrated methodological and biological advantages over bone tissue, including the ability to bypass prolonged decalcification, efficient genomic DNA removal, and preservation of a connective matrix associated with regenerative signaling. These findings support periosteum-derived dECM as a promising source for future injectable or moldable osteoregenerative biomaterials.

Palavras-chave: Decellularized Extracellular Matrix; Periosteum; Bone Tissue; Genomic DNA; Biomaterial.

COMPLICAÇÕES MICROVASCULARES DO DIABETES: UMA REVISÃO DE LITERATURA

Adryel Tavares Brilhante / Denis dos Santos Oliva; Emanuela Rodrigues Lopes; Maria Eduarda Pereira Ferreira; Camila Petersen de Carvalho

RESUMO

O Diabetes Mellitus é uma condição de alta prevalência mundial, associada a importantes complicações crônicas que impactam significativamente a qualidade de vida dos pacientes. Dentre essas, destacam-se as complicações microvasculares, como a retinopatia, a nefropatia e a neuropatia diabéticas, diretamente relacionadas à hiperglicemia crônica e a alterações na microcirculação. Estudos recentes indicam que, além do controle glicêmico, fatores como doenças cardiovasculares e intervenções terapêuticas também influenciam o desenvolvimento dessas complicações. Nesse contexto, compreender seus mecanismos, fatores de risco e estratégias de manejo torna-se essencial. O objetivo é analisar as evidências atuais sobre as complicações microvasculares do diabetes, contribuindo para o aprimoramento da prática clínica. Realizou-se uma revisão sistemática na base de dados PubMed, utilizando os descritores “Diabetes Mellitus” AND “Diabetic Angiopathies”. Foram aplicados os seguintes filtros: estudos publicados nos últimos cinco anos, revisões sistemáticas e meta-análises, texto completo disponível, estudos em humanos e idioma inglês. Como critérios de inclusão, selecionaram-se artigos relacionados ao tema proposto, sendo excluídos aqueles que não atendiam aos objetivos da pesquisa. Ao final, nove estudos compuseram a análise. Os estudos evidenciaram que retinopatia, nefropatia e neuropatia são as complicações microvasculares mais prevalentes no diabetes. Observou-se associação significativa com descontrole glicêmico, tempo de doença e presença de comorbidades, como hipertensão arterial e dislipidemia. Intervenções terapêuticas e controle multifatorial demonstraram impacto na redução da progressão dessas complicações, com variações conforme fatores populacionais e socioeconômicos. A evolução silenciosa dessas condições reforça a importância do rastreamento precoce e do acompanhamento contínuo. As complicações microvasculares do diabetes estão associadas a múltiplos fatores de risco, incluindo controle metabólico inadequado e presença de comorbidades, além de apresentarem maior prevalência em populações com menor nível socioeconômico e escolaridade. As manifestações mais comuns incluem retinopatia, nefropatia e neuropatia. Reforçando a importância da identificação precoce dos fatores de risco para sua prevenção. Nesse sentido, estratégias de rastreamento, aliadas ao monitoramento contínuo dos fatores metabólicos, desempenham papel fundamental na redução dessas complicações.

Palavras-chave: Diabetes Mellitus; Neuropatias Diabéticas; Retinopatia Diabética; Nefropatia Diabéticas.

CUIDADO PALIATIVO E LUTO ANTECIPATÓRIO NO PACIENTE ONCOLÓGICO: UMA REVISÃO INTEGRATIVA DA LITERATURA

Sarah Vitória Capel Seixas / Daniel Yu Takamori

RESUMO

Introdução: À luz da psicanálise, o luto antecipatório corresponde ao complexo processo de elaboração psíquica de uma perda antes que esta ocorra de forma concreta. No contexto oncológico, esse fenômeno manifesta-se a partir do diagnóstico de uma doença ameaçadora à vida, possuindo uma função adaptativa crucial. Tal processo permite a reorganização subjetiva e a atenuação do impacto emocional diante da finitude iminente, embora, por sua natureza, possa gerar sofrimento psíquico intenso e ambivalência. A compreensão desse luto é fundamental para a prática dos cuidados paliativos, que visam a integralidade da assistência. **Objetivo:** O presente estudo tem como objetivo analisar a relação entre a dimensão emocional do luto antecipatório e a assistência oferecida pelos cuidados paliativos ao paciente oncológico, sob a perspectiva da escuta analítica. **Material e Métodos:** Trata-se de uma Revisão Integrativa da Literatura, fundamentada em uma abordagem qualitativa e exploratória. A construção do estudo guiou-se pela pergunta norteadora: "Qual a relação do luto antecipatório com os cuidados paliativos na assistência oncológica?". A pesquisa foi estruturada em seis etapas rigorosas: elaboração da questão de pesquisa; busca e seleção de estudos com indicadores críticos; classificação e extração de dados; análise crítica dos achados; interpretação dos resultados e, por fim, a exposição da síntese do conhecimento. As buscas foram realizadas nas bases de dados Lilacs, Index-Psicologia e SciELO, utilizando descritores controlados em saúde. **Resultados Esperados:** Após a leitura e análise descritiva dos artigos selecionados, será possível identificar estratégias de manejo na atuação interdisciplinar e o papel fundamental da Psico-Oncologia no acompanhamento do paciente, do diagnóstico ao prognóstico reservado. Espera-se que os dados contribuam para a compreensão da resignificação da doença oncológica e o suporte à condição emocional no processo de finitude. **Hipótese:** Com este estudo, pretende-se ampliar o conhecimento científico e fomentar uma nova forma de olhar o paciente oncológico em cuidados paliativos. A hipótese central é que o suporte especializado auxilia no processamento do luto antecipatório, transformando a dor da perda futura em um espaço de elaboração e dignidade.

Palavras-chave: Luto Antecipatório; Paciente Oncológico; Psicanálise; Psico Oncologia.

CURCUMIN AND RESVERATROL IN COGNITIVE DECLINE: MOLECULAR MECHANISMS AND NEUROPROTECTIVE EFFECTS

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RESUMO

Introduction: Cognitive decline and neurodegenerative disorders are increasing worldwide, driven by population aging and the growing prevalence of metabolic and vascular risk factors. Accumulating evidence indicates that oxidative stress, chronic low-grade inflammation, mitochondrial dysfunction, and impaired neuroplasticity are central mechanisms underlying cognitive impairment. In this context, dietary strategies and bioactive compounds have emerged as promising, non-pharmacological approaches to support brain health. Among these, curcumin and resveratrol have attracted attention for their pleiotropic biological effects and potential neuroprotective properties. **Objective:** To examine the role of curcumin and resveratrol in the prevention and attenuation of cognitive decline, focusing on their molecular and functional mechanisms. **Methods:** This narrative review was based on literature searches conducted in PubMed, Scopus, and Web of Science using descriptors such as “curcumin,” “resveratrol,” “cognitive decline,” and “neuroinflammation,” combined with Boolean operators. Experimental, clinical, and review studies published in English were selected based on relevance to molecular mechanisms and neuroprotective effects. Data were qualitatively synthesized to provide an integrated overview of current evidence. **Discussion:** Curcumin, a polyphenol derived from *Curcuma longa*, exhibits potent antioxidant and anti-inflammatory effects, modulating key signaling pathways such as NF- κ B and reducing the production of pro-inflammatory cytokines, including TNF- α , IL-6, and IL-1 β . It has also been associated with decreased amyloid-beta aggregation and improved synaptic plasticity. Resveratrol, a polyphenolic compound found in grapes and berries, activates sirtuin-1 (SIRT1) and AMP-activated protein kinase (AMPK), promoting mitochondrial biogenesis, enhancing cellular energy metabolism, and reducing oxidative stress. Both compounds contribute to improved endothelial function and cerebral blood flow, which are critical for maintaining cognitive performance. In experimental and clinical studies, supplementation with curcumin and resveratrol has been associated with improvements in memory, executive function, and overall cognitive performance, though results vary by dosage, bioavailability, and study design. Importantly, these bioactive compounds may also interact with the gut-brain axis, modulating microbiota composition and reducing neuroinflammation. **Conclusion:** Curcumin and resveratrol represent promising nutritional strategies for the prevention and management of cognitive decline through their combined anti-inflammatory, antioxidant, and mitochondrial-modulating effects. However, further well-designed randomized controlled trials are needed to confirm their efficacy, optimize dosing strategies, and clarify their long-term clinical impact. Integrating bioactive compounds into preventive approaches may contribute to reducing the growing burden of neurodegenerative diseases.

Palavras-chave: Curcumin Resveratrol Cognitive Decline Neuroinflammation Oxidative Stress.

DEPTH OF CHRONIC PSYCHOLOGICAL SUFFERING: EXPERIENCES AND REFLECTIONS IN THE PSYCHOLOGY TEACHING CLINIC.

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RESUMO

The present study consists of an experience report developed from the experiences of a Clinical Psychology supervision group at a psychology teaching clinic, aimed at monitoring individuals with chronic mental disorders and intense psychological distress. The experience enabled

reflections on the multiple dimensions of mental suffering as a chronic condition, understood not only as a symptomatic manifestation, but also as a subjective expression permeated by social, affective, and existential factors, linked to the history of the mental illness-health binomial. In this context, the teaching clinic constituted itself as a formative space and a place for the construction of active, ethical, and humanized listening, focused on treatment adherence, social skills training, and emotional and social support. The objective of this study was to reflect on the depth of the psychological suffering experienced by individuals with chronic mental disorders, based on experiences experienced during Clinical Psychology supervision, discussing the challenges of mental health care and the importance of active listening in Psychology training. This is a qualitative, descriptive study of the experience report type. The analyzed material originated from discussions carried out within a Clinical Psychology supervision group at a teaching clinic, emerging from consultations conducted by fifth-year Psychology interns. The reflections were constructed based on clinical observation, interns' reports, and the theoretical-practical contributions of the cognitive-behavioral approach discussed weekly during supervision meetings, from February to May 2026. Partial results demonstrated that chronic psychological suffering is frequently associated with feelings of stress, overload, anxiety, loneliness, exclusion, and social stigma, as well as difficulties in building relationships, linked to long trajectories marked by continuous medicalization and psychological treatment. Furthermore, vulnerabilities were identified in specific areas of life, such as professional and academic contexts, activities of daily living, and peer relationships (support networks). From the perspective of Cognitive-Behavioral Therapy, such experiences may contribute to the strengthening of negative beliefs of worthlessness, incapacity, and rejection, directly influencing the ways individuals interpret themselves, others, and the world. These cognitive patterns, frequently associated with avoidance behaviors, isolation, and hopelessness, tend to reinforce psychological suffering and hinder processes of autonomy and social reintegration. Simultaneously, clinical supervision proved to be a fundamental space for elaborating students' anxieties, expanding clinical listening, and developing more humanized and critical practices in mental health care. It is concluded that the experience within the teaching clinic, both in the context of supervision and clinical consultations, enabled an expanded understanding of the depth of chronic psychological suffering beyond diagnosis, reinforcing the need for dialectical clinical practices and perspectives committed to the singularity, dignity, and subjectivity of individuals experiencing chronic mental suffering.

Palavras-chave: Psychological Distress; Chronic Disease; Psychology Clinical; Supervised Professional Training; Teaching Clinic.

DIABETES AND IMPAIRED BONE HEALING: MECHANISMS LINKING HYPERGLYCAEMIA, OXIDATIVE STRESS AND SKELETAL REGENERATION

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RESUMO

Introduction: Diabetes Mellitus (DM) is a chronic metabolic disorder characterized by insulin dysregulation and hyperglycemia, associated with increased fracture risk and impaired bone quality. Both T1DM and T2DM contribute to skeletal fragility. Hyperglycemia disrupts bone

healing by altering the bone microenvironment, including immune imbalance, macrophage polarization, microvascular damage, advanced glycation end products (AGEs), and reactive oxygen species (ROS), leading to defective repair and increased risk of non-union fractures. Objective: The aim of this study is to investigate how Diabetes Mellitus (DM) affects bone regeneration by impairing the bone microenvironment and disrupting healing processes. Methods: A narrative review was conducted using PubMed. The terms “diabetes mellitus”, “bone healing”, “bone repair”, “chronic inflammation”, and “bone” were used. Articles published between 2023 and 2026 in English were included and descriptively analyzed, focusing on metabolic, inflammatory, and oxidative mechanisms that affect bone regeneration. Discussion: Diabetes negatively affects bone quality by altering mineral density and porosity, increasing fragility, and reducing mechanical properties. Impaired bone healing is driven by hyperglycemia, chronic inflammation, oxidative stress, AGEs, polyol pathway, protein kinase C (PKC) activity, and hexosamine biosynthesis pathways, disrupting repair and angiogenesis. Chronic inflammation increases IL-1 β and TNF- α , inhibiting osteoblast activity and promoting osteoclast formation, while prolonged M1 macrophage presence impairs tissue repair. Central to this process, excessive reactive oxygen species (ROS) and oxidative stress (OS) affect osteoblasts (OBs), osteoclasts (OCs), osteocytes, and bone-marrow mesenchymal stem cells (BMSCs), with ROS/AGE-RAGE signaling promoting adipogenesis and senescence. OS inhibits Wnt/ β -catenin and activates RANKL/RANK/OPG, NF- κ B, and MAPK pathways, favoring bone resorption, while AGEs impair bone matrix quality. These mechanisms disrupt the balance between bone formation and resorption, directly compromising bone healing and regeneration in diabetes. Conclusion: Diabetes impairs bone healing through interconnected effects of hyperglycemia, oxidative stress (ROS), and inflammation, which disrupt bone remodeling and skeletal regeneration. These mechanisms compromise the bone microenvironment and contribute to defective bone repair, highlighting their relevance for future therapeutic strategies.

Palavras-chave: Chronic Inflammation; Bone Healing; Diabetes Mellitus; Bone; Bone Repair.

DIABETES MELLITUS AND CARDIOVASCULAR RISK: A LITERATURE REVIEW

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RESUMO

Diabetes mellitus, especially type 2, is one of the most relevant chronic diseases today due to its high prevalence and significant impact on morbidity and mortality. Diabetic individuals have a higher risk of developing cardiovascular diseases, such as coronary artery disease, heart failure, and diabetic cardiomyopathy, as well as a higher incidence of premature death. This association stems from interrelated pathophysiological alterations, including insulin resistance, chronic hyperglycemia, low-grade inflammation, oxidative stress, and endothelial dysfunction, which contribute to the progression of atherosclerosis and structural and functional changes in the myocardium. The objective is to analyze the current evidence on the relationship between diabetes mellitus and the increased risk of cardiovascular diseases, contributing to the improvement of early diagnosis and metabolic control. A systematic review was conducted in the PubMed database using the descriptors "Type 2 Diabetes Mellitus" AND "Cardiovascular Risk" AND "Cardiovascular Risk Factors" AND "Risk Assessment". The following filters were applied: studies published in

the last five years, systematic reviews and meta-analyses, full text available, studies in humans, and English language. Inclusion criteria selected articles related to the proposed theme, excluding those that did not meet the research objectives. In the end, 13 studies comprised the analysis. The association between Diabetes Mellitus and increased cardiovascular risk can be explained by multiple mechanisms acting simultaneously. Chronic hyperglycemia promotes endothelial injury, increased oxidative stress, and persistent inflammatory activation, contributing to the development and progression of atherosclerosis. Additionally, metabolic alterations inherent to diabetes can directly compromise the myocardium, favoring cardiac remodeling, contractile dysfunction, and a greater predisposition to heart failure, even in the absence of evident coronary artery disease. Thus, the findings reinforce that the cardiovascular impact of diabetes does not depend exclusively on glycemic levels, but also on the interaction with other risk factors, highlighting the need for a comprehensive and continuous clinical approach. Diabetes Mellitus represents a significant risk factor for the development of cardiovascular diseases, being responsible for a substantial increase in morbidity and mortality. Therefore, it is crucial to adopt strategies that involve early diagnosis, rigorous metabolic control, and integrated management of risk factors in order to prevent cardiovascular complications and optimize patient prognosis.

Palavras-chave: Type 2 Diabetes Mellitus; Cardiovascular Risk; Cardiovascular Risk Factors.

DIABETES MELLITUS TIPO 2 SOB A PERSPECTIVA BIOPSISSOCIAL: INTEGRAÇÃO ENTRE MECANISMOS METABÓLICOS, COMPORTAMENTAIS E PSICOSSOCIAIS

Sara Priscila Da Silva Castilho / Ana elisa Landgraf Sormani; Gabriella Dionisio Zampieri

RESUMO

TYPE 2 DIABETES MELLITUS FROM A BIOPSYCHOSOCIAL PERSPECTIVE: INTEGRATION BETWEEN METABOLIC, BEHAVIORAL, AND PSYCHOSOCIAL MECHANISMS Sara Priscila da Silva Castilho¹; Ana Elisa Landgraf Sormani¹; Gabriella Dionisio Zampieri¹; João Paulo Galleti Pilon². University of Marília, Marília - São Paulo Medical Professor at the University of Marília, Marília - São Paulo **ABSTRACT** In the context of type 2 diabetes mellitus (DM2), a biopsychosocial approach is fundamental, since factors such as lifestyle, emotional state, and social support significantly influence both the prognosis and pathophysiology of the disease. However, care strategies still predominantly focus on the biological dimension, neglecting psychosocial aspects that can negatively impact clinical outcomes. This fragmented view limits the effectiveness of interventions and compromises treatment. Therefore, it is necessary to analyze this scenario and propose interventions that promote a more comprehensive care model, focusing on improving the quality of life of individuals. The objective is to analyze biopsychosocial factors and their impact on type 2 diabetes mellitus, systematizing recent scientific evidence and highlighting implications for prevention policies and comprehensive care. An integrative review was conducted in the PubMed, LILACS, and Oasis databases, using the descriptors "Diabetes Mellitus, Type 2", "Biopsychosocial", and "Health Behavior". Articles published between 2016 and 2026 were included. The selection followed previously defined eligibility criteria, resulting in 11 studies, whose data were analyzed narratively. A progressive increase in scientific production focused on the quality of life of patients with type 2 diabetes mellitus (DM2) and its relationship with the prognosis of the disease is observed. An observational study conducted with 228 patients

demonstrated that approximately 67% of the participants presented depressive symptoms. The analysis of related studies suggests that these findings reflect a consistent association, since living with DM2 is frequently related to emotional suffering and diabetes distress. Evidence indicates that patients who develop depression have poorer glycemic control, with an average increase of 0.92 in glycated hemoglobin (HbA1c) (95% CI: 0.00-1.84), in addition to greater glycemic variability over time. Additionally, the practice of physical activities, especially in outdoor environments, demonstrates positive impacts on emotional well-being. A 24-week intervention demonstrated a greater reduction in stress in the group that performed outdoor activities (3.7 vs. 2.8; $p = 0.007$). In addition, significant improvements were observed in HbA1c and indicators of psychological stress. On the other hand, socioeconomic factors, such as income and social class, constitute significant barriers to the adequate management of the disease. Studies conducted in Brazil indicate a higher prevalence of type 2 diabetes mellitus (DM2) in low-income elderly individuals with limited access to health services, highlighting social inequality as an important determinant of quality of life and access to treatment. The management of type 2 diabetes mellitus requires an approach that transcends metabolic control, integrating psychological and social dimensions. Evidence shows that factors such as mental health, physical activity, and socioeconomic conditions directly influence the prognosis of the disease. Therefore, public policies and clinical practices should prioritize comprehensive and interdisciplinary care, promoting quality of life and adherence to treatment. Keywords: Type 2 Diabetes Mellitus; Biopsychosocial Aspects; Metabolism; Psychological Adaptation.

RESUMO No contexto do diabetes mellitus tipo 2(DM2), a abordagem biopsicossocial mostra-se fundamental, uma vez que fatores como o estilo de vida, o estado emocional e o suporte social exercem influência significativa tanto no prognóstico quanto na fisiopatologia da doença. Entretanto, as estratégias de cuidado ainda se concentram predominantemente na dimensão biológica. Negligenciando aspectos psicossociais que podem impactar negativamente os desfechos clínicos. Essa visão fragmentada limita a eficácia das intervenções e compromete o tratamento. Diante disso, torna-se necessário analisar esse cenário e propor intervenções que promovam um modelo de cuidado mais integral, com foco na melhoria da qualidade de vida dos indivíduos. O objetivo é analisar fatores biopsicossociais e sua repercussão sobre o Diabetes Mellitus tipo 2, sistematizando evidências científicas recentes e destacando implicações para políticas de prevenção e cuidado integral. Realizou-se uma revisão integrativa, nas bases de dados PubMed, LILACS e Oasis, utilizando os descritores "Diabetes Mellitus, Type 2", " Biopsychosocial " e "Health Behavior ". Foram incluídos artigos publicados entre 2016 e 2026. A seleção seguiu critérios de elegibilidade previamente definidos, resultando em 11 estudos, cujos dados foram analisados de forma narrativa. Observa-se um aumento progressivo na produção científica voltada à qualidade de vida de pacientes com DM2 e sua relação com o prognóstico da doença. Um estudo observacional realizado com 228 pacientes demonstrou que aproximadamente 67% dos participantes apresentavam sintomas depressivos. A análise de estudos correlatos sugere que esses achados refletem uma associação consistente, visto que o convívio com o DM2 está frequentemente relacionado a sofrimento emocional e diabetes distress. Evidências indicam que pacientes que desenvolvem depressão apresentam pior controle glicêmico, com aumento médio de 0,92 na hemoglobina glicada (HbA1c) (IC 95%: 0,00-1,84), além de maior variabilidade glicêmica ao longo do tempo. Adicionalmente, a prática de atividades físicas, especialmente em ambientes ao ar livre, demonstra impactos positivos no bem-estar emocional. Uma intervenção de 24 semanas demonstrou maior redução do estresse no grupo que realizou atividades ao ar livre (3,7 vs. 2,8; $p = 0,007$). Além de melhoras significativas na HbA1c e nos indicadores de tensão psicológica. Por outro lado, fatores socioeconômicos, como renda e classe social configuram barreiras relevantes ao manejo adequado da doença. Estudos realizados no Brasil, apontam maior prevalência de DM2

em idosos de baixa renda e com acesso limitado aos serviços de saúde, evidenciando a desigualdade social como um determinante importante na qualidade de vida e no acesso ao tratamento. O manejo do diabetes mellitus tipo 2 requer uma abordagem que transcenda o controle metabólico, integrando dimensões psicológicas e sociais. Evidências demonstram que fatores como saúde mental, prática de atividade física e condições socioeconômicas influenciam diretamente o prognóstico da doença. Dessa forma, políticas públicas e práticas clínicas devem priorizar o cuidado integral e interdisciplinar, promovendo qualidade de vida e adesão ao tratamento. Palavras-chave: Diabetes Mellitus Tipo 2; Biopsicossocial; Metabolismo; Adaptação Psicológica.

Palavras-chave: Diabetes Mellitus Tipo 2 Biopsicossocial Metabolismo Adaptação Psicológica.

DISEASE IDENTITY AND PSYCHOLOGICAL DISTRESS IN CHRONIC ILLNESS: A NARRATIVE REVIEW ON BIOGRAPHICAL DISRUPTION AND THE RECONFIGURATION OF THE SELF

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RESUMO

Introduction: Historical illness constitutes an experience that transcends the limits of the biomedical dimension, configuring itself as a destabilizing biographical rupture of the subject's identity and demanding a reconfiguration of the self. Prolonged coexistence with symptoms, specific limitations, and continuous treatments imposes on the individual not only physical challenges but also intense psychological suffering, often marked by the presence of mental disorders such as depression and anxiety. In this scenario, understanding the impact of chronic diseases on identity and psychological suffering becomes fundamental for developing care strategies that integrate emotional, social, and cultural dimensions. Approaches such as Cognitive-Behavioral Therapy (CBT), Acceptance and Commitment Therapy (ACT), and disciplines within the Behavioral Sciences have proven relevant in assisting with the management of meaning and promoting quality of life, reinforcing the need for a holistic perspective that considers illness as a process of existential transformation. **Objective:** To understand the impact of chronic illness on the subject's identity and psychological suffering, as well as to analyze the process of biographical rupture and the strategies for reconfiguring the self in the face of the limitations and demands imposed by the illness. **Methods:** A narrative literature review was conducted in the PubMed, LILACS, and Oasis databases, using the keywords "Chronic Disease," "Self Concept," and "Adaptation, Psychological." Eligibility criteria included articles published between 2016 and 2026, resulting in the inclusion of 9 articles. **Results:** The findings show that chronic illness intensifies psychological suffering and requires a reconfiguration of identity. In patients with type II diabetes, 66.7% presented some degree of depression, with mild depression being the most frequent (32.9%). Among hypertensive patients, 71.9% reported depressive symptoms, while in the general adult population, 33.8% reported pain/discomfort and 20.5% anxiety/depression, with a greater impact on women and people with multiple chronic diseases. The analytical articulation shows that these elevated indicators of pain and mood disorders are not isolated, but rather direct manifestations of biographical rupture, in which bodily unpredictability destroys the linearity of the subject's life story, generating a crisis and loss of previous identity. Coping with this suffering

requires therapeutic strategies such as CBT and ACT, which promote psychological flexibility and behavioral interventions that favor adherence to treatment and mitigate the impact of fragmented self-orientation. It is also essential to consider social and cultural factors, such as family support, education, and economic conditions, which directly influence quality of life and act as external mediators in the process of existential reorganization. Conclusion: Chronic illness represents a biographical disruption that destabilizes identity and intensifies psychological suffering. This experience demands a constant reconfiguration of the self, marked by losses and emotional challenges, proving that care should not be restricted to the biomedical aspect, but should integrate the other dimensions of the individual. Therapeutic approaches and behavioral strategies offer support in the reconstruction of meaning and the promotion of quality of life. Thus, facing chronic diseases requires a holistic perspective that recognizes the impact of the disease on body, mind, and identity.

Palavras-chave: Chronic Disease; Biographical Disruption; Psychological Adaptation; Self Concept.

EFFICACY OF BARIATRIC SURGERY IN THE MANAGEMENT OF TYPE 2 DIABETES MELLITUS IN ADOLESCENTS: A LITERATURE REVIEW.

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RESUMO

This study reviews the effectiveness of bariatric surgery in adolescents with type 2 diabetes mellitus (T2DM), a condition increasingly associated with obesity and characterized by a more aggressive course and poorer response to conventional treatment in this age group. The objective was to evaluate the impact of surgical intervention on glycemic control and disease remission. A literature review was conducted using PubMed, selecting five studies focused on pediatric populations and metabolic outcomes after bariatric procedures. The findings demonstrated high remission rates of T2DM among adolescents who underwent bariatric surgery, particularly gastric bypass and sleeve gastrectomy. These interventions significantly improved glycemic control, as evidenced by reduced glycated hemoglobin levels and decreased dependence on antidiabetic medications. Additionally, bariatric surgery showed superior outcomes compared to isolated clinical treatments, with more pronounced metabolic benefits. The study concludes that bariatric surgery is an effective strategy for managing T2DM in adolescents, offering substantial potential for remission. However, surgical indications should be individualized, taking into account associated risks and the necessity for long-term follow-up.

Palavras-chave: Adolescents Bariatric Surgery Type 2 Diabetes Mellitus Remission Glycemic Control.

EFFICACY OF THE USE OF ESCETAMINE NASAL SPAY IN THE TREATMENT OF TREATMENT-RESISTANT DEPRESSION IN ADULTS: A SYSTEMATIC REVIEW

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RESUMO

Inadequate response or lack of response to antidepressants defines treatment-resistant depression (TRD). Evidence clearly shows that the use of esketamine is associated with a very significant reduction in the severity of depressive symptoms, with nasal administration being a key advantage. This study carefully evaluated the efficacy of intranasal esketamine in the treatment of TRD in adults. This is a systematic literature review based on the PRISMA protocol, with a search in PubMed. Randomized controlled trials published between 2010 and 2025, in English, Portuguese, or Spanish, were included. Of the 21 studies found, 11 met the eligibility criteria. Nasal esketamine proved much safer and more tolerable than quetiapine XR, with notably greater adherence and rapid remission of symptoms. The 56 mg spray resulted in especially significant symptomatic improvement in the TRD, with a highly effective maintenance dose to prevent relapses ($p = 0.003$). Combination with oral antidepressants was more effective than monotherapy, including in cases with associated anxiety. With an NNT (Number Needed to Treat) <10 , the study strongly suggested clear benefits for both acute treatment and maintenance. Regarding affective/anhedonic symptoms, anxiety/vegetative symptoms, and hopelessness on the MADRS scale, the combined treatment showed significant improvement. Adverse effects were reported; however, the clinical benefits and safety of the medication stand out. The use of esketamine nasal spray is effective in treating TRD in adults, consistently promoting patient adherence and reporting partial relief of depressive symptoms, as well as reducing the risk of relapse and increasing the chances of remission.

Palavras-chave: Esketamine; Psychopharmacology; Treatment-resistant Depressive Disorder.

EIXO INTESTINO-CÉREBRO: O PAPEL DA MICROBIOTA E DA NEUROINFLAMAÇÃO NA RESISTÊNCIA À INSULINA E NA DISFUNÇÃO COGNITIVA ASSOCIADAS À DOENÇA DE ALZHEIMER - UMA REVISÃO NARRATIVA

Suellen Tainá de Oliveira Dias / Isadora Marcela Mochi Amaro - Unimar; Larissa Dos Santos Aguiar - Unimar; Sara Priscila Da Silva Castilho - Unimar; Stella Tantini - Unimar; Karina Torres Pomini - Unimar

RESUMO

A comunicação intestino-cérebro ocorre via aferências vagais, sinalização endócrina e metabólitos microbianos que modulam as barreiras intestinal e hematoencefálica. Assim, a Diabetes Mellitus tipo 2 (DM2) está associada a déficit cognitivos, e ao aumento do risco de Doença de Alzheimer (DA), uma vez que a insulina no sistema nervoso central (SNC) é fundamental para a plasticidade sináptica, aprendizado e sobrevivência neuronal. A falha nessa sinalização, mediada pela disbiose e neuroinflamação, acelera processos neurodegenerativos. Sintetizar as evidências científicas

atuais sobre a influência da microbiota intestinal e da neuroinflamação na mediação da resistência à insulina (RI) e sua correlação com o desenvolvimento de distúrbios cognitivos associados à DA. Revisão narrativa de literatura realizada em abril de 2026 na base PubMed (período 2024-2026). Utilizou-se a estratégia PICO e descritores: “Insulin resistance”, “Microbiota” e “Cognitive dysfunction”. Foram incluídos ensaios clínicos e revisões que abordassem a fisiopatologia molecular e biomarcadores clínicos da RI central e periférica. Estudos analisados demonstraram uma relação entre a disbiose intestinal e a liberação de citocinas pró-inflamatórias, associadas a patologias neuroinflamatórias, como a doença de Alzheimer. Além disso, a microbiota intestinal relaciona-se com o sistema endócrino ao secretar hormônios intestinais, como o peptídeo semelhante ao glucagon-1 (GLP-1) e o peptídeo YY (PYY). Alterações na microbiota intestinal levam a uma desregulação desses hormônios, associando-se à resistência à insulina (RI) e à deterioração da função cognitiva. Evidências indicam que a RI central interrompe o metabolismo energético cerebral por meio da redução da via PI3K/Akt, associada ao aumento do estresse oxidativo. Clinicamente, observou-se que a Taxa Estimada de Eliminação de Glicose (eGDR) - um marcador de RI - apresenta uma relação não linear com o risco de comprometimento cognitivo; níveis de eGDR < 6,36 mg/kg/min estão associados a escores inferiores no Teste de Avaliação Cognitiva de Montreal (MoCA). Nesse contexto, a resistência à insulina desempenha papel central na relação entre o diabetes mellitus tipo 2 e a doença de Alzheimer. No sistema nervoso central, a sinalização da insulina é essencial para a função neuronal, sendo sua disfunção associada à redução de receptores de insulina e ao desenvolvimento da doença de Alzheimer. A desregulação da insulina no SNC contribui para o acúmulo de β -amiloide e a hiperfosforilação da proteína tau, demonstrando que DM2 e DA compartilham vias fisiopatológicas comuns, caracterizando a RI como um fator modificador ativo da doença neurodegenerativa. A disbiose intestinal e a RI sinergizam para promover um estado de neuroinflamação, impactando negativamente a função cognitiva. Em síntese, o diabetes mellitus tipo 2 e a doença de Alzheimer compartilham mecanismos fisiopatológicos. A utilização de biomarcadores como eGDR pode ser promissora na predição de risco cognitivo em idosos. A modulação da microbiota e intervenções metabólicas personalizadas surgem como estratégias terapêuticas para mitigar a progressão da neurodegeneração em indivíduos metabolicamente vulneráveis.

Palavras-chave: Resistência à Insulina; Microbiota; Disfunção Cognitiva.

FACTORS ASSOCIATED WITH THE DEVELOPMENT OF TYPE 2 DIABETES MELLITUS (T2DM) IN CHILDHOOD AND ADOLESCENCE: A NARRATIVE REVIEW FOCUSING ON PREVENTIVE PERSPECTIVES.

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RESUMO

Type 2 diabetes mellitus (T2DM) is a chronic metabolic disease of high public health relevance. Traditionally more prevalent in adults, its incidence is progressively increasing in children and adolescents, reflecting contemporary epidemiological and behavioral changes. This scenario amplifies concerns about the early onset of metabolic and cardiovascular complications, reinforcing the need to investigate the factors involved and preventive strategies directed at the

pediatric population. This study aims to analyze the main risk factors related to the manifestation of T2DM in childhood and adolescence, highlighting the preventive perspectives that can be adopted. To achieve this analysis, a narrative review was conducted in PubMed, covering the period 2016-2026, considering the World Health Organization's (WHO) Commission on Ending Childhood Obesity (2016) report as an important benchmark for global prevention of childhood T2DM. The following descriptors from the Medical Subject Headings (MeSH) in Health Sciences were used: "Type 2 Diabetes Mellitus", "Prevention", "Risk Factor", "Predictor", "Child", and "Adolescent", combined with Boolean operators AND, OR, and field restriction. Studies involving humans up to 18 years of age, available in English, were selected, and systematic reviews, narratives, and meta-analyses were prioritized. Redundant articles, those outside the specified period, and those without a direct correlation to pediatric type 2 diabetes mellitus and its prevention were excluded. The qualitative analysis, of an exploratory and descriptive nature, was based on a total of 13 articles. From the analysis of the selected studies, it was evident that the development of type 2 diabetes mellitus (DM2) in childhood and adolescence does not result from an isolated factor, but from a complex multifactorial condition, determined by the interaction between biological, genetic, behavioral, and socio-environmental factors. It has been observed that obesity, insulin resistance, and puberty are central elements in the early manifestation of the disease, frequently related to contemporary lifestyle habits such as excessive consumption of ultra-processed foods, inadequate dietary patterns, sedentary lifestyle, and physical inactivity, which favor early metabolic impairment. Furthermore, family predisposition, gestational diabetes, and unfavorable socioeconomic contexts exacerbate this scenario, reinforcing the complex interaction between biological vulnerability, heredity, lifestyle, and environmental determinants. Adolescence, especially in the 10-19 age range, stood out as a period of greatest vulnerability, suggesting a critical influence of pubertal changes associated with metabolic and behavioral factors. Given this panorama, the main preventive strategies identified focused on controlling childhood obesity, promoting healthy eating, encouraging regular physical activity, and the appropriate management of maternal diabetes during pregnancy. Based on the results obtained, pediatric type 2 diabetes is confirmed as a growing global problem that requires intersectoral preventive and interventional public policies aimed at promoting overall childhood health and, in particular, preventing childhood obesity and gestational diabetes, in order to reduce the severity of this comorbidity in the youth population.

Palavras-chave: Type 2 Diabetes Mellitus; Prevention; Child; Risk Factor; Predictor.

FALL PREVENTION IN OLDER ADULTS: IMPLEMENTATION OF A STRUCTURED PROTOCOL IN A HOSPITAL SETTING

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RESUMO

Background: Falls among older adults represent a major public health concern, particularly in hospital settings, where clinical fragility, polypharmacy, cognitive impairment, and unfamiliar environments significantly increase the risk of adverse events. These incidents are strongly associated with increased morbidity and mortality, prolonged hospital stays, and higher healthcare costs. **Objective:** To evaluate the effectiveness of implementing a structured fall prevention protocol in hospitalized older adults. **Methods:** This is a quasi-experimental before-and-after study

conducted at the Beneficent Hospital of UNIMAR (HBU), including patients aged ≥ 60 years. The intervention consists of a multifactorial fall prevention protocol, including systematic risk assessment using the Morse Fall Scale, individualized care planning, environmental modifications, continuous education for healthcare professionals, patients and caregivers, and ongoing monitoring. Fall rates will be compared between pre-intervention (6 months) and post-intervention (12 months) periods. Data will be analyzed using descriptive and inferential statistics. Expected Results: A significant reduction in fall incidence and severity is anticipated, along with improved patient safety indicators, increased adherence to preventive measures, and strengthening of the institutional safety culture. Conclusion: The implementation of a structured fall prevention protocol has the potential to enhance patient safety, improve quality of care, and promote a more humanized approach to hospitalized older adults, contributing to continuous improvement in healthcare practices.

Palavras-chave: Older Adults; Falls; Patient Safety; Prevention; Hospitalization.

FEMALE BURNOUT AND ITS RELATIONSHIP WITH NON- COMMUNICABLE CHRONIC DISEASES: A NARRATIVE REVIEW.

Gabriella Dionisio Zampieri / Bianca Paxiega Bandeira; Feres Abrão

RESUMO

Burnout, recognized by the ICD (International Classification of Diseases) 11 as a syndrome resulting from chronic occupational stress, has shown increasing prevalence among women, whose multiple roles in professional, domestic, and caregiving contexts significantly increase vulnerability to exhaustion. This condition becomes particularly relevant in the context of non-communicable chronic diseases (NCDs), which account for approximately 74% of deaths in Brazil, as scientific evidence indicates that burnout contributes to both the development and progression of these conditions through neuroendocrine and inflammatory mechanisms, such as sustained cortisol elevation and chronic low-grade systemic inflammation. In women, these effects may be further intensified by hormonal and social factors. To understand this correlation, this study aimed to analyze the relationship between female burnout and NCDs, systematizing recent scientific evidence and highlighting implications for gender-sensitive prevention and care policies. To this end, a narrative review was conducted using the PubMed, LILACS, and Oasis databases, based on the descriptors “Chronic Disease,” “Burnout, Professional,” and “Occupational Stress.” Articles published between 2016 and 2026 were included. The selection followed specific eligibility criteria, resulting in six articles, and the data were analyzed narratively. The analyzed studies demonstrate that burnout is an independent risk factor for several non-communicable chronic diseases. The main identified pathophysiological pathway is the hyperactivation of the hypothalamic-pituitary-adrenal axis, leading to sustained cortisol elevation, low-grade systemic inflammation, and metabolic alterations. These mechanisms contribute to the development of hypertension, dyslipidemia, type 2 diabetes, and metabolic syndrome. One of the reviewed articles identified burnout as a significant predictor of hypercholesterolemia and type 2 diabetes, even after controlling for confounding variables, reinforcing its clinical relevance. Another study showed accelerated telomere shortening in professionals exposed to chronic stress, suggesting premature cellular aging and increased risk of cardiovascular diseases, diabetes, and mortality. The gender perspective revealed an important structural vulnerability: in Brazil, 71.6% of burnout reports

involve women. This predominance is associated with the overlap of professional and domestic responsibilities, low emotional support, sleep disturbances, and employment in caregiving professions, all of which intensify exposure to occupational stress. In addition to biological impacts, the studies highlighted relevant social consequences, such as increased absenteeism, prolonged leave, and excessive medicalization, evidenced by the use of psychotropic medications in more than half of the analyzed cases. These findings reinforce that female burnout not only compromises mental health but also contributes to the progression of chronic diseases, encompassing social and economic dimensions. Female burnout and NCDs share biological mechanisms and gender-related social determinants that mutually reinforce each other, highlighting the need for preventive, intersectoral, and gender-sensitive approaches that recognize occupational exhaustion as a public health issue.

Palavras-chave: Burnout; Chronic Diseases; Women's Health; Occupational Stress.

FROM ARTIFICIAL INTELLIGENCE TO ANTI-OBESITY THERAPIES: EVIDENCE OF SYSTEMIC TRANSFORMATIONS IN HEALTH AND FOOD CONSUMPTION

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RESUMO

Introduction: Contemporary society has been marked by technological advances that suggest the emergence of a new industrial revolution, driven by the widespread adoption of Artificial Intelligence (AI), particularly in healthcare. As in previous industrial transitions, its effects extend beyond technology, profoundly influencing healthcare systems, the pharmaceutical industry, and the food and beverage market. In this context, a convergence between digital and biotechnological innovation can be observed through the development of anti-obesity pharmacological therapies, which have been redefining consumption patterns and eating behaviors. Furthermore, AI-based technologies contribute to medical decision-making, continuous patient monitoring, and personalized health interventions. **Objective:** This study aims to analyze the relationships between the rise of AI and systemic transformations in healthcare and food consumption, with emphasis on the impact of anti-obesity therapies-especially injectable weight-loss medications-on markets and population habits. It also seeks to understand how these innovations reflect broader structural changes associated with periods of technological transition. **Methodology:** This study consists of an exploratory qualitative literature review based on secondary data analysis. Scientific articles indexed in the PubMed and Scielo databases, as well as economic and healthcare reports, published between 2020 and 2026, were analyzed. The descriptors used included “Artificial Intelligence,” “obesity treatment,” “GLP-1 agonists,” “food consumption,” “digital health,” and “metabolic health.” No primary data were collected. The analysis was conducted through interpretation of findings reported in the selected literature and contemporary market trends. **Results:** The reviewed literature suggests that advances in anti-obesity therapies may be associated with reduced caloric

intake and the adoption of healthier eating habits among users. The analyzed studies and reports also indicate impacts on the food and beverage industry, including the reformulation of products, expansion of lower-calorie options, and increased investment in healthier alternatives. In addition, the literature points to possible reductions in the consumption of products commonly associated with hypercaloric diets. Evidence gathered from the reviewed sources also suggests that AI-based technologies may contribute indirectly to these transformations by expanding access to health information, supporting personalized healthcare, and encouraging lifestyle changes through digital monitoring and predictive analysis. Conclusion: The interaction between AI and pharmacological innovations in obesity treatment appears to represent a systemic transformation that transcends the healthcare sector, influencing production chains and consumption patterns. The findings of this literature review reinforce the hypothesis of an ongoing technological transition characterized by the integration of digital technology, healthcare, and human behavior, with potential long-term impacts on preventive health and nutrition.

Palavras-chave: Artificial Intelligence Obesity Eating Behavior Health Innovation.

FRUCTOSE AND ADVANCED GLYCATION END-PRODUCTS IN THE HEART-LIVER AXIS: A LITERATURE REVIEW

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RESUMO

INTRODUCTION: Ultra-processed foods are high in added sugars, sodium, and saturated fats, and their consumption is associated with obesity, insulin resistance, and cardiovascular disease. High fructose intake promotes inflammation, oxidative stress, lipid accumulation, formation of advanced glycation end products (AGEs), reduced insulin sensitivity, fatty liver disease, and cardiovascular damage. The environment of oxidative stress, insulin resistance, and the release of pro-inflammatory mediators contribute to the progression of Fatty Liver Disease Associated with Metabolic Dysfunction (MAFLD), a disease that affects not only the liver but the entire organism, impacting various tissues and contributing to an increased risk of cardiovascular disease. **OBJECTIVE:** This review aims to summarize the biochemical mechanisms and clinical evidence linking high consumption of fructose-rich ultra-processed foods to metabolic alterations and the formation of AGEs, which contribute to the development of diseases associated with the heart-liver axis. **METHODOLOGY:** This is a narrative literature review based on a PubMed search using descriptors related to fructose, advanced glycation end products, and the heart-liver axis. Original articles, systematic reviews, and narrative reviews that demonstrated the relationship between high fructose consumption and the generation of AGEs, metabolic alterations, oxidative stress, inflammation, and the development of liver and cardiovascular diseases were included. **RESULTS:** Under physiological conditions, most fructose is metabolized in the intestine; however, excessive intake redirects fructose to the liver through the portal circulation. Fructose absorption occurs mainly via GLUT5 transporters and, to a lesser extent, GLUT2. In the liver, fructose is rapidly phosphorylated by fructokinase C (KHK-C) into fructose-1-phosphate, initiating its metabolism independently of the regulatory mechanisms that control glycolysis. Hepatic fructose metabolism generates intermediates such as DHAP and glyceraldehyde, which contribute to glycolysis,

gluconeogenesis, and especially de novo lipogenesis (DNL). Excess fructose increases acetyl-CoA and malonyl-CoA production, promoting triglyceride accumulation and reducing fatty acid oxidation through carnitine palmitoyltransferase inhibition. Consequently, high fructose intake favors lipid accumulation, hepatic steatosis, and metabolic dysfunction. In addition, a fructose also promotes oxidative stress by increasing reactive oxygen species (ROS) production, impairing antioxidant defenses, and damaging the intestinal barrier. ATP depletion and reduced glutathione (GSH) synthesis enhance ROS accumulation, endoplasmic reticulum stress, enterocyte apoptosis, and intestinal permeability, allowing lipopolysaccharides (LPS) to reach the liver and intensify inflammation. In hepatocytes and Kupffer cells, oxidative stress and endotoxemia activate inflammatory pathways involving TLR-4, NF- κ B, TNF- α , IL-6, and the NLRP3 inflammasome, contributing to lipogenesis, fibrosis, steatosis, and progression of MAFLD. High fructose also contributes to insulin resistance and hyperuricemia by reducing uric acid excretion and enhancing inflammation. Elevated uric acid levels further promote endothelial dysfunction, linking high fructose consumption to cardiovascular damage and an increased risk of cardiac complications. **CONCLUSION:** In summary, reducing dietary fructose intake is an important preventive strategy to minimize liver and cardiovascular damage. Future studies should focus on long-term clinical outcomes and biomarkers related to fructose and AGE accumulation, improving the early identification of diseases affecting the heart-liver axis.

Palavras-chave: Fructose Advanced Glycation End Products Heart-Liver Axis Insulin Resistance Fatty Liver Disease Associated With Metabolic Dysfunction.

GUT DYSBIOSIS AS A MODULATOR OF BONE REMODELING: IMPLICATIONS FOR OSTEOPOROSIS

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RESUMO

Introduction: Osteoporosis (OP) is a chronic metabolic disease characterized by reduced bone mass and deterioration of microarchitecture, resulting in an increased risk of fractures. Recent evidence points to the gut microbiota (GM) as a central regulator of bone homeostasis through immunological, endocrine, and metabolic pathways. Dysbiosis promotes systemic inflammation, alters estrogen metabolism, impairs calcium absorption, and increases osteoclastic activity, thereby accelerating bone loss. Understanding how bone homeostasis between osteoclasts and osteoblasts is influenced by the gut microbiota through metabolic, endocrine, and immunological pathways is vital for the prospect of new clinical strategies for the treatment of osteoporosis. **Objective:** The objective of this study is to understand the mechanisms involved in the relationship between the gut microbiota and bone remodeling, as well as therapeutic perspectives arising from this interaction. **Materials and methods:** This study was conducted in the form of a narrative literature review, aiming to synthesize current evidence on the relationship between gut microbiota and osteoporosis. The bibliographic search was performed in PubMed, using combinations of descriptors such as "gut microbiota", "osteoporosis", "bone remodeling", "probiotics", and "short-chain fatty acids". Original articles, systematic reviews, meta-analyses, and experimental reports published between 2024 and 2026 were included. Inclusion criteria considered studies addressing immunological, endocrine, and metabolic mechanisms of the gut microbiota related to bone remodeling, as well as therapeutic strategies involving probiotics, prebiotics, synbiotics, and fecal

microbiota transplantation. Results: Literature analysis indicates that the gut microbiota exerts a direct influence on bone remodeling through immunological, endocrine, and metabolic mechanisms. Protective effects were identified associated with the production of short-chain fatty acids (SCFAs), which favor the expansion of regulatory T cells and osteoblast differentiation, in addition to improving calcium absorption. Conversely, metabolites such as trimethylamine N-oxide (TMAO) were shown to be related to increased bone resorption. Therapeutic strategies involving probiotics, prebiotics, and synbiotics showed positive results in clinical and experimental studies, with improvements in bone formation markers and a reduction in osteoclastic activity. The findings reinforce that the gut microbiota is a promising target for the prevention and treatment of osteoporosis. Modulating microbial composition-whether through probiotics, prebiotics, or fecal microbiota transplantation-can contribute to restoring eubiosis, reducing systemic inflammation, and preserving bone health. Conclusion: The integration of microbiota-based therapeutic approaches represents an innovative and complementary strategy to conventional osteoporosis therapies. The manipulation of the gut microbiota, through specific probiotics and prebiotics, promotes an increase in bone mineral density and improves microarchitecture, reducing the risk of fractures in individuals with osteoporosis.

Palavras-chave: Gut Microbiota Osteoporosis Bone Remodeling Dysbiosis.

GUT MICROBIOTA AS A MODULATOR OF BONE REMODELING: MECHANISTIC INSIGHTS AND THERAPEUTIC IMPLICATIONS IN OSTEOPOROSIS

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RESUMO

Introduction: Osteoporosis (OP) is a multifactorial metabolic disease characterized by reduced bone mineral density (BMD) and impaired bone microarchitecture, leading to increased fracture risk. Recent evidence supports the gut microbiota (GM) as a central regulator of bone homeostasis through immune, endocrine, and metabolic pathways, forming the gut-bone axis. Dysbiosis has been associated with systemic inflammation, altered intestinal permeability, impaired nutrient absorption, and hormonal dysregulation, all contributing to enhanced osteoclastogenesis and bone loss. **Objective:** To analyze the mechanisms linking gut microbiota to bone remodeling and to evaluate the therapeutic potential of microbiota modulation in osteoporosis. **Materials and Methods:** A narrative review was conducted using PubMed, prioritizing recent studies (2020-2026) while including foundational evidence without temporal restriction. The search strategy combined descriptors such as “gut microbiota,” “osteoporosis,” “bone remodeling,” “probiotics,” and “short-chain fatty acids” using Boolean operators. Experimental, clinical, and translational studies addressing immunological, endocrine, metabolic mechanisms and microbiota-targeted therapies were included. **Results:** The gut microbiota modulates bone remodeling through interconnected pathways. Immunologically, dysbiosis promotes pro-osteoclastogenic signaling via increased Th17 cells and inflammatory cytokines (e.g., TNF- α , IL-17), whereas microbial metabolites such as short-chain fatty acids (SCFAs) enhance regulatory T cells and suppress osteoclast differentiation. Endocrine interactions involve modulation of estrogen metabolism, the GH/IGF-1 axis, parathyroid hormone (PTH), and gut-derived serotonin, highlighting the relevance of the enteroendocrine-bone axis. Metabolically, microbiota improves calcium bioavailability and regulates bile acid signaling pathways, including TGR5-mediated effects on bone preservation.

Experimental evidence from germ- free and antibiotic-treated models demonstrates significant alterations in bone mass and turnover following microbiota disruption, while probiotic interventions (e.g., *Lactobacillus* and *Lactocaseibacillus* strains) have shown anti-inflammatory and bone-protective effects in animal models and emerging clinical studies. Meta-analytical data suggest that probiotic supplementation may improve bone turnover markers in middle-aged and elderly populations, although heterogeneity remains. Conclusion: Gut microbiota modulation represents a promising adjunctive strategy in osteoporosis management. Current evidence suggests that microbiota- targeted interventions may be associated with improvements in bone density and remodeling markers; however, these effects vary according to experimental models, studied populations, and types of intervention. Further large-scale, well-controlled clinical trials are required to establish causal relationships and therapeutic applicability.

Palavras-chave: Gut Microbiota Osteoporosis Bone Remodeling Dysbiosis.

GUT-BRAIN AXIS: MECHANISMS AND REGULATION

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RESUMO

Introduction: The gut-brain axis is a bidirectional communication network that integrates the intestinal microbiota, the central nervous system, immunity, and endocrine regulation. Within the neural component, the vagus nerve serves as the main pathway for transmitting intestinal signals, modulating cognition, satiety, and mood. Changes in the microbiota influence the hypothalamic-pituitary-adrenal axis, intensifying stress responses and affecting energy metabolism. Meanwhile, intestinal dysbiosis promotes increased permeability and activation of pro-inflammatory cytokines, contributing to neuroinflammation and the risk of neurological disorders. These mechanisms highlight the central role of microbiota in neuroendocrine and immune regulation. **Objective:** To understand the endocrine, neural, inflammatory, and microbial metabolite mechanisms and their regulation in the gut-brain axis. **Material and Methods:** A narrative literature review was conducted using articles indexed in PubMed, covering publications between 2019 and 2026 on the physiological mechanisms involved in the gut-brain axis. Studies related to neural mechanisms, endocrine regulation, inflammatory processes, and metabolites produced by the intestinal microbiota were analyzed. **Results:** The studies showed that the gut-brain axis functions as a complex bidirectional system of interaction between the intestinal microbiota, immune system, endocrine system, and central nervous system. Among the neural mechanisms, the vagus nerve stood out as the main pathway for transmitting intestinal signals, influencing cognition, satiety control, energy metabolism, and emotional regulation. In endocrine mechanisms, changes in the composition of the intestinal microbiota were observed to directly affect the hypothalamic-pituitary- adrenal axis, promoting alterations in cortisol release and intensifying responses to chronic stress and factors associated with obesity, diabetes, anxiety, and depression. Regarding inflammatory mechanisms, intestinal dysbiosis favored increased intestinal permeability, translocation of bacterial endotoxins, and activation of pro-inflammatory cytokines, contributing to neuroinflammation and a higher risk of developing neurodegenerative and psychiatric diseases. Furthermore, microbial metabolites, especially short- chain fatty acids (SCFAs), showed neuroprotective effects by regulating microglial activity, neurotransmitters, neuronal plasticity, memory, mood, and cognitive function. These findings reinforce the importance of the intestinal

microbiota in neuroimmune and neuroendocrine regulation, highlighting the gut-brain axis as a potential therapeutic target for neurological, metabolic, neuropsychiatric, and inflammatory diseases. Conclusion: The gut microbiota exerts a multifactorial influence on systemic and cognitive health, acting as a regulatory hub that integrates neural pathways-such as the vagus nerve- and endocrine signaling via the hypothalamic-pituitary-adrenal axis. The production of metabolites, such as short-chain fatty acids, and the modulation of inflammatory processes demonstrate that gut symbiosis is fundamental for neurobiological and metabolic control during physical activity. Understanding these complex mechanisms reinforces the potential for interventions based on microbiota modulation to optimize cognitive and physical performance, although translating these mechanistic findings into human clinical practice still requires further in-depth and validated research.

Palavras-chave: Gut Microbiota Gut-brain Axis Physical Exercise Short-chain Fatty Acids Neuroinflammation.

GUT-BRAIN AXIS, METABOLIC DYSFUNCTION, AND COGNITIVE DECLINE: THE ROLE OF DIET IN MODULATING NEUROINFLAMMATION

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RESUMO

Introduction: The increasing prevalence of metabolic diseases, such as obesity and type 2 diabetes mellitus, has been associated with an increased risk of cognitive decline and neurodegenerative diseases. Recent evidence highlights the role of the gut-brain axis as a central mediator of this relationship, in which alterations in the gut microbiota promote systemic inflammation, oxidative stress, and metabolic dysfunction. In this context, diet emerges as a modifiable factor capable of influencing both the composition of the microbiota and metabolic and cognitive outcomes. **Objective:** To analyze the role of diet in modulating the gut-brain axis and its influence on inflammation, metabolism, and cognitive decline in chronic metabolic conditions. **Methods:** This is a narrative literature review, with searches conducted in PubMed, EMBASE, and Cochrane using descriptors related to gut microbiota, cognition, metabolism, and dietary patterns. Clinical studies, experimental studies, and relevant reviews addressing the interaction between diet, inflammation, and cognitive function in the context of metabolic diseases were included. **Results:** The findings indicate that diets rich in fiber, bioactive compounds, and plant-based foods are associated with greater diversity of the gut microbiota and increased production of beneficial metabolites, such as short-chain fatty acids. These compounds play an important role in maintaining the integrity of the intestinal barrier, modulating the inflammatory response, and regulating energy metabolism. These effects contribute to the preservation of cognitive function, since the integrity of the intestinal barrier and the modulation of the microbiota are associated with the reduction of pro-inflammatory mediators, such as Tumor Necrosis Factor- α (TNF α), Interleukin (IL)-6, IL-1 β , and C-reactive protein (CRP), as well as the inhibition of pathways such as Nuclear Factor- κ B (NF- κ B) and NOD-LRR- and pyrin domaincontaining protein 3 (NLRP3), in addition to the decrease in reactive oxygen species (ROS) and markers of oxidative stress, such as malondialdehyde (MDA). Simultaneously, an increase in anti-inflammatory cytokines, such as IL-10, and the activity of antioxidant enzymes, such as superoxide dismutase (SOD), catalase, and glutathione peroxidase

(GPx), is observed, favoring the reduction of neuroinflammation, the maintenance of gut-brain axis homeostasis, and the preservation of neuronal plasticity. On the other hand, dietary patterns rich in ultra-processed foods and saturated fats favor intestinal dysbiosis, increased intestinal permeability, and activation of inflammatory pathways, contributing to insulin resistance and impaired cognitive function. Conclusion: Diet plays a fundamental role in modulating the gut-brain axis, directly influencing mechanisms related to inflammation, metabolism, and cognitive function. Nutritional strategies aimed at improving diet quality may represent a promising approach in the prevention and management of cognitive alterations associated with metabolic diseases.

Palavras-chave: Gut Microbiota Cognition Inflammation Oxidative Stress Diet.

GUT-LIVER AXIS AND METABOLIC ENDOTOXEMIA IN OBESITY: MOLECULAR MECHANISMS LINKING MICROBIOTA TO SYSTEMIC INFLAMMATION

Ana Flávia Pontes Sodré

RESUMO

Introdução: A obesidade é um distúrbio metabólico complexo associado à inflamação crônica de baixo grau e ao aumento do risco de doenças cardiometabólicas. Evidências emergentes destacam o eixo intestino-fígado como uma via central que liga a disbiose intestinal à disfunção metabólica. Nesse contexto, a endotoxemia metabólica, caracterizada por níveis elevados de lipopolissacarídeo (LPS) circulante, tem sido proposta como um mediador chave da inflamação e da resistência à insulina. **Objetivo:** Esta revisão teve como objetivo investigar os mecanismos moleculares subjacentes ao eixo intestino-fígado e à endotoxemia metabólica na obesidade, com foco nas vias de sinalização inflamatórias e metabólicas. **Métodos:** Trata-se de uma revisão narrativa da literatura baseada em buscas no PubMed e EMBASE, utilizando descritores relacionados à microbiota intestinal, endotoxemia, obesidade e inflamação. Foram incluídos estudos experimentais e clínicos que abordam metabólitos derivados da microbiota e seu impacto no metabolismo e nas vias inflamatórias. **Resultados:** A obesidade está associada a alterações na composição da microbiota intestinal, favorecendo o aumento da permeabilidade intestinal e a translocação de LPS para a circulação sistêmica. Este processo ativa a sinalização do receptor toll-like 4 (TLR4), desencadeando vias inflamatórias subsequentes, como o fator nuclear kappa B (NF-κB) e o inflamassoma NLRP3. Consequentemente, ocorre um aumento na produção de citocinas pró-inflamatórias, incluindo o fator de necrose tumoral alfa (TNF-α), a interleucina (IL)-6 e a IL-1β, que contribuem para a resistência à insulina e a inflamação hepática. No fígado, a endotoxemia promove a ativação das células de Kupffer, o estresse oxidativo e a progressão para a doença hepática esteatótica associada à disfunção metabólica (DHEM). Além disso, a redução na produção de ácidos graxos de cadeia curta, como o butirato, prejudica a integridade da barreira intestinal e a sinalização anti-inflamatória. Essas alterações reforçam um ciclo de inflamação metabólica que conecta o intestino à disfunção hepática e sistêmica. **Conclusão:** O eixo intestino-fígado desempenha um papel crucial na endotoxemia metabólica relacionada à obesidade, atuando por meio de vias inflamatórias e oxidativas interconectadas. Intervir na composição da microbiota intestinal e na função da barreira intestinal representa uma estratégia promissora para a prevenção e o controle de doenças metabólicas. Estudos adicionais são necessários para esclarecer os mecanismos causais e fundamentar intervenções terapêuticas.

Palavras-chave: Eixo Intestino-fígado Endotoxemia Microbiota Obesidade Inflamação.

HELICOBACTER PYLORI INFECTION AND COGNITIVE DECLINE: POTENTIAL MECHANISMS LINKING GASTROINTESTINAL AND NEUROLOGICAL HEALTH

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RESUMO

Contexto: A infecção por *Helicobacter pylori* é uma infecção crônica altamente prevalente associada à gastrite, úlcera péptica e câncer gástrico. Além dos seus efeitos gastrointestinais, evidências emergentes sugerem que a infecção por *H. pylori* também pode estar implicada em manifestações extragástricas, incluindo alterações neurológicas e cognitivas. O eixo intestino-cérebro tem sido proposto como uma via fundamental que liga a infecção crônica e a inflamação sistêmica à função cerebral. **Objetivo:** Examinar a possível associação entre a infecção por *H. pylori* e o declínio cognitivo, com foco nos mecanismos biológicos subjacentes. **Discussão:** A infecção crônica por *H. pylori* induz uma resposta inflamatória sistêmica persistente, caracterizada por níveis elevados de citocinas pró-inflamatórias, incluindo TNF- α , IL-6 e IL-1 β . Esses mediadores podem atravessar a barreira hematoencefálica ou ativar vias neuroinflamatórias, contribuindo para a disfunção neuronal. Além disso, as alterações gástricas associadas ao *H. pylori* podem prejudicar a absorção de nutrientes essenciais, como a vitamina B12 e o folato, levando à hiperhomocisteinemia, um fator de risco conhecido para o declínio cognitivo e a demência. O estresse oxidativo também desempenha um papel central, uma vez que o aumento de espécies reativas de oxigênio relacionado à infecção pode promover danos neuronais. Além disso, alterações na microbiota intestinal e na sinalização vagal podem influenciar a função cerebral por meio do eixo intestino-cérebro. Estudos epidemiológicos relataram associações entre a soropositividade para *H. pylori* e um risco aumentado de comprometimento cognitivo e doença de Alzheimer, embora os resultados permaneçam heterogêneos. É importante ressaltar que alguns estudos sugerem que a terapia de erradicação pode melhorar os resultados cognitivos, reforçando uma possível relação causal. **Conclusão:** A infecção por *H. pylori* pode contribuir para o declínio cognitivo por meio de mecanismos interconectados que envolvem inflamação, estresse oxidativo e deficiência de nutrientes. Embora as evidências atuais sustentem uma associação, são necessários mais estudos longitudinais e intervencionistas para esclarecer a causalidade e determinar se as estratégias de erradicação podem mitigar o comprometimento cognitivo.

Palavras-chave: *Helicobacter Pylori*; Declínio Cognitivo; Neuroinflamação; Eixo Intestino-cérebro; Vitamina B12.

IMBALANCE BETWEEN PROTECTIVE AND INFLAMMATORY ADIPOKINES IN THE METABOLIC HOMEOSTASIS OF TYPE 2 DIABETES

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RESUMO

INTRODUCTION: Adipose tissue functions as an active endocrine organ in regulating insulin sensitivity. Through the secretion of adipokines, it establishes a complex systemic communication that shapes insulin signaling in peripheral tissues, such as muscle and liver. There is growing evidence that endocrine dysfunction in this tissue, characterized by a low-grade chronic

inflammatory state, is fundamental to the failure of glycemic homeostasis in Type 2 Diabetes Mellitus (DM2). Thus, the transition from a protective secretory profile to a pro-inflammatory phenotype directly contributes to systemic metabolic collapse. **OBJECTIVE:** To analyze the evidence on the impact of adipokine dysregulation on metabolic homeostasis in DM2, exploring the molecular mechanisms that link adipocyte dysfunction to insulin resistance and pancreatic beta cell failure. **METHODOLOGY:** This investigation constitutes an integrative literature review, with a qualitative and descriptive approach. Data collection was carried out through a survey of scientific evidence indexed in the PubMed and SciELO databases, covering the period from 2024 to 2026. The search strategy included articles in Portuguese and English, using MeSH/DeCS descriptors such as "Adipokines", "Type 2 Diabetes", "Asprosin", and "Homeostasis". Inclusion criteria focused on studies that addressed in detail the cell signaling mechanisms and biomarkers of metabolic dysfunction strictly associated with the type 2 Diabetes Mellitus phenotype, allowing a comparative analysis of the results found. **RESULTS:** The results demonstrate that DM2 should be understood as a consequence of endocrine signaling failure in adipose tissue. In this sense, the severe reduction of adiponectin is directly linked to the failure in insulin receptor phosphorylation, while the increase in pro-inflammatory adipokines, such as resistin and RBP4, induces endoplasmic reticulum stress in pancreatic beta cells. Recent evidence highlights that modulating novel adipokines, such as asprosin, a glycogenic adipokine that acts in the liver stimulating the release of glucose into the circulation, correlates with peaks of fasting hyperglycemia at elevated levels, making it a promising target for the development of new antidiabetic drugs aimed at restoring insulin sensitivity without causing episodes of hypoglycemia. **CONCLUSION:** It is concluded that type 2 diabetes should be understood as a consequence of failure in endocrine signaling in adipose tissue and not just a disease of the pancreas or insulin receptor. Restoring the balance between inflammatory and protective adipokines is a crucial approach for glycemic control and the prevention of long-term microvascular complications. Understanding these molecular mechanisms allows for the development of personalized and effective therapeutic strategies for managing the treatment of the disease.

Palavras-chave: Adipokines Type 2 Diabetes Asprosin Homeostasis.

IMMUNOMODULATORY EFFECTS OF THE MEDITERRANEAN DIET IN CANCER PREVENTION: A NARRATIVE REVIEW.

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RESUMO

Introdução: O aumento da incidência de neoplasias tem destacado o papel de fatores modificáveis, como a alimentação, em sua prevenção. A Dieta Mediterrânea apresenta potencial oncoprotetor devido à sua composição rica em compostos bioativos com propriedades antioxidantes e anti-inflamatórias. Evidências indicam que esse padrão alimentar modula a resposta imunológica, influenciando a inflamação, a microbiota intestinal e a vigilância tumoral. Além disso, atua na regulação do estresse oxidativo e de vias relacionadas à proliferação celular e à apoptose. **Objetivo:** O objetivo do estudo é analisar os efeitos imunomoduladores da Dieta Mediterrânea na prevenção do câncer. **Métodos:** Trata-se de uma revisão narrativa da literatura, com buscas realizadas nas bases PubMed, EMBASE e Cochrane, utilizando descritores relacionados à Dieta Mediterrânea, câncer, terapêuticas quimiopreventivas, antioxidantes, compostos bioativos naturais e polifenóis.

Foram incluídos estudos clínicos, estudos experimentais e revisões relevantes que abordassem a interação entre dieta, inflamação e função cognitiva no contexto das doenças metabólicas. Resultados: Alta adesão à Dieta Mediterrânea (DM) está consistentemente associada à redução da incidência global de câncer e da mortalidade relacionada à doença, com meta-análises relatando redução aproximada de 10-15% no risco em comparação à baixa adesão. Grandes análises agrupadas indicam riscos relativos (RRs) de aproximadamente 0,86-0,87 para mortalidade por câncer. As evidências mais robustas são observadas para câncer colorretal, com múltiplos estudos demonstrando redução significativa do risco (RRs ~0,82-0,86), sustentada tanto por meta-análises quanto por estudos caso- controle. O risco de câncer de mama também apresenta redução modesta (RRs ~0,87-0,94), especialmente entre mulheres pós-menopáusicas, com dados de ensaios clínicos randomizados (como o estudo PREDIMED) demonstrando efeitos protetores substanciais quando a dieta é suplementada com azeite de oliva extravirgem. Associações protetoras também foram relatadas para câncer gástrico (RR ~0,70-0,73) e cânceres de cabeça e pescoço (RR ~0,40-0,56). Em contraste, as evidências para câncer de próstata, câncer pancreático e neoplasias hematológicas permanecem limitadas ou inconsistentes. Mecanicamente, a DM exerce efeitos imunomoduladores e anticancerígenos por múltiplas vias, incluindo redução da inflamação crônica mediada por polifenóis e ácidos graxos ômega-3, atenuação do estresse oxidativo e do dano ao DNA, modulação da microbiota intestinal em direção a perfis anti-inflamatórios, regulação da sinalização hormonal e de fatores de crescimento, além de modificações epigenéticas que influenciam a proliferação celular e a apoptose. Entretanto, as evidências derivam predominantemente de estudos observacionais, com heterogeneidade decorrente de variações nas definições de Dieta Mediterrânea, características populacionais, métodos de avaliação dietética e potenciais fatores de confusão, embora dados randomizados geralmente sustentem esses achados. Conclusão: Em conclusão, a Dieta Mediterrânea está associada à redução do risco de câncer, principalmente por meio de seus efeitos anti-inflamatórios e antioxidantes. Apesar das limitações existentes nas evidências, ela representa uma estratégia promissora para a prevenção do câncer. Palavras-chave: Dieta Mediterrânea; prevenção do câncer; imunomodulação; padrões alimentares.

Palavras-chave: Mediterranean Diet; Cancer Prevention; Immunomodulation; Dietary Patterns.

IMPACT OF BARIATRIC SURGERY ON METABOLIC CONTROL IN ADOLESCENTS WITH SEVERE OBESITY: A LITERATURE REVIEW

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RESUMO

INTRODUCTION: The prevalence of obesity among adolescents has shown a growing trend in recent decades, with estimates from the World Health Organization (WHO) indicating that approximately 41 million children worldwide are obese, especially in the pediatric and adolescent age groups. This perspective corroborates the increase in conditions that were previously almost exclusive to the adult population, such as increased cardiovascular risk, dyslipidemia, obstructive

sleep apnea, hypertension, and type 2 diabetes mellitus. Therefore, the incidence of bariatric surgery among adolescents has increased with the aim of mitigating the effects of severe obesity and achieving better metabolic control. However, despite the growing trend of this surgical procedure, specific studies on the subject are still scarce in the literature, especially those with long-term follow-up in this population. **OBJECTIVE:** To evaluate, through a literature review, the impact of bariatric surgery on the metabolic control of adolescents with severe obesity, with emphasis on outcomes such as glycemic control, insulin resistance, and associated metabolic parameters, based on recent clinical evidence. **MATERIALS AND METHODS:** This is a literature review conducted in the PubMed database, including 6 articles published in the last 6 years, in English. Reviews and observational studies addressing adolescents with severe obesity undergoing bariatric surgery were selected. The following descriptors were used: “bariatric surgery” OR “metabolic surgery” AND “adolescent” OR “young people” AND “severe obesity” OR “morbid obesity” AND “metabolic control” OR “glycemic control” OR “insulin resistance”. **RESULTS AND DISCUSSION:** Bariatric surgery in adolescents with severe obesity promotes a 25-35% loss of body weight and a reduction in BMI of approximately 10-15 kg/m². The most commonly performed procedures were Roux-en-Y gastric bypass and sleeve gastrectomy, with consistent metabolic benefits across studies. Remission of type 2 diabetes is observed in rates that can reach up to 80-90% of cases, with a significant decrease in HbA1c and improvement in insulin resistance (HOMA-IR). There is an increase in HDL and a reduction in LDL and triglycerides. These results vary according to the type of procedure and the follow-up time, showing some heterogeneity among the studies. Compared to clinical treatment, it presents greater efficacy and sustainability of results, although it requires prolonged follow-up due to nutritional risks. **CONCLUSION:** This type of surgery demonstrates a significant and consistent impact on the metabolic control of adolescents with severe obesity, promoting a marked improvement in glycemic profile, insulin resistance, and lipid parameters, in addition to high rates of remission of type 2 diabetes mellitus. These findings reinforce its potential as an effective therapeutic strategy in the face of the limitations of isolated clinical treatment. However, the indication for the procedure should be carefully considered, taking into account nutritional risks and the need for long-term multidisciplinary follow-up. Furthermore, the scarcity of robust studies in the adolescent population highlights the need for further research to consolidate evidence and optimize management protocols in this age group.

Palavras-chave: Bariatric Surgery; Adolescent; Severe Obesity; Metabolic Control; Insulin Resistance.

IMPACT OF MATERNAL HYPERGLYCEMIA ON FETAL NEURODEVELOPMENT

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RESUMO

ABSTRACT Introduction: Maternal metabolic health during pregnancy lays the foundation for fetal neurological development. The increased incidence of Gestational Diabetes Mellitus (GDM) and pre-existing diabetes (type 1 and type 2) is a cause for concern, as a hyperglycemic environment can negatively influence fetal neurodevelopment, potentially predisposing the child to a range of long-term cognitive and behavioral disorders. Objectives: This study aims to evaluate

the relationship between different types of maternal diabetes and the incidence of neurodevelopmental disorders in offspring, identifying the main molecular mediators involved in the process. **Methods:** This is an integrative literature review conducted through a search in the PubMed database. The search strategy used controlled descriptors (MeSH) such as "Maternal Hyperglycemia", "Fetal Brain", "Neurodevelopmental Disorders", and "Epigenomics". Review articles, meta- analyses, and experimental studies published between 2023 and 2026, in English and Portuguese, were included. **Results:** The data indicate that children of mothers with diabetes are more prone to developing ASD (Autism Spectrum Disorder), especially when hyperglycemia during pregnancy is early. Delays in language performance, motor skills, and greater susceptibility to ADHD (Attention Deficit Hyperactivity Disorder) were also observed. Hyperglycemia alters the expression of enzymes with important functions in DNA methylation, such as DNMTs and TETs, in a sex-specific manner, frequently showing a greater impact on males. The hyperglycemic environment suppresses the antioxidant enzyme SOD2 (Superoxide Dismutase 2) and promotes the accumulation of advanced glycation end products (AGEs), generating a state of oxidative stress that impairs neuronal migration and synaptic formation. In addition, maternal intestinal dysbiosis caused by diabetes and fetal iron deficiency appear as other detrimental agents to brain development, reflecting in structural alterations, such as changes in the maturation of the corpus callosum. **Conclusion:** Maternal hyperglycemia acts as an independent and critical risk factor for neurodevelopmental impairment. Evidence reinforces that rigorous and early glycemic control is the best preventive strategy currently available. New therapies involving antioxidants, targeted nutritional supplementation, and control of gut microbiota modulation have shown promise in reducing the impact on the child's neurodevelopment. Multidisciplinary follow-up is essential for children exposed to intrauterine diabetes, enabling early detection of possible cognitive and behavioral deficits and thus more assertive treatment.

Palavras-chave: Maternal Hyperglycemia; Fetal Brain; Neurodevelopment.

IMPACT OF MOBILE APPLICATIONS ON THERAPEUTIC ADHERENCE AND GLYCATED HEMOGLOBIN CONTROL: NA INTEGRATIVE REVIEW

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RESUMO

ABSTRACT Introduction: Diabetes mellitus (DM) is a chronic disease with a significant impact on public health, requiring complex management strategies ranging from insulin therapy to lifestyle interventions and medications. Adequate glycemic control is fundamental to avoid short- and long-term complications. In this scenario, Digital Health, specifically through Mobile Health (mHealth), emerges as na essential tool for the control and maintenance of patient health. Monitoring applications offer continuous support that transcends the traditional clinical environment, allowing for real-time tracking of biomarkers and daily habits, which promotes patient empowerment and the precision of therapeutic decisions. Objective: To evaluate the role of monitoring applications in diabetes management, highlighting their effectiveness as a tool for self-care, treatment adherence, and improvement of clinical outcomes. Methodology: This is na integrative literature review, of a qualitative and descriptive nature. Data collection was carried out through searches in the PubMed database, including articles published between 2011 and 2020, in Portuguese and English. The search strategy used descriptors (MeSH/DeCS) such as “Mobile Applications”,

“Diabetes Mellitus”, “Self-Management”, and “Telemedicine”. Inclusion criteria focused on clinical trials and reviews that analyzed the impact of digital technologies on glycated hemoglobin (HbA1c) and the quality of life of patients. Results: It was demonstrated that the use of monitoring apps and digital technologies had a positive impact on treatment adherence in patients with diabetes mellitus (DM). Evidence showed improved glycemic control, with a reduction in glycated hemoglobin (HbA1c) levels, attributed to self-monitoring and the graphical visualization of glycemic variations, facilitating understanding of the pathophysiology and strengthening self-care. Benefits such as intelligent medication reminders, automated carbohydrate counting, and integration with continuous glucose monitoring sensors were also identified. Some studies also pointed to improvements in secondary clinical outcomes, such as blood pressure control, lipid profile, and quality of life. The literature suggests that these tools reduce glycemic variability and increase time-in-range, crucial factors for the prevention of acute complications. Conclusion: It is concluded that the use of monitoring apps and other digital technologies are effective complementary strategies to improve treatment adherence in patients with diabetes, favoring glycemic control, self-care, and the prevention of complications associated with the disease. Evidence shows that these tools can contribute to better clinical outcomes and greater patient engagement in diabetes management. However, challenges related to accessibility, personalization, and scaling up the use of these technologies remain. Therefore, greater investment and further research are needed to strengthen the implementation of digital health as a complementary strategy in the care of diabetic patients and those with other pathologies.

Palavras-chave: Keywords: Telemedicine Diabetes Mellitus Self-Management Mobile Applications Digital Health Glycemic Control.

IMPACT OF POST-BARIATRIC WEIGHT LOSS ON THE QUALITATIVE AND QUANTITATIVE ATTRIBUTES OF THE RECTUS FEMORIS MUSCLE: LONGITUDINAL ULTRASOUND ANALYSIS

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RESUMO

In recent decades, there has been a significant global rise in obesity, reaching pandemic levels. The most recent version of the World Obesity Atlas highlighted that, by 2030, approximately 3 billion people will be classified as having a high body mass index, representing almost 1 billion more individuals compared to 2015. In this scenario, bariatric surgery emerges as the most efficient treatment for severe obesity and related comorbidities, particularly cardiovascular risk, and is capable of sustaining weight loss in the long term. However, the feeling of early satiety due to hormonal changes, altered taste, and reduced stomach volume lead to decreased caloric and protein intake, resulting in substantial muscle mass loss due to proteolysis in an attempt to recruit amino acids as energy substrates

Palavras-chave: Bariatric Surgery Muscle Mass Ultrasound.

IMPACTO DA DIABETES MELLITUS NA CONSOLIDAÇÃO ÓSSEA E NOS DESFECHOS DE FRATURAS: UMA REVISÃO SISTEMÁTICA RÁPIDA

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RESUMO

RESUMO Introdução: A consolidação óssea é um processo biológico dinâmico e altamente regulado, envolvendo resposta inflamatória, angiogênese, proliferação celular e remodelação óssea. O diabetes mellitus (DM), caracterizado por hiperglicemia crônica e desregulação metabólica, tem sido progressivamente associado ao comprometimento do reparo esquelético e a desfechos desfavoráveis em fraturas. Evidências experimentais e clínicas demonstram que o diabetes afeta negativamente a regeneração óssea por meio de mecanismos como acúmulo de produtos finais de glicação avançada (AGEs), estresse oxidativo, inflamação crônica, disfunção osteoblástica, redução da síntese de colágeno, prejuízo da diferenciação de células-tronco mesenquimais e alterações microvasculares. Essas alterações comprometem a formação do calo ósseo, a remodelação tecidual e a perfusão local, contribuindo para atraso de consolidação, pseudoartrose, infecção e falha terapêutica. O impacto parece ser mais significativo em pacientes com hiperglicemia persistente e doença de longa duração. Diante da crescente prevalência mundial do diabetes e da relevância clínica das complicações relacionadas às fraturas, compreender a relação entre DM e consolidação óssea é fundamental para otimizar o manejo ortopédico e os desfechos clínicos. Objetivo: Avaliar o impacto do diabetes mellitus na consolidação óssea e nos desfechos clínicos de fraturas, enfatizando os principais mecanismos fisiopatológicos envolvidos e a influência do controle glicêmico nas complicações do reparo ósseo. Métodos: Esta revisão sistemática rápida foi conduzida conforme as diretrizes PRISMA. A busca bibliográfica foi realizada na base PubMed/MEDLINE, incluindo estudos publicados entre 2000 e 2025, nos idiomas inglês e português. Foram incluídos estudos observacionais e de coorte que avaliaram a consolidação de fraturas em pacientes diabéticos e não diabéticos. Os desfechos analisados incluíram tempo de consolidação, atraso de união, pseudoartrose, infecção e complicações pós-fratura. Relatos de caso, revisões narrativas, estudos em animais e artigos sem acesso ao texto completo foram excluídos. Dois revisores independentes realizaram a triagem de títulos e resumos, seguida da análise integral dos artigos elegíveis. Inicialmente, 312 estudos foram identificados. Após avaliação de elegibilidade, 24 artigos permaneceram para leitura completa e 5 estudos preencheram os critérios finais de inclusão. A extração dos dados contemplou desenho do estudo, tipo de fratura, presença de diabetes, desfechos de consolidação e complicações associadas. A qualidade metodológica foi avaliada pela Newcastle-Ottawa Scale, evidenciando risco moderado de viés, principalmente devido aos desenhos retrospectivos e potenciais fatores de confusão. Resultados: Os estudos incluídos demonstraram consistentemente que o diabetes mellitus está associado ao atraso da consolidação óssea, à redução da qualidade do calo ósseo e ao aumento das taxas de pseudoartrose e infecção pós-fratura. Evidências clínicas revelaram prolongamento do tempo de consolidação e maior incidência de falha terapêutica entre pacientes diabéticos, especialmente naqueles com controle glicêmico inadequado. Os principais mecanismos fisiopatológicos identificados foram acúmulo de AGEs, comprometimento da matriz extracelular, estresse oxidativo, disfunção osteoblástica, ativação inflamatória crônica e microangiopatia, resultando em redução da perfusão tecidual. Além disso, evidências experimentais sugeriram prejuízo da diferenciação osteogênica de células-tronco mesenquimais em condições diabéticas.

Os efeitos negativos do DM mostraram-se mais evidentes em fraturas complexas e em indivíduos com hiperglicemia persistente. Alguns estudos também indicaram que o controle glicêmico rigoroso e a modulação de vias inflamatórias podem melhorar parcialmente os desfechos do reparo ósseo. Conclusão: O diabetes mellitus compromete significativamente a consolidação óssea e aumenta o risco de complicações relacionadas às fraturas por meio de mecanismos metabólicos, vasculares e celulares multifatoriais. O controle glicêmico inadequado está fortemente associado ao atraso de consolidação e a desfechos clínicos desfavoráveis. Embora as evidências atuais reforcem a importância do controle metabólico rigoroso na redução das complicações, a literatura disponível ainda é limitada pela predominância de estudos retrospectivos e risco metodológico moderado. Dessa forma, são necessários novos estudos prospectivos e multicêntricos para fortalecer as evidências e subsidiar estratégias terapêuticas mais eficazes para pacientes diabéticos com fraturas.

Palavras-chave: Diabetes Mellitus; Consolidação Óssea; Cicatrização Em Fraturas; Pseudoartrose; Hiperglicemia.

IMPACTO DE INTERVENÇÕES ASSISTIDAS POR CÃES NA REGULAÇÃO EMOCIONAL E INTERAÇÃO SOCIAL EM CRIANÇAS COM TRANSTORNO DO ESPECTRO AUTISTA: UMA REVISÃO

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RESUMO

O Transtorno do Espectro Autista (TEA) é caracterizado por déficits persistentes na comunicação e interação social, frequentemente acompanhados por dificuldades na regulação emocional. Os cães têm desempenhado um papel cada vez mais reconhecido como adjuvantes terapêuticos em diversas condições de saúde, contribuindo para a melhoria do bem-estar físico, emocional e social dos indivíduos, especialmente pela redução do estresse, da ansiedade e do isolamento social em diversos contextos clínicos. Nos últimos anos, as intervenções assistidas por animais, particularmente aquelas que envolvem cães, têm ganhado destaque como estratégias terapêuticas complementares para apoiar os resultados comportamentais e emocionais em crianças com TEA. Esta revisão tem como objetivo investigar o impacto do contato com cães na regulação emocional e na interação social em crianças diagnosticadas com TEA. Uma busca abrangente foi realizada nas bases de dados PubMed, EMBASE e Google Scholar, utilizando descritores relacionados a “autismo”, “terapia assistida por cães”, “intervenção assistida por animais”, “regulação emocional” e “interação social”. Foram incluídos estudos envolvendo crianças com TEA expostas a intervenções assistidas por cães. Os dados foram sintetizados qualitativamente. Vários estudos foram identificados avaliando o impacto de intervenções assistidas por cães em crianças com Transtorno do Espectro Autista (TEA), com amostras predominantemente pequenas e desenhos metodológicos heterogêneos. No geral, os resultados indicam efeitos positivos em múltiplos domínios do desenvolvimento. Observou-se aumento na interação social e na comunicação, tanto verbal quanto não verbal, juntamente com redução de comportamentos problemáticos, estresse e ansiedade. Alguns estudos também relataram melhorias na regulação emocional e no engajamento social, bem como benefícios adicionais nas funções cognitivas, linguagem e dinâmica familiar. No

entanto, os estudos incluídos apresentam limitações importantes, como amostras pequenas, falta de padronização das intervenções, uso frequente de medidas subjetivas (principalmente relatos dos cuidadores) e robustez metodológica limitada. Além disso, as evidências sugerem que os efeitos podem variar de acordo com as características individuais das crianças, incluindo o perfil sensorial, e que, em alguns casos, pode haver um aumento de comportamentos estereotipados dependendo do contexto. As evidências disponíveis sugerem que o contato com cães no contexto de intervenções assistidas por animais pode ser uma estratégia complementar promissora para melhorar a regulação emocional e a interação social em crianças com TEA (Transtorno do Espectro Autista). Os cães parecem facilitar o engajamento social e modular o estresse, contribuindo para melhorias em desfechos comportamentais e emocionais relevantes. No entanto, a qualidade geral das evidências ainda é limitada, exigindo uma interpretação cautelosa dos resultados. Mais pesquisas com desenhos de estudo mais rigorosos, amostras maiores, intervenções padronizadas e avaliações de desfechos a longo prazo são necessárias para melhor estabelecer a eficácia das intervenções assistidas por cães nessa população.

Palavras-chave: Transtorno Do Espectro Autista Terapia Assistida Por Animais Cães Regulação Emocional Interação Social.

IMPACTO DO DIABETES MELLITUS NA DURAÇÃO DA INTERNAÇÃO HOSPITALAR APÓS ARTROPLASTIA DE QUADRIL E JOELHO: UMA REVISÃO SISTEMÁTICA

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RESUMO

RESUMO O DM é uma doença crônica prevalente que prejudica a resposta inflamatória e a cicatrização. O TIH é um indicador crítico de prognóstico, eficiência e custos hospitalares, havendo necessidade de sintetizar evidências recentes sobre como o diagnóstico e o controle glicêmico influenciam esse desfecho. Avaliar o impacto do Diabetes Mellitus (DM) no tempo de internação hospitalar (TIH) em pacientes submetidos à artroplastia total de quadril (ATQ) ou joelho (ATJ), utilizando a estratégia PEO (População: adultos em artroplastia; Exposição: diabetes; Outcome/Desfecho: duração da internação). Revisão sistemática rápida seguindo as diretrizes PRISMA. A busca foi realizada na base de dados PubMed, abrangendo estudos originais dos últimos 5 anos (2020-2025), nos idiomas inglês e português, utilizando descritores MeSH combinados ("Diabetes Mellitus", "Arthroplasty, Replacement", "Length of Stay"). Incluíram-se estudos com adultos submetidos a ATQ/ATJ comparando diabéticos e não diabéticos. A seleção ocorreu por dupla triagem independente com consenso. A qualidade metodológica e o risco de viés foram avaliados pelas ferramentas ROBINS-I (estudos observacionais) e GRADE para a força da evidência. Foram incluídos dois estudos (2024-2025). Chandrupatla et al. 2024 analisaram 2.467.215 internações (17% diabéticos), demonstrando que o DM associa-se a maior TIH, custos elevados e complicações (infecções e transfusões), sem alterar a mortalidade. Issa et al. 2025

observaram que, em modelos fast-track, diabéticos insulínodépendentes apresentam discreto aumento glicémico, mas sem impacto significativo no TIH. Um estudo observacional de 2021 apontou resultados conflitantes, sugerindo que o desequilíbrio metabólico agudo é mais prejudicial que o diagnóstico crônico isolado. O diabetes mellitus associa-se a internações mais prolongadas e maiores custos, contudo, o impacto clínico parece ser mediado pela qualidade do controle glicêmico e presença de complicações crônicas, e não apenas pelo diagnóstico. Limitações incluem a heterogeneidade dos protocolos de alta. Recomenda-se o manejo metabólico perioperatório rigoroso para otimizar a eficiência assistencial.

Palavras-chave: Diabetes Mellitus Artroplastia Tempo De Internação Revisão Sistemática.

IMPACTO EMOCIONAL DA EUTANÁSIA EM ESTUDANTES DE MEDICINA VETERINÁRIA: UM ESTUDO TRANSVERSAL

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RESUMO

A eutanásia é um procedimento humanitário destinado a prevenir o sofrimento desnecessário em animais com doenças irreversíveis ou prognóstico desfavorável. Na Medicina Veterinária, essa prática envolve não apenas responsabilidades técnicas e éticas, mas também importantes desafios emocionais para profissionais e estudantes. A exposição frequente ao sofrimento animal, à tomada de decisões complexas e ao luto dos tutores pode contribuir para sofrimento emocional, ansiedade e sobrecarga psicológica. Apesar da relevância desse tema na prática veterinária, ainda são limitados os estudos que avaliam o preparo técnico, ético e emocional de graduandos de Medicina Veterinária em relação à eutanásia. Portanto, este estudo tem como objetivo avaliar o preparo e as percepções de estudantes de Medicina Veterinária sobre a eutanásia. Trata-se de um estudo transversal exploratório, com abordagem quantitativa, que será realizado com aproximadamente 100 a 200 estudantes matriculados em diferentes períodos do curso de Medicina Veterinária da Universidade de Marília (UNIMAR). A coleta de dados será realizada por meio de um questionário estruturado e autoaplicável, composto por questões objetivas e afirmações em escala Likert abordando conhecimento técnico, percepções éticas, respostas emocionais e confiança relacionadas aos procedimentos de eutanásia. A participação será voluntária e anônima, mediante aceite do Termo de Consentimento Livre e Esclarecido. Os dados coletados serão analisados por meio de estatística descritiva e apresentados em tabelas e gráficos. Além disso, será realizada uma revisão seletiva da literatura sobre eutanásia, bioética e saúde mental na Medicina Veterinária para subsidiar a discussão dos resultados. Os resultados esperados incluem a identificação de possíveis lacunas na formação acadêmica relacionadas à eutanásia, especialmente quanto ao preparo emocional e à tomada de decisões éticas. Espera-se que estudantes de períodos mais avançados apresentem maior conhecimento técnico; entretanto, desconforto emocional e insegurança associados a situações envolvendo eutanásia ainda poderão persistir. Os achados poderão contribuir para discussões sobre o aprimoramento da formação em Medicina Veterinária, incentivando estratégias de ensino que integrem preparo técnico, ético e emocional para futuros profissionais.

Palavras-chave: Eutanásia; Medicina Veterinária; Estudantes De Medicina Veterinária; Saúde Mental; Bioética.

INFLAMAÇÃO E PROGRESSÃO DA DIABETES

Júlia Oliver Massinatori Alpino / Pietra Biaggi Rossi; Ana Cecília Andrade Fernandes; Camila Petersen de Carvalho; Renato Augusto Paro Lima; João Paulo Galleti Pilon

RESUMO

O diabetes mellitus está associado à progressão de um estado de inflamação crônica de baixo grau, conhecido como metainflamação. A interação entre processos inflamatórios e resistência à insulina sustenta a disfunção metabólica, especialmente no diabetes mellitus tipo 2 (DM2). Além disso, o estresse oxidativo e mediadores inflamatórios, como citocinas e produtos finais de glicação avançada (AGEs), intensificam esse quadro e favorecem o desenvolvimento de complicações. O objetivo foi analisar o papel da inflamação na progressão do diabetes mellitus, com ênfase na metainflamação, na interação imunometabólica e sua influência sobre a resistência à insulina e em suas complicações. Realizou-se uma revisão narrativa da literatura por meio da base de dados PubMed, utilizando descritores relacionados a inflamação, diabetes mellitus, resistência à insulina e estresse oxidativo. Foram selecionados estudos clínicos, experimentais e revisões relevantes, com foco nos mecanismos inflamatórios envolvidos na progressão da doença. A análise dos estudos selecionados evidenciou uma associação direta entre inflamação crônica de baixo grau e a progressão do DM2. Citocinas pró-inflamatórias, especialmente TNF- α , IL-6 e IL-1 β , desempenham papel central na fisiopatologia, promovendo resistência à insulina e disfunção das células β pancreáticas. Adicionalmente, a ativação de vias inflamatórias intracelulares, como NF- κ B e JAK/STAT, foi identificada como mecanismo-chave na manutenção do estado inflamatório e da deterioração metabólica. O tecido adiposo também exerce papel relevante, sendo responsável por até 35% da IL-6 circulante, o que reforça sua contribuição para a inflamação sistêmica no DM2. Fatores como obesidade, disbiose intestinal e dieta inadequada intensificam ainda mais esse processo, evidenciando a estreita interação entre metabolismo e sistema imunológico. Do ponto de vista clínico, a inflamação crônica está associada a maior risco de complicações, especialmente nefropatia diabética (presente em cerca de 20% a 40% dos pacientes) e doenças cardiovasculares, com aumento significativo do risco de eventos graves (razão de risco de até 2,11 associada a níveis elevados de IL-6). A inflamação crônica de baixo grau desempenha um papel fundamental na progressão do DM2, contribuindo tanto para a resistência à insulina quanto para a disfunção das células β pancreáticas. Além disso, está fortemente associada ao desenvolvimento de complicações. Dessa forma, o direcionamento terapêutico das vias inflamatórias representa uma estratégia promissora para melhorar o manejo da doença e a qualidade de vida dos pacientes.

Palavras-chave: Diabetes Mellitus Tipo 2; Resistência à Insulina; Estresse Oxidativo; Doenças Cardiovasculares.

INFLAMAÇÃO SISTÊMICA NA DEPRESSÃO: EVIDÊNCIAS ATUAIS E IMPLICAÇÕES CLÍNICAS

Ana Carolina Ferrazi Sampaio / Karina Quesada - Docente dos cursos de Medicina e Nutrição da Universidade de Marília (UNIMAR); Marília; São Paulo; Brasil

RESUMO

A depressão constitui um dos transtornos mentais mais prevalentes e incapacitantes no mundo, representando uma das principais causas de carga global de doença. Evidências recentes sugerem que a inflamação sistêmica de baixo grau desempenha um papel potencialmente relevante em sua fisiopatologia, sendo biomarcadores inflamatórios periféricos associados à gravidade clínica e à resposta terapêutica. Apesar dos avanços, persistem limitações relacionadas à padronização desses biomarcadores e à sua aplicabilidade clínica, evidenciando lacunas na translação dos achados experimentais para a prática assistencial. O objetivo deste estudo foi analisar criticamente as evidências recentes sobre a associação entre inflamação sistêmica e depressão, com ênfase em biomarcadores inflamatórios, mecanismos fisiopatológicos e implicações clínicas. Trata-se de uma revisão narrativa da literatura, conduzida conforme as recomendações da SANRA (Scale for the Assessment of Narrative Review Articles). A busca foi realizada nas bases de dados PubMed, Scopus e Web of Science, incluindo estudos publicados entre 2021 e 2026, nos idiomas inglês e português. Foram utilizados descritores controlados (MeSH/DeCS) relacionados à depressão e à inflamação sistêmica, combinados por operadores booleanos. Foram incluídos estudos clínicos, translacionais, revisões sistemáticas e meta-análises que investigaram a associação entre inflamação sistêmica e depressão. Foram excluídos estudos duplicados, sem aderência ao tema ou que não apresentavam evidências relevantes sobre biomarcadores inflamatórios ou mecanismos fisiopatológicos associados. A seleção dos estudos foi realizada com base na análise de títulos, resumos e textos completos. Ao final, os estudos incluídos foram submetidos à análise qualitativa descritiva, com ênfase nos principais biomarcadores inflamatórios, mecanismos fisiopatológicos envolvidos e suas implicações clínicas. Os resultados sugerem que a associação entre inflamação sistêmica e depressão é frequentemente descrita na literatura recente, especialmente em meta-análises e estudos clínicos, com níveis elevados de proteína C-reativa, interleucina-6 e TNF- α relacionados à maior gravidade sintomática, fadiga, anedonia e pior resposta terapêutica. Observa-se, ainda, potencial aplicabilidade futura desses biomarcadores na estratificação diagnóstica e prognóstica. Mecanismos como ativação microglial, disfunção do eixo hipotálamo-hipofise-adrenal e alterações na via triptofano-quinurenina são descritos como mediadores da interação entre inflamação periférica e alterações neurobiológicas. Contudo, a heterogeneidade metodológica dos estudos e a ausência de padronização limitam sua implementação clínica. Conclui-se que a inflamação sistêmica representa uma importante dimensão fisiopatológica da depressão, com potencial valor diagnóstico, prognóstico e terapêutico. Entretanto, sua incorporação na prática clínica ainda depende de validação longitudinal e de avanços em estratégias de psiquiatria de precisão.

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Palavras-chave: Depressão; Inflamação Sistêmica; Biomarcadores Inflamatórios; Citocinas.

INFLAMAÇÃO SISTÊMICA NA DEPRESSÃO: EVIDÊNCIAS ATUAIS E IMPLICAÇÕES CLÍNICAS

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RESUMO

A depressão constitui um dos transtornos mentais mais prevalentes e incapacitantes no mundo, representando uma das principais causas de carga global de doença. Evidências recentes sugerem que a inflamação sistêmica de baixo grau desempenha um papel potencialmente relevante em sua fisiopatologia, sendo biomarcadores inflamatórios periféricos associados à gravidade clínica e à resposta terapêutica. Apesar dos avanços, persistem limitações relacionadas à padronização desses biomarcadores e à sua aplicabilidade clínica, evidenciando lacunas na translação dos achados experimentais para a prática assistencial. O objetivo deste estudo foi analisar criticamente as evidências recentes sobre a associação entre inflamação sistêmica e depressão, com ênfase em biomarcadores inflamatórios, mecanismos fisiopatológicos e implicações clínicas. Trata-se de uma revisão narrativa da literatura, conduzida conforme as recomendações da SANRA (Scale for the Assessment of Narrative Review Articles). A busca foi realizada nas bases de dados PubMed, Scopus e Web of Science, incluindo estudos publicados entre 2021 e 2026, nos idiomas inglês e português. Foram utilizados descritores controlados (MeSH/DeCS) relacionados à depressão e à inflamação sistêmica, combinados por operadores booleanos. Foram incluídos estudos clínicos,

translacionais, revisões sistemáticas e meta-análises que investigaram a associação entre inflamação sistêmica e depressão. Foram excluídos estudos duplicados, sem aderência ao tema ou que não apresentavam evidências relevantes sobre biomarcadores inflamatórios ou mecanismos fisiopatológicos associados. A seleção dos estudos foi realizada com base na análise de títulos, resumos e textos completos. Ao final, os estudos incluídos foram submetidos à análise qualitativa descritiva, com ênfase nos principais biomarcadores inflamatórios, mecanismos fisiopatológicos envolvidos e suas implicações clínicas. Os resultados sugerem que a associação entre inflamação sistêmica e depressão é frequentemente descrita na literatura recente, especialmente em meta-análises e estudos clínicos, com níveis elevados de proteína C-reativa, interleucina-6 e TNF- α relacionados à maior gravidade sintomática, fadiga, anedonia e pior resposta terapêutica. Observa-se, ainda, potencial aplicabilidade futura desses biomarcadores na estratificação diagnóstica e prognóstica. Mecanismos como ativação microglial, disfunção do eixo hipotálamo-hipófise-adrenal e alterações na via triptofano-quinurenina são descritos como mediadores da interação entre inflamação periférica e alterações neurobiológicas. Contudo, a heterogeneidade metodológica dos estudos e a ausência de padronização limitam sua implementação clínica. Conclui-se que a inflamação sistêmica representa uma importante dimensão fisiopatológica da depressão, com potencial valor diagnóstico, prognóstico e terapêutico. Entretanto, sua incorporação na prática clínica ainda depende de validação longitudinal e de avanços em estratégias de psiquiatria de precisão.

Palavras-chave: Depressão; Inflamação Sistêmica; Biomarcadores Inflamatórios; Citocinas.

INFLAMMATION AS A COMMON PATHWAY IN CANCER AND CARDIOVASCULAR DISEASE

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RESUMO

Introduction: Inflammation has emerged as a direct link between cancer and cardiovascular disease. Studies show that both the tumor and its treatments trigger an immune response, endothelial dysfunction, and thrombotic tendencies. Inflammatory biomarkers, metabolic alterations, and myocardial damage reinforce the idea that this systemic inflammatory response directly links these two conditions, being mediated by pro-inflammatory cytokines such as Interleukin-6, Tumor Necrosis Factor Alpha, and C-reactive Protein, which promote chronic inflammation, endothelial injury, and the progression of atherosclerosis. **Objective:** Thus, this study investigates inflammation as a common biological pathway between cancer and cardiovascular diseases, studying the role of biological markers, immunological and metabolic alterations, and the effects of cancer treatments in the development of endothelial damage, atherosclerosis, and cardiotoxicity. The aim is to understand its mechanisms and impact on cardiovascular risk, including the activation of shared inflammatory and metabolic pathways such as NF- κ B, oxidative stress, and alterations in aerobic glycolysis and lipid metabolism, which favor insulin resistance, dyslipidemia, and a pro-atherogenic environment. **Methods:** A literature review was conducted using the PubMed database, including studies published in the last 5 years, with the descriptors: "Inflammation," "cancer," and "cardiovascular risk / cardio-oncology," selecting 9 articles for this study. **Results:** Cancer patients present increased cardiovascular risk driven by a complex network of inflammatory and metabolic alterations. At the molecular level, tumor-derived factors and cancer therapies promote activation

of pattern recognition receptors, particularly toll-like receptors (TLRs), leading to downstream signaling via MyD88 and subsequent activation of nuclear factor-kappa B (NF- κ B) and signal transducer and activator of transcription 3 (STAT3). This results in sustained production of pro-inflammatory cytokines such as IL-6, TNF- α , and IL-1 β , reinforcing a chronic inflammatory state. Additionally, activation of the NLRP3 inflammasome contributes to IL-1 β and IL-18 maturation, further amplifying vascular inflammation. Oxidative stress plays a central role, with increased generation of reactive oxygen species (ROS) promoting mitochondrial dysfunction, lipid peroxidation, and endothelial damage. Redox-sensitive pathways, including MAPK (p38, JNK) and NF- κ B, are also activated, enhancing inflammatory gene expression and cellular proliferation. Cancer-related metabolic reprogramming, such as enhanced aerobic glycolysis (Warburg effect), contributes to lactate accumulation, which modulates immune cell function and sustains a pro-inflammatory microenvironment. Furthermore, endothelial dysfunction is exacerbated by reduced nitric oxide (NO) bioavailability and increased expression of adhesion molecules (VCAM-1, ICAM-1), facilitating leukocyte recruitment and atherogenesis. Prothrombotic pathways are also activated through tissue factor expression and platelet activation. Cancer therapies, particularly chemotherapy and radiotherapy, intensify these processes by inducing endothelial injury, mitochondrial damage, and persistent inflammatory signaling, ultimately contributing to myocardial dysfunction and accelerated atherosclerosis. Conclusion: Inflammation is the main pathway linking cancer and cardiovascular disease, involving inflammatory mediators and shared metabolic pathways that amplify vascular and cardiac damage. The tumor and its treatments increase cardiac risk. Biomarkers and early monitoring are essential for prevention and appropriate management.

Palavras-chave: Systemic Inflammation; Cardiovascular Diseases; Cancer.

INFLUENCE OF CHILDHOOD OBESITY ON THERAPEUTIC OUTCOMES AND PROGNOSIS OF PEDIATRIC LEUKEMIA: A LITERATURE REVIEW

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RESUMO

Childhood obesity, in addition to being a growing public health problem, can negatively influence the prognosis of acute lymphoblastic leukemia in children. Evidence indicates that metabolic and inflammatory changes associated with excess weight contribute to a poorer treatment response, lower survival, and greater therapeutic resistance. Adipose tissue acts as an important factor in this process, favoring the survival of leukemia cells and interfering with the action of chemotherapeutics. Despite this, the results are still inconsistent, not allowing for the establishment of a definitive causal relationship. Even so, both obesity and malnutrition seem to impair disease progression, highlighting the importance of nutritional monitoring in pediatric oncology care.

Palavras-chave: Keywords: Childhood Obesity Leukemia Pediatric Cancer Prognosis.

INSULIN RESISTANCE AND NEURODEGENERATION: A METABOLIC LINK

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RESUMO

Introduction: Insulin plays fundamental roles in the central nervous system (CNS), regulating glucose metabolism, supporting cognitive functions, synaptic plasticity, and neuronal survival (Pliszka et al., 2026). Cerebral insulin resistance (BIR) refers to a reduction in the cellular response to insulin in the CNS and can occur independently of peripheral diabetes. Epidemiological studies indicate that patients with Type 2 Diabetes Mellitus (T2DM) have an approximately 56% higher risk of developing dementia, highlighting a critical link between systemic metabolism and neuronal health (Tseng et al., 2026). **Objectives:** This study synthesizes evidence on how failure in insulin signaling contributes to the pathogenesis of neurodegeneration. The focus is on the mechanisms of amyloid plaque accumulation, Tau pathology, mitochondrial dysfunction, and neuroinflammation, as well as exploring therapeutic strategies to restore insulin sensitivity. **Methods:** A search was conducted in the PubMed database using MeSH descriptors such as "Insulin Resistance," "Alzheimer's Disease," and "Metabolic Syndrome," combined with Boolean operators. Articles published between 2025 and 2026 were included, selected based on reading titles, abstracts, and relevance to the topic. **Results:** BIR is associated with the early accumulation of beta-amyloid (A β) peptides and hyperphosphorylation of the Tau protein (Chamorro et al., 2025). The risk of dementia in diabetics follows a dose-response pattern related to the burden of vascular complications. Clinical and observational trials suggest that strict glycemic control (HbA1c < 7%) and the use of antidiabetic drugs, such as metformin, GLP-1 agonists, and SGLT2 inhibitors, are associated with a reduced risk of dementia and improved mitochondrial function (Ken et al., 2025). **Discussion:** The central mechanism involves the disruption of the PI3K/AKT signaling pathway. Failure in this pathway results in the overexpression of the GSK-3 β enzyme, which is primarily responsible for Tau hyperphosphorylation and the formation of neurofibrillary tangles (Verma et al., 2026). At the same time, BIR interferes with neuronal bioenergetics by exacerbating mitochondrial dysfunction and oxidative stress. Humoral mediators, such as inflammatory cytokines (TNF- α , IL-6), and extracellular vesicles propagate inflammation from the periphery to the brain by breaking down the blood-brain barrier. Additionally, BIR alters dopamine signaling, linking metabolic dysfunction to neuropsychiatric symptoms (Izuo et al., 2026). **Conclusion:** Cerebral insulin resistance is an early pathogenic factor and a vital therapeutic target in neurodegeneration. Strategies that normalize metabolic pathways, such as intranasal insulin or drug repositioning, are essential to slow disease progression and preserve cognitive health.

Palavras-chave: Insulin Resistance; Alzheimer's Disease; Metabolic Syndrome.

INSULIN RESISTANCE AS A METABOLIC LINK IN THE PATHOPHYSIOLOGY OF ALZHEIMER'S DISEASE

André Duarte Bezerra

RESUMO

Introduction: Alzheimer's Disease (DA) is one of the most common neurodegenerative diseases, and substantial evidence has supported the relationship between peripheral insulin resistance (IR)

and the development of DA. Often referred to as Type 3 Diabetes, the role of metabolic dysfunction in the pathophysiology of DA is highlighted. Insulin resistance is strongly associated with alterations in neuronal survival, synaptic plasticity, and memory formation, facilitating the progression of neurodegeneration. Objectives: This work aims to evaluate how IR contributes to the neurodegeneration of brain areas related to memory and its relationship with the pathophysiology of DA. Methods: This study is a literature review in which PubMed was used as a database. Reviews and articles published within the last 5 years were included primarily. The following descriptors were used for the search: Alzheimer's disease, Insulin resistance in the brain, neurodegeneration, and Insulin receptor signaling. Results: The reviewed data show that insulin resistance in the brain causes the PI3K/Akt pathway to be deactivated, and consequently the GSK-3 β enzyme. This enzyme is one of the main agents responsible for the hyperphosphorylation of the Tau protein, leading to the formation of neurofibrillary tangles and collapse of the neuronal cytoskeleton, while insulin and beta-amyloid protein compete for Insulin-Degrading Enzyme (IDE), favoring the accumulation of senile plaques in states of hyperinsulinemia. In addition to protein accumulation, it was observed that metabolic failure induces severe mitochondrial dysfunction, increasing oxidative stress and activating microglia cells. This activation triggers meta-inflammation that degrades the blood-brain barrier (BBB) and accelerates the loss of synaptic connections. It was seen that it is possible to correct this metabolic environment through drugs that mimic insulin or improve its sensitivity, potentially delaying the progression of brain atrophy. Conclusion: Through this work, it was possible to observe that insulin resistance is an intrinsic and possibly primary component in the pathogenesis of Alzheimer's disease (DA). The transition from a healthy metabolic state to central insulin resistance precedes the symptoms of dementia, making this metabolic link a signal for early diagnosis and treatment. Understanding Alzheimer's disease in this way allows for the development of new treatment strategies that primarily act by restoring neuronal bioenergetics, offering a promising way to slow neurodegeneration.

Palavras-chave: Alzheimer's Disease; Insulin Resistance In The Brain; Neurodegeneration; Insulin Receptor Signaling.

INSULIN RESISTANCE AS AN EARLY MARKER OF ACTIVATION OF PRO-ONCOGENIC PATHWAYS IN OBESE CHILDREN: A LITERATURE REVIEW.

Ana Flávia Pontes Sodré

RESUMO

Atualmente, a obesidade infantil configura-se como um grave problema de saúde pública global. O excesso de tecido adiposo está associado a diversas alterações metabólicas, destacando-se a resistência à insulina (RI) como uma das mais prevalentes. Nesse contexto, evidências crescentes sugerem que a RI pode contribuir para a ativação de vias pró-oncogênicas, atuando como um marcador precoce de risco para o desenvolvimento de câncer. O objetivo desta revisão de literatura é sintetizar evidências acerca do papel da RI como marcador precoce da ativação de vias pró-oncogênicas em crianças obesas. Foi realizada uma revisão da literatura, incluindo estudos publicados no PubMed entre 2010 e 2026. A estratégia de busca utilizou os termos: (“insulin resistance”) AND (“obesity”) AND (“child” OR “adolescent”) AND (“cancer” OR “inflammation” OR “IGF” OR “PI3K” OR “AKT”). Foram incluídos artigos originais, revisões sistemáticas e narrativas que abordassem a relação entre RI, obesidade infantil e/ou vias pró-oncogênicas. No

total, 6 artigos foram selecionados. Os resultados evidenciaram que a associação entre obesidade e RI em crianças e adolescentes está fortemente relacionada a um estado inflamatório crônico de baixo grau e ao aumento do estresse oxidativo. Nesses estudos, alterações metabólicas e estruturais, incluindo disfunção mitocondrial e danos ao DNA, foram frequentemente correlacionadas à RI, sugerindo seu envolvimento em processos iniciais da tumorigênese. Além disso, a hiperinsulinemia foi associada à ativação de vias de sinalização relacionadas ao câncer, como insulina/fator de crescimento semelhante à insulina 1 (IGF-1), proteína quinase ativada por mitogênio (MAPK) e fosfatidilinositol 3-quinase (PIK3CA). Esses achados sugerem que o excesso de tecido adiposo está fortemente conectado com a redução da sensibilidade à insulina. Uma vez estabelecida, a hiperinsulinemia relaciona-se à elevação do fator de necrose tumoral alfa (TNF- α) e da interleucina-6 (IL-6), citocinas pró-inflamatórias que estimulam alterações celulares, favorecendo a ativação de vias como quinase beta inibidora de kappa B/fator nuclear kappa-cadeia leve-potenciador de células B ativadas (IKK β /NF- κ B) e quinase N-terminal c-Jun (JNK), que terão como resultado a IR. Em adição, todas essas alterações metabólicas promovem o estresse oxidativo nas células que induz a disfunção mitocondrial, comprometendo a função celular e gerando espécies reativas de oxigênio (ROS). Esse processo resulta em danos ao DNA e na ativação das vias pró-oncogênicas, como a sinalização mediada por IGF1R, incluindo as vias MAPK e a PIK3CA. Essas sinalizações causam estímulo ao crescimento e diferenciação celular, inibição do apoptose e supressão da vigilância celular, favorecendo o crescimento e disseminação tumoral. Em síntese, a RI em crianças obesas pode atuar como marcador precoce de ativação de vias pró-oncogênicas ao promover inflamação crônica, estresse oxidativo e alterações moleculares que favorecem a tumorigênese.

Palavras-chave: Resistência à Insulina; Obesidade Infantil; Vias Pró-oncogênicas; Crianças/Adolescentes; Inflamação Crônica.

INSULIN RESISTANCE: MOLECULAR MECHANISMS AND SYSTEMIC IMPACT

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RESUMO

Insulin resistance is a disorder characterized by a reduced cellular response to the hormone, resulting from the interaction between genetic factors, lifestyle, and chronic inflammation. This process compromises insulin signaling, reduces glucose uptake, and causes metabolic changes such as hyperglycemia and dyslipidemia. Furthermore, it is associated with the development of chronic diseases, such as type 2 diabetes and cardiovascular diseases, highlighting its central role in systemic metabolic imbalance.

Palavras-chave: Keywords: Insulin Resistance Insulin Signaling Chronic Inflammation Molecular Mechanisms Systemic Complications.

INTERFACES BETWEEN ONCOLOGY, DEPRESSION AND MENTAL HEALTH IN BREAST CANCER

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RESUMO

Breast cancer remains the most incident neoplasm among women worldwide. In this context, although therapeutic advances have increased survival rates, the diagnosis and treatment impose a significant emotional burden on patients, frequently leading to the development of mental disorders, most notably depression. In light of this, the present study aims to conduct a narrative review regarding the association between depression and breast cancer. A structured narrative review was performed following the SANRA guidelines (Scale for the Assessment of Narrative Review Articles), utilizing the PubMed database. The search strategy was conducted using the descriptors: "breast cancer," "depression," "inflammation," "quality of life," and "survival" combined by Boolean operators (AND). Randomized controlled clinical trials, systematic reviews, meta-analyses, and clinical trials published between 2021 and 2026 in English were included. Experimental animal studies, case reports, and articles without full-text availability were excluded. As a result of the initial search, 141 articles were identified, of which 8 were selected for their higher relevance to the topic. The study selection was carried out by reading titles and abstracts, followed by a full-text analysis of the eligible articles. The analysis identified that breast cancer and depression are frequently associated in patients still undergoing oncological treatment and in those in clinical remission. Studies demonstrated that factors such as psychological follow-up contribute to treatment, while the practice of physical activity is associated with improved anxiety and quality of life during the remission period. Additionally, clinical trials showed that psychotherapeutic monitoring, such as cognitive-behavioral therapy, has proven promising in patients in remission who present anxiety, depression, and fear of recurrence. In this sense, although studies point to an association between depression and worse clinical outcomes in breast cancer, a better quality of life can improve the prognosis of these patients. Therefore, it is essential that interventions are implemented to address these needs.

Palavras-chave: Breast Cancer; Depression; Mental Health; Quality Of Life; Treatment.

INTERFERENCE OF DIABETES MELLITUS IN HUMAN FERTILITY

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RESUMO

Introduction: Diabetes mellitus (DM) is a chronic metabolic disorder characterized by persistent hyperglycemia resulting from a deficiency in insulin production or action. Although its most well-known complications involve the cardiovascular, renal, and neurological systems, growing evidence shows that DM also affects human fertility. In women, it is associated with menstrual irregularities, anovulation, polycystic ovary syndrome, and reduced ovarian reserve, increasing the risk of spontaneous abortions and pregnancy complications. In men, DM compromises spermatogenesis through hormonal, mitochondrial, and inflammatory mechanisms, leading to sperm DNA fragmentation, reduced motility, and erectile dysfunction. Given the high prevalence of DM in individuals of reproductive age, it is essential to understand its impacts on fertility to

guide prevention strategies and clinical management. Objective: To investigate the impact of DM on human fertility by analyzing the pathophysiological mechanisms and clinical impacts in men and women. Methods: An integrative review was conducted in the PubMed, LILACS and Oasis databases using the search terms “Diabetes Mellitus,” “Reproductive Health,” and “Fertility.” The initial search identified 56 articles; after applying inclusion criteria (articles published between 2016 and 2026) and exclusion criteria, as well as full-text review by two independent reviewers, 10 studies were selected for analysis. Results: The studies reviewed show that diabetes significantly impairs human fertility. In women with DM2, reduced levels of anti-Müllerian hormone (AMH) and progesterone were observed, reflecting lower ovarian reserve and endometrial readiness, with significantly lower rates of clinical pregnancy and live births, as well as an increased risk of spontaneous abortion (up to twice as high as in controls). In women with DM1, fertility was approximately 20% lower than in the general population, and the rate of congenital malformations in newborns was elevated (7.4% versus 4.2% in the general population). In men, both DM1 and DM2 resulted in worsened semen parameters: reduced sperm concentration, lower progressive motility, and increased DNA fragmentation, with an elevated presence of leukocytes in semen in DM2, indicating an inflammatory process. Sperm motility in DM1 showed a progressive decline after 10 years of disease, associated with mitochondrial dysfunction. Furthermore, diabetics have an approximately 3-fold higher risk of developing erectile dysfunction. These findings reinforce that chronic hyperglycemia, oxidative stress, and systemic inflammation compromise reproductive function at multiple levels, justifying the need for rigorous clinical management and preconception counseling to reduce pregnancy losses and improve reproductive outcomes. Conclusion: The impact of diabetes mellitus on human fertility extends beyond the classic complications of the disease, emerging as a challenge that is still underappreciated in clinical practice. The data show that men and women with diabetes have poorer reproductive outcomes, with a higher risk of pregnancy loss and impaired gamete quality. These findings reinforce that reproductive health should be considered an integral part of care for diabetic patients, requiring strict metabolic control and multidisciplinary follow-up to reduce risks and promote quality of life.

Palavras-chave: Diabetes Mellitus; Reproductive Health; Fertility; Infertility.

INTERFERÊNCIA DO DIABETES MELLITUS TIPO 1 NO ESTADIAMENTO DA MATURAÇÃO SEXUAL EM CRIANÇAS E ADOLESCENTES: UM ESTUDO DE CAMPO

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RESUMO

Este estudo investiga como o Diabetes Mellitus Tipo 1 (DM1) pode interferir na maturação sexual de crianças e adolescentes. A pesquisa comparou jovens diabéticos e saudáveis utilizando a Escala de Tanner para avaliar o desenvolvimento físico (mamas, genitália e pelos). Embora os resultados tenham mostrado diferenças no estágio de puberdade entre os grupos, o estudo concluiu que essas variações podem ter sido influenciadas por fatores como a idade e o IMC mais elevados no grupo com DM1, e não necessariamente pela doença em si.

Palavras-chave: Diabetes Mellitus Tipo 1; Maturação Sexual; Puberdade.

INTESTINAL DYSBIOSIS AND NEUROPSYCHIATRIC DISORDERS: A NARRATIVE REVIEW REGARDING INFLAMMATORY AND NEUROCHEMICAL MECHANISMS OF THE GUT-BRAIN AXIS

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RESUMO

Introduction: The intestinal microbiota constitutes a complex ecosystem composed of numerous microorganisms whose composition can be influenced by environmental, dietary and physiological factors. Recent studies demonstrate the existence of the microbiota-gut-brain axis, which has been associated with alterations in the microbiota and the development of central nervous system disorders. **Objective:** To discuss the association between intestinal dysbiosis and the development of neuropsychiatric disorders, emphasizing the inflammatory, immunological, and neurochemical mechanisms involved in the microbiota-gut-brain axis. **Methods:** This study consists of a narrative literature review. The search was conducted using articles indexed in PubMed published from 2019 to 2023. The search strategy included the following descriptors: "gut microbiota", "gut-brain axis", "intestinal dysbiosis", "neuroinflammation" and "neuropsychiatric disorders" combined using Boolean operators AND and OR. Original articles, clinical studies and review articles published were included. Hence, studies that did not focus on the relationship between gut microbiota alterations and neurological or psychiatric conditions were excluded. A total of six articles were included in the final analysis. **Results:** Gut-brain communication occurs through endocrine, immune and neural pathways responsible for the regulation of normal brain development. These pathways are highly sensitive to external factors and may undergo alterations that result in conditions that affect brain functioning and behavior. In this context, dysregulated activation of the hypothalamic-pituitary-adrenal system plays a central role by promoting dysbiosis through increased intestinal permeability and blood- brain barrier permeability, a systemic inflammatory response, and direct changes in intestinal microbiota composition. This process is a consequence that contributes to neuroinflammation and alterations in neurotransmission, mechanisms associated with the manifestations of neuropsychiatric disorders, including major depressive disorder, schizophrenia, bipolar disorder, autism spectrum disorder, and attention-deficit hyperactivity disorder. **Conclusion:** Intestinal microbiota imbalance is strongly involved in the pathophysiology of mental disorders by means of neuroinflammation and alterations in neurotransmission. Therefore, understanding gut-brain communication becomes essential for the development of new effective diagnostic and therapeutic approaches.

Palavras-chave: Intestinal Microbiota Gut-brain Axis Neuropsychiatric Disorders Hypothalamic-pituitary-adrenal System.

INTESTINAL DYSBIOSIS AND NEUROPSYCHIATRIC DISORDERS: INFLAMMATORY AND NEUROCHEMICAL MECHANISMS OF THE GUT- BRAIN AXIS

Matheus Evaristo Coércio / Matheus Evaristo Coércio¹ Adriana Cristina Evaristo Coércio ¹ Maria Eduarda Cardoso Torres ² Olivia Costa Marques ³ Natalia Andrade ⁴ Jefferson Aparecido Dias².

RESUMO

Introduction: The intestinal microbiota constitutes a complex ecosystem composed of numerous microorganisms whose composition can be influenced by environmental, dietary and physiological factors. Recent studies demonstrate the existence of the microbiota-gut-brain axis, which has been associated with alterations in the microbiota and the development of central nervous system disorders. **Objective:** To discuss the association between intestinal dysbiosis and the development of neuropsychiatric disorders, emphasizing the inflammatory, immunological, and neurochemical mechanisms involved in the microbiota-gut-brain axis. **Methods:** This study consists of a narrative literature review. The search was conducted using articles indexed in PubMed published from 2022 to 2023, addressing the interaction between central nervous system disorders and the intestinal microbiota. The strategy adopted for the literature search included descriptors related to gut microbiota, gut-brain axis and neuropsychiatric disorders, combined using Boolean operators, original articles, clinical studies and review articles published were included. Hence, studies that did not focus on the relationship regarding gut microbiota alterations and neurological or psychiatric conditions were excluded. **Results:** Gut-brain communication occurs through endocrine, immune and neural pathways responsible for the regulation of normal brain development. These pathways are highly sensitive to external factors and may undergo alterations that result in conditions that affect brain functioning and behavior. In this context, dysregulated activation of the hypothalamic-pituitary-adrenal system plays a central role by promoting dysbiosis through increased intestinal permeability and blood-brain barrier permeability, a systemic inflammatory response, and direct changes in intestinal microbiota composition. This process is a consequence that contributes to neuroinflammation and alterations in neurotransmission, mechanisms associated with the manifestations of neuropsychiatric disorders, including major depressive disorder, schizophrenia, bipolar disorder, autism spectrum disorder, and attention-deficit hyperactivity disorder. **Conclusion:** Intestinal microbiota imbalance is strongly involved in the pathophysiology of mental disorders by means of neuroinflammation and alterations in neurotransmission. Therefore, understanding gut-brain communication becomes essential for the development of new effective diagnostic and therapeutic approaches.

Palavras-chave: Intestinal Microbiota Gut-brain Axis Neuropsychiatric Disorders Hypothalamic-pituitary-adrenal System.

IRISIN AND BDNF IN MUSCLE AND COGNITIVE ALTERATIONS IN CARDIOVASCULAR DISEASE: MECHANISTIC INSIGHTS AND CLINICAL IMPLICATIONS

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RESUMO

Abstract Introduction: Cardiovascular diseases (CVD) are frequently associated with systemic alterations that extend beyond the heart, including skeletal muscle dysfunction and cognitive decline. Emerging evidence suggests that disrupted muscle-brain communication plays a key role in these complications. In this context, irisin, a myokine released during muscle contraction, and brain-derived neurotrophic factor (BDNF), a central regulator of neuroplasticity, have gained attention as important mediators linking metabolism, muscle, and cognitive health. **Objective:** This

review aims to investigate the roles of irisin and BDNF in the interplay between muscle alterations and cognitive impairment in patients with cardiovascular disease, focusing on underlying mechanisms and clinical implications. Methods: This narrative review was based on literature searches conducted in PubMed, EMBASE, and Web of Science using descriptors related to “irisin,” “BDNF,” “cardiovascular disease,” “sarcopenia,” and “cognitive decline.” Experimental, clinical, and review studies were selected based on relevance to molecular mechanisms and functional outcomes. Data were qualitatively synthesized. Discussion: In CVD, chronic inflammation, oxidative stress, and reduced physical activity can contribute to decreased irisin levels, impairing muscle metabolism and promoting sarcopenia. Reduced irisin may also limit the activation of signaling pathways involved in neuroprotection and synaptic plasticity. Concurrently, lower circulating and central levels of BDNF are associated with impaired neurogenesis, reduced synaptic function, and cognitive decline. Importantly, irisin has been shown to stimulate BDNF expression, suggesting a mechanistic link between skeletal muscle activity and brain function. This muscle-brain axis is further influenced by endothelial dysfunction and reduced cerebral perfusion, common in CVD, exacerbating both muscular and cognitive impairments. Clinical and experimental evidence indicate that interventions such as physical exercise can increase irisin and BDNF levels, thereby improving muscle function and cognitive performance. Conclusion: Irisin and BDNF play a central role in the interaction between muscle dysfunction and cognitive decline in cardiovascular disease. Targeting the muscle-brain axis through lifestyle and therapeutic strategies may represent a promising approach to mitigate both physical and cognitive impairments in this population

Palavras-chave: Irisin BDNF Cardiovascular Disease Sarcopenia Cognitive Decline.

LAMININ AND EXTRACELLULAR MATRIX IN THE INTEGRITY OF THE BLOOD-BRAIN BARRIER: IMPLICATIONS FOR NEURODEGENERATION

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RESUMO

RESUMO A barreira hematoencefálica (BHE) constitui uma estrutura altamente seletiva e dinâmica, essencial para a manutenção da homeostase do sistema nervoso central, controlando a passagem de moléculas entre a circulação sistêmica e o tecido nervoso. A matriz extracelular (MEC), especialmente a laminina, exerce papel fundamental na preservação da integridade estrutural e funcional dessa barreira, participando da adesão celular, organização da membrana basal e comunicação entre células endoteliais, astrócitos e pericitos. O objetivo deste estudo foi discutir a relevância da laminina e da MEC na estabilidade da BHE, bem como suas implicações nos processos de neurodegeneração. Realizou-se revisão integrativa da literatura nas bases SciELO, PubMed, MEDLINE, Scopus e Web of Science, entre 2015 e 2025, sendo selecionados 18 estudos. Os resultados demonstram que a laminina é indispensável para a estabilidade vascular, manutenção das junções celulares e regulação de vias de sinalização endotelial relacionadas à permeabilidade vascular. Sua degradação, frequentemente mediada por processos inflamatórios crônicos e pela ação de metaloproteínases, promove desorganização da membrana basal e aumento da permeabilidade da BHE, favorecendo a entrada de substâncias neurotóxicas, citocinas inflamatórias e células imunes no tecido cerebral. Esse processo intensifica o estresse oxidativo, a resposta inflamatória local e a lesão neuronal progressiva. Além disso, alterações na laminina e em outros componentes da MEC têm sido associadas a doenças como Alzheimer e Parkinson,

contribuindo para acúmulo de proteínas anormais, disfunção sináptica e progressão do dano neurodegenerativo. Conclui-se que a laminina é componente indispensável para a manutenção da integridade da BHE, podendo ser considerada biomarcador potencial e alvo terapêutico promissor em doenças neurodegenerativas. Estudos futuros são necessários para elucidar seus mecanismos moleculares e ampliar aplicações clínicas.

Palavras-chave: Barreira Hematoencefálica Laminina Matriz Extracelular Neurodegeneração Neuroinflamação.

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MAIN UPDATES IN PEDIATRIC ASTHMA MANAGEMENT ACCORDING TO GINA 2026: NEW PERSPECTIVES ON ANTI-INFLAMMATORY RELIEVER THERAPY AND EXACERBATION CONTROL / Leticia Carvalho de Souza Barbosa / Eduardo Garcia da Silveira Neto (FEMA); Rafaela Vieira Souza Lima de Souza Reis (UNOESTE); Luiza Netto de Carvalho Medeiros (UNIMAR)

RESUMO

Introduction: Asthma is one of the most prevalent chronic diseases in childhood and remains a major cause of emergency visits, hospitalizations, and reduced quality of life worldwide. The 2026 update of the Global Initiative for Asthma (GINA) introduced important operational and therapeutic changes focused on reducing exacerbations and improving long- term inflammatory control in pediatric patients. **Objective:** To review the main updates in pediatric asthma management proposed by the GINA 2026 strategy report, emphasizing anti-inflammatory reliever therapy, acute exacerbation management, and new assessment tools. **Methods:** This is a narrative literature review based on the analysis of the GINA 2026 Global Strategy for Asthma Management and Prevention report. The review focused on pediatric recommendations involving children and adolescents with asthma, including acute exacerbation protocols, anti-inflammatory reliever strategies, and severity assessment tools. **Results:** The GINA 2026 report introduced four new operational flowcharts for asthma exacerbation management according to age group and healthcare setting. Important updates include lower oxygen supplementation thresholds, more conservative use of short-acting beta2-agonists (SABA), and the incorporation of inhaled corticosteroid-formoterol as an option for mild exacerbations in children aged 6-11 years. The strategy also reinforced anti- inflammatory reliever therapy (AIR), recommending inhaled corticosteroids associated with bronchodilators to reduce severe exacerbations and future risks. Based on the CARE study, low-dose budesonide-formoterol used as needed reduced severe exacerbations by approximately 45% compared with isolated SABA use in pediatric patients. The Pediatric Respiratory Assessment Measure (PRAM) was strongly recommended for severity assessment during exacerbations. Additional updates included new biologic therapies, emphasis on inhaler technique, and reduction of cumulative oral corticosteroid exposure. **Conclusion:** The GINA 2026 recommendations represent an important shift in pediatric asthma management by prioritizing inflammatory control, exacerbation prevention, and individualized treatment strategies. The incorporation of anti-inflammatory reliever therapy and standardized assessment tools may contribute to safer and more effective asthma care in children and adolescents.

Palavras-chave: Asthma; Pediatrics; Anti-inflammatory Reliever; Exacerbation; GINA 2026.

MAIN UPDATES IN PEDIATRICS ASTHMA MANAGEMENT ACCORDING TO GINA 2026: NEW PERSPECTIVES ON ANTI-INFLAMMATORY RELIEVER THERAPY AND EXACERBATION CONTROL

Leticia Carvalho de Souza Barbosa / Eduardo Garcia da Silveira Neto (FEMA); Rafaela Vieira Souza Lima de Souza Reis (UNOESTE); Luiza Netto de Carvalho Medeiros (UNIMAR)

RESUMO

Introduction: Asthma is one of the most prevalent chronic diseases in childhood and remains a leading cause of emergency visits, hospitalizations, and reduced quality of life worldwide. The Global Initiative for Asthma (GINA) is an international scientific organization that annually updates evidence-based recommendations for asthma management and prevention, serving as the primary global reference for healthcare providers. The 2026 GINA update introduced significant operational and therapeutic changes focused on reducing exacerbations and improving long-term inflammatory control in pediatric patients. **Objective:** To review the main updates in pediatric asthma management proposed by the GINA 2026 strategy report, emphasizing anti-inflammatory reliever therapy, acute exacerbation management, and new assessment tools. **Methods:** A narrative bibliographic review was conducted based on the GINA 2025 and 2026 Global Strategy for Asthma Management and Prevention reports as primary inclusion criteria, focusing on pediatric recommendations for children and adolescents, including acute exacerbation protocols, anti-inflammatory reliever strategies, and severity assessment tools. **Results:** The GINA 2026 report introduced four new operational flowcharts for asthma exacerbation management stratified by age group and healthcare setting. Key updates include revised oxygen supplementation thresholds, more conservative use of short-acting beta2-agonists (SABA), and the incorporation of inhaled corticosteroid-formoterol as a therapeutic option for mild exacerbations in children aged 6-11 years. The strategy reinforced anti-inflammatory reliever (AIR) therapy, recommending inhaled corticosteroids combined with bronchodilators to reduce severe exacerbations and future risks. Evidence from the CARE study demonstrated that low-dose budesonide-formoterol used as needed reduced severe exacerbations by approximately 45% compared with isolated SABA use in pediatric patients. The Pediatric Respiratory Assessment Measure (PRAM) was strongly recommended for severity assessment during exacerbations. Additional updates addressed airway remodeling prevention through early anti-inflammatory intervention, new biologic therapies, emphasis on inhaler technique, and reduction of cumulative oral corticosteroid exposure. **Conclusion:** The GINA 2026 recommendations represent a paradigm shift in pediatric asthma management by prioritizing inflammatory control, exacerbation prevention, and individualized disease management strategies, with the incorporation of anti-inflammatory reliever therapy and standardized assessment tools contributing to safer and more effective asthma care in children and adolescents.

Palavras-chave: Asthma; Airway Remodeling; Disease Management; Inhaled Corticosteroid; Pediatric Respiratory Assessment.

MANIFESTAÇÕES NEUROPSIQUIÁTRICAS DA NEUROSSÍFILIS: REVISÃO INTEGRATIVA DAS INTERFACES CLÍNICAS E DESAFIOS DIAGNÓSTICOS.

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RESUMO

A neurosífilis é uma infecção crônica decorrente da invasão do sistema nervoso central pela bactéria *Treponema pallidum*, apresentando aumento progressivo nos últimos anos, especialmente em populações de maior risco. Devido à sua apresentação clínica heterogênea, essa condição pode mimetizar diversas doenças neurológicas e psiquiátricas, em razão da ampla variabilidade de suas manifestações clínicas. Entre as manifestações neuropsiquiátricas, destacam-se delírio, psicose, transtornos do humor, comprometimento cognitivo e alterações de personalidade, frequentemente levando a diagnósticos equivocados como transtornos psiquiátricos primários. O objetivo deste estudo foi sintetizar e analisar criticamente as evidências disponíveis sobre as manifestações neuropsiquiátricas da neurosífilis, enfatizando suas características clínicas, mecanismos fisiopatológicos propostos, desafios diagnósticos e implicações para a prática em saúde mental. Trata-se de uma revisão integrativa da literatura, conduzida por meio de estratégia de busca sistematizada na base de dados PubMed/MEDLINE, abrangendo publicações no período de 2020 a 2026. Foram utilizados descritores controlados e termos livres combinados por operadores booleanos, sendo selecionados 17 estudos após aplicação dos critérios de elegibilidade e leitura na íntegra. Os resultados indicam que a neurosífilis frequentemente se manifesta por quadros clínicos atípicos e heterogêneos, com destaque para sintomas psicóticos e declínio cognitivo, além de forte sobreposição com transtornos psiquiátricos primários. As dificuldades diagnósticas estão relacionadas à inespecificidade dos sintomas, à ausência de um único teste diagnóstico com alta acurácia e à dependência de exames do líquido cefalorraquidiano. Mecanismos como neuroinflamação, disfunção da barreira hematoencefálica e alterações proteicas parecem estar envolvidos na fisiopatologia da doença. Observa-se ainda que, em muitos casos, há melhora significativa do quadro clínico após o tratamento com antibioticoterapia adequada, mesmo em pacientes inicialmente refratários ao tratamento psiquiátrico. Conclui-se que a neurosífilis permanece uma condição subdiagnosticada e de grande relevância clínica, devendo ser considerada no diagnóstico diferencial de quadros neuropsiquiátricos atípicos. O reconhecimento precoce e o tratamento adequado são fundamentais para prevenir danos neurológicos irreversíveis. Ressalta-se a necessidade de estudos com maior robustez metodológica para aprofundar a compreensão de sua prevalência, mecanismos fisiopatológicos e impacto na saúde mental.

Palavras-chave: Neurosífilis; Manifestações Neuropsiquiátricas; *Treponema Pallidum*; Psicose; Diagnóstico Diferencial.

META-INFLAMMATION AND ADIPOSE TISSUE DYSFUNCTION: IMMUNOMETABOLIC MECHANISMS OF OBESITY AS A SYSTEMIC INFLAMMATORY DISEASE

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RESUMO

ABSTRACT Obesity is a chronic and multifactorial disease characterized by a state of persistent low-grade systemic inflammation, known as meta- inflammation. Unlike acute inflammation, meta-inflammation is triggered by nutrient excess and metabolic dysfunction, compromising endocrine homeostasis and insulin signaling. To analyze the role of chronic low-grade inflammation in the pathophysiology of obesity and its repercussions on the cardiometabolic axis. A narrative literature review was conducted in PubMed and the CAPES Periodicals Portal (2021-2026). The PICO strategy was applied using MeSH descriptors: "Obesity", "Adipose Tissue", "Cytokines", and "Insulin Resistance". Selection prioritized studies detailing inflammatory molecular signaling and leukocyte polarization in visceral adipose tissue. Adipose tissue expansion promotes cellular hypoxia, endoplasmic reticulum stress, and adipocyte death, triggering the release of damage-associated molecular patterns (DAMPs). These signals activate pattern recognition receptors (such as TLR-4), leading to macrophage polarization from the anti-inflammatory M2 phenotype to the pro- inflammatory M1. It was observed that excessive secretion of TNF- α and IL-6 activates stress kinases (JNK and IKK β), which promote serine phosphorylation of the insulin receptor substrate (IRS-1), blocking the PI3K/Akt pathway. Visceral fat demonstrates higher expression of chemotactic proteins (such as MCP-1), sustaining the infiltration of CD8+ T cells and dendritic cells, which directly correlates the inflammatory burden with increased C-Reactive Protein (CRP) levels and cardiovascular event risk. Meta-inflammation constitutes a central pathophysiological link between adipose tissue expansion and the onset of cardiometabolic comorbidities. In obesity, adipose tissue ceases to function merely as an energy reservoir and begins to act as a dysfunctional endocrine and immunological organ. The accumulation of fat, especially visceral fat, activates receptors such as TLR-4, which recognize lipid excess and trigger the inflammatory response. This process favors macrophage polarization from the anti-inflammatory (M2) to the pro-inflammatory (M1) profile, with increased release of cytokines such as TNF- α and IL-6, perpetuating a chronic state of low-grade inflammation. At the molecular level, these cytokines activate stress kinases such as JNK and IKK β -mediated pathways, promoting serine phosphorylation of IRS-1. As a consequence, insulin signaling is impaired, particularly through attenuation of the PI3K/Akt pathway a key mechanism in obesity-associated insulin resistance. This scenario supports the understanding of obesity as a chronic immunometabolic condition, in which persistent inflammation contributes to both metabolic dysfunction and endothelial damage. Therefore, therapeutic management must go beyond isolated weight loss, incorporating strategies aimed at modulating cell communication and resolving inflammation, with the goal of reducing the risk of type 2 diabetes and cardiovascular disease.

Palavras-chave: Obesity; Adipose Tissue; Cytokines; Insulin Resistance; Chronic Disease.

METABOLIC REPROGRAMMING DRIVEN BY THE NAD⁺/SIRT1-PARP1 AXIS: IMPLICATIONS FOR GENOMIC STABILITY, DNA DAMAGE RESPONSE, AND THERAPEUTIC RESISTANCE IN CANCER

Isabelly Assmann Bueno / Maria Eduarda Gonçalves Montin¹ Geovanna de Castro Feitosa¹ Ana Flávia Pontes Sodré¹ Maricelma S. S. Souza¹; Sandra M. Barbalho^{1 2}

RESUMO

Introduction: Cancer cells undergo profound metabolic reprogramming to sustain proliferation, survival, and stress adaptation. Among the central regulators of this process, the NAD⁺-dependent signaling network, particularly the interplay between sirtuin 1 (SIRT1) and poly(ADP-ribose) polymerase 1 (PARP1), has emerged as a critical determinant of genomic stability and therapeutic response. **Objective:** This review aims to elucidate the role of the NAD⁺/SIRT1-PARP1 axis in coordinating metabolic adaptation, DNA damage repair, and resistance to anticancer therapies. **Materials and Methods:** This narrative review employed a systematic search strategy in PubMed/MEDLINE and Scopus. Terms such as “NAD⁺ metabolism,” “SIRT1,” “PARP1,” “DNA damage response,” and “cancer metabolism” were combined using Boolean operators. Original articles, systematic reviews, and meta-analyses focusing on molecular and metabolic mechanisms in cancer were included. Data were qualitatively synthesized to highlight the interplay among NAD⁺ signaling, genomic stability, and therapeutic resistance. **Results:** Current evidence indicates that increased PARP1 activity in response to DNA damage leads to substantial NAD⁺ consumption, thereby limiting its availability for SIRT1 activity. This imbalance disrupts key cellular processes, including chromatin remodeling, mitochondrial function, and the regulation of oxidative stress. Conversely, SIRT1 modulates DNA repair pathways, promotes genomic integrity, and regulates transcriptional programs involved in cell survival and metabolism. The competition for NAD⁺ between these enzymes establishes a metabolic checkpoint that influences tumor progression and cellular fate. Furthermore, alterations in NAD⁺ metabolism have been associated with resistance to chemotherapy and radiotherapy, highlighting the therapeutic potential of targeting this axis. Pharmacological modulation of PARP1 and SIRT1, as well as strategies aimed at restoring NAD⁺ homeostasis, may enhance treatment efficacy and overcome resistance mechanisms. **Conclusion:** The NAD⁺/SIRT1-PARP1 axis plays a central role in linking metabolism, genomic stability, and cancer progression. Its dysregulation contributes to therapeutic resistance, while targeting NAD⁺ homeostasis and related pathways represents a promising strategy to improve anticancer treatment outcomes.

Palavras-chave: NAD⁺ Metabolism SIRT1 PARP1 Metabolic Reprogramming DNA Damage Response Cancer.

METABOLIC SYNDROME AND KNEE OSTEOARTHRITIS PROGRESSION: POTENTIAL MECHANISMS LINKING METABOLIC DYSFUNCTION AND JOINT DEGENERATION

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RESUMO

Introdução: A osteoartrite (OA) do joelho é uma doença articular degenerativa tradicionalmente associada ao desgaste mecânico. No entanto, evidências emergentes identificam a Síndrome Metabólica (SM) como um fator sistêmico de degeneração articular. Essa relação é mediada principalmente por inflamação crônica de baixo grau, disfunção metabólica e citocinas pró-inflamatórias que aceleram a atrição da cartilagem e o dano sinovial. Compreender essas vias sistêmicas é crucial para o desenvolvimento de estratégias clínicas que integrem o manejo metabólico com intervenções tradicionais de redução da carga mecânica para mitigar a progressão da OA. **Objetivo:** Examinar a possível associação entre os componentes da síndrome metabólica e

a progressão da osteoartrite do joelho, com foco nos mecanismos biológicos e inflamatórios subjacentes que ligam a disfunção metabólica à degeneração articular. **Materiais e metodologia:** Foi realizada uma revisão narrativa da literatura utilizando a base de dados PubMed. A busca incluiu os termos “síndrome metabólica”, “joelho”, “osteoartrite”, “obesidade” e “osso”. Foram selecionados artigos publicados entre 2023 e 2026, em inglês e português. Estudos que abordavam a associação entre síndrome metabólica e osteoartrite do joelho foram incluídos e analisados descritivamente, com foco em mecanismos metabólicos, inflamatórios e relacionados ao IMC. **Discussão:** A síndrome metabólica (SM) está associada ao aumento dos sintomas e da dor no joelho, particularmente em adultos com mais de 18 anos, sendo a obesidade abdominal, a hipertensão e o baixo HDL os principais fatores contribuintes. O momento do início da SM é relevante, visto que o início na idade adulta está ligado a sintomas mais pronunciados. Nesse contexto, a SM promove inflamação crônica de baixo grau, com a atividade de citocinas e a polarização de macrófagos contribuindo para o dano ósseo e o aumento da percepção da dor. No entanto, sua relação com a osteoartrite (OA) é complexa e amplamente influenciada pelo índice de massa corporal (IMC), com a maioria dos efeitos sendo mediados pelo IMC e o risco aumentando de forma não linear acima de ~ 27 , destacando a sobrecarga mecânica. A obesidade abdominal permanece o principal fator metabólico, enquanto outros fatores metabólicos e inflamatórios podem contribuir independentemente, dependendo do momento da doença, refletindo uma interação complexa na progressão da OA. Ainda assim, a síndrome metabólica (SM) pode estar associada a sintomas mesmo após o ajuste para o IMC, sugerindo efeitos metabólicos, particularmente em indivíduos mais jovens e com IMC mais baixo. **Conclusão:** Uma relação entre a SM e o risco de OA reforça a interação entre fatores metabólicos e mecânicos, indicando um papel dependente do momento da doença na progressão da OA. A síndrome metabólica (SM) está associada a sintomas mais graves no joelho em pacientes com osteoartrite (OA), em grande parte mediados pelo índice de massa corporal (IMC) e pela sobrecarga mecânica, com a obesidade abdominal como um fator-chave. No entanto, mecanismos metabólicos e inflamatórios podem contribuir independentemente, dependendo do momento da doença, refletindo uma interação complexa na progressão da OA.

Palavras-chave: Metabolic Syndrome; Knee; Osteoarthritis; Obesity; Bone.

METABOLIC SYNDROME AND META-INFLAMMATION: A REVISIT TO THIS CENTRAL AXIS OF CARDIOVASCULAR DISEASES

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RESUMO

INTRODUCTION: Metabolic Syndrome (MetS) has become a global health concern, and it is often associated with industrialized countries, where people are sedentary and constantly eat fast food and ultra-processed foods. MetS is characterized by meta-inflammation, that is a result of genetic predisposition combined with changes in the body, such as obesity, insulin resistance (IR), high abdominal circumference, dysfunction in glucose metabolism, and cardiovascular diseases (CVDs), also affecting the liver, brain, and intestine. **OBJECTIVE:** this review aims to elucidate

the relationship between metainflammation and MetS and to clarify how this chronic inflammatory state contributes to the onset and progression of cardiovascular diseases. **METHODS:** This is a narrative literature review based on a PubMed search using descriptors related to metabolic syndrome, metainflammation, oxidative stress, and cardiovascular risk. Original articles, systematic reviews, and narrative reviews that evidenced the relationship between metainflammation and metabolic syndrome as potential causes of cardiovascular disease were included. **RESULTS:** MetS, also known as Syndrome X, is associated with obesity, IR, hypertension, elevated levels of triglycerides, and reduced levels of high-density lipoprotein (HDL-c). In patients with MetS, the excess calorie consumption leads to an increase in the amount of visceral white adipose tissue (WAT), which will be responsible for the release of hormones and pro-inflammatory cells that will cause imbalance in glucose metabolism, IR, liver complications, increased release of free fatty acids (FFA) and cholesterol, establishing a condition known as metainflammation. MetS also promotes a shift in adipose tissue function toward a pro-inflammatory profile, with increased release of cytokines and activation of pathways such as Jun N-Terminal Kinase (JNK) and I κ B kinase (IKK) that are responsible for the cascade release of pro-inflammatory mediators, in addition to causing IR. M1 macrophages infiltrate adipose tissue and amplify inflammation, contributing to elevated free fatty acids and IR. Interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF- α), which is released by adipocytes and macrophages, further worsen metabolic dysfunction, promoting endothelial damage and atherosclerosis. These processes reinforce a vicious cycle in which obesity and IR perpetuate each other. The consequences of these changes in the body can lead to lower cognitive performance, vascular dementia, tissue fibrosis, atherogenesis, and other cardiovascular problems. For example, studies have shown that oxidative stress is linked to atrial fibrillation and can also contribute to neuroinflammation. Altogether, these interconnected mechanisms highlight the systemic impact of MetS, extending beyond metabolic dysfunction to multi-organ impairment and increased morbidity. **CONCLUSION:** MetS is driven by a persistent pro-inflammatory and pro-oxidative state that disrupts metabolic homeostasis and promotes endothelial dysfunction, atherogenesis, and systemic complications. This alteration in metabolic homeostasis accelerates cardiovascular damage and highlights the importance of early interventions targeting inflammation and metabolic imbalance.

Palavras-chave: Metainflammation Metabolic Syndrome/MetS Cardiovascular Diseases.

METABOLIC SYNDROME, INSULIN RESISTANCE AND ALTERATIONS IN THE GUT MICROBIOTA AS RISK FACTORS FOR THE DEVELOPMENT OF CARDIOVASCULAR DISEASES: A LITERATURE REVIEW.

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RESUMO

INTRODUCTION: The intestinal microbiota maintains a symbiotic relationship with humans and plays an essential role in metabolic homeostasis. The gut microbiome is responsible for fermenting non-digestible substrates, such as dietary fiber, leading to the production of short-chain fatty acids (SCFAs), mainly butyrate, acetate, and propionate. These metabolites regulate energy expenditure, glucose metabolism, appetite, and immune responses, directly influencing metabolic health and

contributing to the regulation of Metabolic Syndrome (MetS). SCFAs also provide energy to colonocytes and exert systemic effects through the portal circulation. Additionally, they stimulate the secretion of GLP-1 and peptide YY (PYY), contributing to satiety, intestinal homeostasis, and anti-inflammatory activity, helping protect against Metabolic Syndrome (MetS) and related metabolic disorders such as obesity. **OBJECTIVE:** This review aims to elucidate the relationship between metabolic syndrome (MetS), insulin resistance (IR), alterations in the gut microbiota as risk factor to the development and progression of cardiovascular diseases (CVD). **METHODOLOGY:** This narrative literature review was conducted through a systematic search of the scientific databases PubMed and SciELO aiming to identify studies addressing the relationship between metabolic syndrome (MetS), insulin resistance (IR), alterations in the gut microbiota, and the development of cardiovascular diseases (CVD). The search included articles published between January 2018 and May 2026, a period selected to ensure the inclusion of the most recent and relevant evidence on the topic. The descriptors used, combined with Boolean operators (“AND” and “OR”), were: “Metabolic Syndrome”, “Insulin Resistance”, “Gut Microbiota”, “Short-Chain Fatty Acids”, and “Cardiovascular Diseases”. The inclusion criteria comprised original articles, systematic reviews, and meta-analyses available in full text that investigated the relationship between metabolic syndrome, insulin resistance, gut microbiota alterations, and cardiovascular diseases. Editorials, case reports, duplicate studies, conference abstracts, and unrelated articles were excluded. **RESULTS:** Studies have shown that reduced levels of short-chain fatty acid (SCFA)-producing bacteria are associated with the progression of MetS. SCFAs interact with G-protein coupled receptors, such as GPR43, stimulating GLP-1 secretion and improving IR, glucose metabolism, and energy balance. These mechanisms directly counteract IR, one of the main determinants of MetS. Low fiber intake, commonly observed in Western dietary patterns, decreases SCFA production and contributes to ectopic fat accumulation, abdominal obesity, and metabolic dysfunction. Reduced activation of GPR43 also impairs lipid and glucose regulation in adipose tissue and skeletal muscle, favoring the development of obesity and other cardiovascular risk factors associated with MetS. The intestinal microbiota has therefore been investigated as a therapeutic target for MetS. Probiotic supplementation, such as *Bifidobacterium lactis*, has been associated with reduced hepatic gluconeogenesis, improved GLUT4 translocation, and decreased insulin resistance. Likewise, increased dietary fiber intake promotes the proliferation of SCFA-producing bacteria, contributing to metabolic balance and reduced adiposity. **CONCLUSION:** In summary, evidence suggests that factors promoting increased GLP-1 release, particularly the elevated production of SCFAs by the intestinal microbiota through adequate fiber intake, are strongly associated with attenuation of MetS. These mechanisms contribute to improved metabolic homeostasis, reduced insulin resistance, and a lower risk of future cardiovascular and metabolic diseases.

Palavras-chave: Metabolic Syndrome/MetS Insulin Resistance Gut Microbiota Short-Chain Fatty Acids Cardiovascular Diseases.

MITOCHONDRIAL DYSFUNCTION AND REDOX REMODELING IN THE NOX-UNCOUPLLED ENOS AXIS: IMPLICATIONS FOR ATHEROSCLEROSIS AND VASCULAR STIFFNESS

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RESUMO

Introduction: Cardiovascular diseases remain the leading cause of mortality worldwide, with atherosclerosis and vascular stiffness representing key pathological processes driven by complex molecular mechanisms. Among these, redox imbalance and mitochondrial dysfunction play central roles in the initiation and progression of vascular damage. **Objective:** This review aims to explore the interplay between mitochondrial dysfunction and redox remodeling within the NADPH oxidase (NOX)-endothelial nitric oxide synthase (eNOS) axis, with particular emphasis on eNOS uncoupling as a critical event in endothelial dysfunction. **Methods:** This narrative review employed a systematic search strategy in PubMed/MEDLINE, Scopus, and Web of Science, including studies published between 2015 and 2026. Keywords such as “mitochondrial dysfunction,” “oxidative stress,” “NOX,” and “eNOS uncoupling” were combined using Boolean operators. Original articles and reviews addressing molecular mechanisms of endothelial dysfunction were included, while duplicates and unrelated studies were excluded. **Results:** A comprehensive analysis of recent evidence highlights that excessive reactive oxygen species (ROS) production, primarily mediated by NOX enzymes, contributes to the oxidation of tetrahydrobiopterin (BH4), leading to eNOS uncoupling and reduced nitric oxide (NO) bioavailability. This shift promotes a vicious cycle of oxidative stress, inflammation, and vascular remodeling. In parallel, mitochondrial dysfunction exacerbates ROS generation, impairs ATP production, and activates pro-inflammatory signaling pathways, further aggravating endothelial injury. These interconnected processes contribute to the progression of atherosclerotic plaque formation, increased arterial stiffness, and impaired vascular homeostasis. Additionally, emerging evidence suggests that targeting mitochondrial function and restoring redox balance may represent promising therapeutic strategies to mitigate cardiovascular risk. **Conclusion:** The NOX-uncoupled eNOS axis, closely linked to mitochondrial dysfunction, represents a pivotal mechanism underlying vascular pathology and offers novel insights into potential molecular targets for the prevention and treatment of cardiovascular diseases.

Palavras-chave: Redox Signaling Endothelial Dysfunction NOX-eNOS Axis Reactive Oxygen Species (ROS) Vascular Remodeling.

MITOCHONDRIAL MEDICINE IN OBESITY: A NARRATIVE REVIEW

Rafaela Maria Doretto / Amanda dos S. Alonso Brandão; Damaris Aprigio F. Lahoud; Maria Fernanda M. Albano; Sandra M. Barbalho; Juliana Bichara

RESUMO

This review examines how mitochondrial dysfunction contributes to obesity. Beyond fat accumulation, obesity involves metabolic issues like inflammation, insulin resistance, and oxidative stress. These changes impair mitochondrial function, reducing energy efficiency and increasing cellular damage. The study highlights potential treatments targeting mitochondria, such as antioxidants and therapies that improve mitochondrial activity. Although promising, more research is needed to confirm their effectiveness.

Palavras-chave: Obesity; Mitochondrial Dysfunction; Oxidative Stress; Metabolic Disease; Mitochondrial Biogenesis.

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Palavras-chave: Obesity; Mitochondrial Dysfunction; Oxidative Stress; Metabolic Disease; Mitochondrial Biogenesis.

MOBILE APPLICATIONS AS HEALTH EDUCATION AND SELF-CARE SUPPORT TOOLS IN DIABETES MANAGEMENT: A NARRATIVE LITERATURE REVIEW

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RESUMO

ABSTRACT Introduction: Diabetes mellitus (DM) is a chronic disease with high prevalence and significant impact on public health, requiring continuous follow-up and therapeutic strategies focused on glycemic control and prevention of complications. In this context, mobile health (mobile health - mHealth) has emerged as a complementary tool to support self-care, health education, and clinical monitoring of individuals with diabetes. Objective: To analyze the use of mobile applications as health education and self-care support tools in diabetes management, highlighting their functionalities and potential contributions to glycemic control and treatment adherence. Methods: This is a narrative literature review with a descriptive and qualitative approach, based on the analysis of scientific publications related to mobile applications aimed at diabetes mellitus management. Scientific articles published in Portuguese and English were analyzed, including studies addressing app functionalities, health education, glycemic self-monitoring, and digital strategies applied to diabetes management. Results: The analyzed studies demonstrated that mobile applications may assist self-care and therapeutic monitoring in individuals with diabetes. The main functionalities identified included blood glucose monitoring, insulin therapy monitoring, medication reminders, carbohydrate counting, food records, graphical visualization of glycemic parameters, and educational resources related to diabetes. Associations were also observed between the use of these technologies and improved glycemic control, especially through increased self-monitoring and greater patient engagement in treatment. In addition, mobile applications showed potential to improve disease understanding, encourage healthy lifestyle habits, and strengthen health education strategies. However, the studies also highlighted limitations related to accessibility, the need for scientific validation of some platforms, and differences in the level of personalization among available resources. Conclusion: Mobile applications represent potentially promising complementary tools in diabetes management, contributing to self-care, health education, and therapeutic follow-up support. Despite the observed

benefits, further studies are still needed to evaluate the clinical effectiveness of these technologies and their applicability in different population contexts.

Palavras-chave: Diabetes Mellitus Mobile Applications Health Education Self-Care Digital Health.

MODULAÇÃO DA EXPERIÊNCIA DOLOROSA E AUTORREGULAÇÃO NA ENDOMETRIOSE VIA INTERVENÇÕES BASEADAS EM ATENÇÃO PLENA: UMA REVISÃO DE ENSAIOS CLÍNICOS RANDOMIZADOS

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RESUMO

Endometriose é uma doença inflamatória sistêmica caracterizada pela deposição ectópica de tecido endometrial, resultando em sensibilização central e dor pélvica crônica (DPC). O manejo convencional apresenta limitações na abordagem dos componentes cognitivo-afetivos da dor, o que justifica a investigação de Intervenções Baseadas em Atenção Plena (Mindfulness-Based Interventions - MBI) como adjuvantes terapêuticos. O presente estudo visa avaliar a eficácia da MBI na qualidade de vida (QoL), redução da dor e parâmetros de autorregulação fisiológica em mulheres com endometriose. Foi realizada uma revisão de literatura baseada na estratégia PICO, na base PubMed com os descritores “Mindfulness” e “Endometriosis”. Foram incluídos apenas ensaios clínicos randomizados (RCTs) que avaliaram o impacto da MBI na dor pélvica e bem-estar psicológico. Foram selecionados 4 RCTs (n=121 pacientes). Os dados indicam que a MBI promove melhoras significativas na QoL, especialmente nos domínios de bem-estar emocional, controle e suporte social. Embora um estudo não tenha demonstrado superioridade da MBI frente ao suporte psicológico não específico para a intensidade da dor na escala numerical rating scale (NRS), evidências robustas apontam que a MBI atua como mediadora da melhora clínica através da redução da catastrofização da dor e modulação de afetos negativos. Notavelmente, a intervenção breve de Mindfulness (bMBI) demonstrou efeitos cumulativos, reduzindo disúria, dispareunia e dismenorreia no follow-up. No âmbito fisiológico, a MBI elevou o tônus parassimpático (variabilidade da frequência cardíaca - vmHRV) e melhorou o controle atencional (testes Stroop e Flanker), facilitando o desengajamento sensorial da experiência dolorosa. A MBI é eficaz na melhora da saúde mental e funcionalidade de pacientes com endometriose. O mecanismo de ação não se limita à redução da nocicepção, mas envolve a reconfiguração da resposta ao estresse e o fortalecimento de mecanismos de autorregulação emocional e autonômica. Recomenda-se a integração da MBI como terapia complementar para restaurar o bem-estar biopsicossocial. Portanto, a MBI pode ser uma terapia adjuvante, promovendo um desengajamento sensorial-afetivo, melhorando a percepção da dor e dando às pacientes ferramentas para lidar com ela.

Palavras-chave: Endometriose; Atenção Plena; Mulheres.

MULTIMODAL INTERVENTION WITH NUTRITIONAL SUPPLEMENTATION AND PHYSICAL EXERCISE IN WOMEN WITH BREAST CANCER: EFFECTS ON MUSCLE PERFORMANCE AND QUALITY OF LIFE

Manuela Dos Santos Bueno

RESUMO

Breast cancer is the most prevalent malignant neoplasm among women worldwide and represents a major public health concern due to its high incidence, mortality, and functional impact. Patients undergoing chemotherapy frequently experience impaired nutritional status, sarcopenia, reduced muscle performance, and decreased quality of life. Recent evidence suggests that nutritional interventions combined with physical exercise may contribute to the preservation of lean body mass and functional capacity in oncological patients. However, gaps remain regarding the effects of hyperproteic nutritional supplementation enriched with vitamins and minerals in women with breast cancer during chemotherapy. It is hypothesized that this multimodal intervention may improve muscle mass preservation, functional performance, and quality of life compared with placebo and healthy control groups. This study aims to evaluate the effects of a hyperproteic and normocaloric nutritional intervention enriched with vitamins and minerals, combined with a physical exercise program, on body composition, muscle performance, and quality of life in women with breast cancer undergoing chemotherapy, compared with healthy controls. This study is a randomized, double-blind, placebo-controlled clinical trial conducted in an outpatient oncology setting. Patients aged 18 to 70 years will be recruited from Oncology UNIMAR Hospital (with a confirmed diagnosis of breast cancer, preserved oral intake capacity, and scheduled to initiate chemotherapy treatment) and from UNIMAR. Participants will be randomly assigned into seven groups according to clinical condition, physical exercise participation, and nutritional supplementation, as follows: healthy controls (H); healthy supplemented (H+S); healthy exercising (H+E); healthy exercising and supplemented (H+E+S); breast cancer patients (BC); breast cancer supplemented (BC+S); and breast cancer exercising (BC+E). Sample size calculation has not yet been performed and will be determined prior to data collection considering 80% statistical power and a 5% significance level. The intervention groups will receive daily a hyperproteic ice cream enriched with vitamins and minerals developed by the research group. The placebo groups will receive an isocaloric ice cream with similar sensory characteristics but without protein or micronutrient enrichment to ensure blinding. Dietary prescriptions will be individualized to maintain normocaloric intake throughout follow-up. The exercise protocol will follow the American College of Sports Medicine guidelines. The primary outcome will be preservation of muscle mass. Secondary outcomes will include muscle performance, functionality, nutritional status, sarcopenia risk, and quality of life. Assessments will include EORTC QLQ-C30, EORTC QLQ-BR23, SARC-F, IPAQ, MUST, SPPB, handgrip dynamometry, DEXA, and computed tomography with L3 analysis. Computed tomography will be performed exclusively in women with breast cancer using imaging examinations already included in routine oncological care, avoiding additional radiation exposure for research purposes. Healthy controls will undergo only noninvasive assessments. It is expected that the multimodal intervention will preserve muscle mass, improve functionality, and reduce nutritional impairments associated with chemotherapy, contributing to better quality of life in women with breast cancer.

Palavras-chave: Breast Cancer Oncology Nutrition Supplementation Body Composition Quality Of Life.

NEUROINFLAMMATION AND NEURODEGENERATIVE DISEASES

Emanuele Barrera Dias / Nathalia Rodrigues Bueno Graziella Lavinia dos Santos Silva Lavínia Eloisa de Oliveira Sofia Emanoela Santos de Quadros Karina Torres Pomini

RESUMO

Summary: Neuroinflammation is now understood as a central driver in the pathogenesis of neurodegenerative diseases, rather than a secondary response. It plays a key role in disorders such as Alzheimer's, Parkinson's, ALS, and Huntington's disease, all marked by progressive neuronal loss and functional decline. The shift from an acute, protective inflammatory response to a chronic, neurotoxic state promotes disease progression through complex CNS signaling pathways. This review highlights that persistent activation of microglia and astrocytes into pro-inflammatory phenotypes sustains neuroinflammation. The NLRP3 inflammasome is a critical mediator, activated by protein aggregates like β -amyloid and α -synuclein, leading to Caspase-1 activation and increased production of pro-inflammatory cytokines (IL-1 β and IL-18). This process enhances Tau hyperphosphorylation and plaque formation, reinforcing a harmful feedback loop. Additional factors, such as blood-brain barrier disruption and oxidative stress caused by reactive oxygen species and nitric oxide, further contribute to neuronal damage. Emerging therapies, including drugs like dexmedetomidine and NLRP3 inhibitors, aim to restore glial cells to a neuroprotective state. Overall, targeting neuroinflammation-particularly inflammasome pathways and glial reprogramming-represents a promising strategy for developing disease-modifying treatments rather than merely alleviating symptoms.

Palavras-chave: KEYWORDS: Neuroinflammation Degenerative Diseases Microglia Neurodegeneration.

NLRP3 INFLAMMASOME ACTIVATION AND NEUTROPHIL EXTRACELLULAR TRAPS (NETS) IN CARDIOVASCULAR DISEASE: MECHANISMS LINKING INFLAMMATION, THROMBOSIS, AND VASCULAR INJURY

Isabelly Assmann Bueno / João Pedro Diniz Freire¹ Ricardo de Alvares Goulart¹ Enzo Pereira de Lima¹ Marcelo Dib Bechara¹ Sandra M. Barbalho^{1 2}

RESUMO

Introduction: Cardiovascular diseases (CVDs) remain the leading cause of morbidity and mortality worldwide and are increasingly recognized as complex disorders driven by chronic low-grade inflammation and immune- metabolic dysregulation. Beyond traditional risk factors, such as dyslipidemia and hypertension, growing evidence highlights the central role of innate immune activation in the initiation and progression of vascular injury. In this context, the NLRP3 (NOD-, LRR- and pyrin domain-containing protein 3) inflammasome has emerged as a critical intracellular sensor of metabolic stress signals, including oxidized lipids, cholesterol crystals, and reactive oxygen species (ROS). Its activation leads to the maturation and release of pro-inflammatory cytokines, amplifying vascular inflammation. In parallel, neutrophil extracellular traps (NETs), composed of chromatin fibers and granular proteins, have been implicated in endothelial dysfunction, thrombosis, and plaque destabilization. The interaction between these pathways represents a novel mechanistic link connecting inflammation, oxidative stress, and thrombotic events in CVD. Objective: The aim of this review is to investigate the role of NLRP3

inflammasome activation and NET formation in the pathophysiology of cardiovascular diseases, focusing on their contribution to inflammation, endothelial dysfunction, and thrombosis. **Methods:** This narrative review was based on a structured search in PubMed/MEDLINE and Web of Science (2021-2026). The keywords included “NLRP3 inflammasome,” “neutrophil extracellular traps”, NETs,” “atherosclerosis,” and “cardiovascular disease.” Relevant original studies and reviews were selected, and data were qualitatively synthesized. **Results:** Activation of the NLRP3 inflammasome is primarily driven by metabolic and oxidative stress signals that promote mitochondrial dysfunction and increased ROS production, leading to caspase-1 activation and subsequent release of Interleukin (IL)-1 β and IL-18. These cytokines amplify endothelial activation, leukocyte recruitment, and vascular inflammation, contributing to plaque progression and instability. Concurrently, NETs released by activated neutrophils act as pro-thrombotic and pro-inflammatory structures, facilitating platelet adhesion, coagulation cascade activation, and endothelial damage. Importantly, recent evidence suggests a bidirectional crosstalk between NETs and NLRP3 signaling, in which NET-derived components can further activate the inflammasome, while NLRP3 activation enhances neutrophil priming and NETosis. This self-amplifying loop promotes persistent inflammation and atherothrombosis. Additionally, these processes are closely linked to redox imbalance and impaired nitric oxide bioavailability, further exacerbating vascular dysfunction. Understanding these integrated pathways provides new insights into residual inflammatory risk and identifies potential molecular targets for therapeutic intervention.. **Conclusion:** The interaction between NLRP3 inflammasome and NETs represents a critical axis in cardiovascular pathology, integrating inflammation, oxidative stress, and thrombosis. Targeting these pathways may offer novel therapeutic strategies to reduce residual cardiovascular risk.

Palavras-chave: NLRP3 Inflammasome NETs Atherosclerosis Cardiovascular Disease Inflammation Thrombosis Oxidative Stress.

NLRP3 INFLAMMASOME ACTIVATION AND NEUTROPHIL EXTRACELLULAR TRAPS (NETS) IN CARDIOVASCULAR DISEASE: MECHANISMS LINKING INFLAMMATION, THROMBOSIS, AND VASCULAR INJURY

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Isabelly Assmann Bueno / João Pedro Diniz Freire¹ Ricardo de Alvares Goulart¹ Enzo Pereira de Lima¹ Marcelo Dib Bechara¹ Sandra M. Barbalho^{1 2}

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Palavras-chave: NLRP3 Inflammasome NETs Atherosclerosis Cardiovascular Disease Inflammation Thrombosis Oxidative Stress.

OBESITY, CANCER RISK, AND THE ROLE OF BARIATRIC SURGERY: A LITERATURE REVIEW

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RESUMO

Introduction: Obesity is associated with an increased risk of cancer, including endometrial, esophageal, stomach, kidney, colorectal, liver, gallbladder, pancreatic, prostate, breast, ovarian, and thyroid cancers. By 2035, worldwide, more than 4 billion people, representing 51% of the global population, are expected to be overweight or obese. Cancer incidence rates are also increasing worldwide; by 2050, it is predicted that more than 35 million new cancer cases will be diagnosed each year. Objectives: To review the most recent studies (2021-2026) on the relationship between obesity and cancer, to assess the role of bariatric surgery in reducing cancer risk and thus discuss the main biological mechanisms linking obesity to oncogenesis. Materials and Methods: Systematic review of scientific literature between 2020 and 2026, using PubMed, Scopus, and Web of Science databases. Results: Obesity-related cancer are increasing at faster rates than other types of cancer among young adults aged 25 to 49 years. This review summarizes the current evidence

on the main biological pathways by which obesity can promote cancer development. Pharmacological approaches to weight management can also reduce the risk of cancer; the use of metformin as a first-line treatment for type 2 diabetes can reduce the risk of cancer by decreasing weight, hyperglycemia, and hyperinsulinemia. Glucagon-like peptide-1 (GLP-1) receptor agonists, such as semaglutide, and dual gastric inhibitory polypeptide/GLP-1 receptor agonists, such as tirzepatide, are associated with sustained weight loss of approximately 10% to 15%. Weight-loss surgeries generally result in a weight reduction of more than 20% compared to baseline weight, in contrast to lifestyle interventions, which induce a weight reduction of approximately 4% to 6%. The primary outcome assessed was the reduction in the risk of developing cancer in obese patients undergoing bariatric surgery, compared to obese patients who did not undergo surgery. Conclusion: Bariatric surgery has a consolidated role in reducing the risk of cancer, especially breast and endometrial cancer; thus, obesity control through surgical interventions becomes an adjunct to cancer prevention strategies.

Palavras-chave: Obesity; Neoplasms; Bariatric Surgery; Cancer Risk; Chronic Inflammation.

OBESITY, INFLAMMATION, AND DYSBIOSIS: IMPACTS ON THE GUT-BRAIN AXIS AND THEIR RELATIONSHIP WITH DEPRESSION: A NARRATIVE REVIEW

Felipe Afonso Negrão / Eduardo Negrão¹ Felipe Afonso Negrão Caio Sergio Galina Spilla²; 1. Undergraduate Medical Student; University of Marília 2. Professor of the Medical and Nursing Programs at the University of Marília (UNIMAR); Marília; São Paulo; Brazil.

RESUMO

Conditions such as depression and obesity represent a significant public health concern. These disorders share common pathophysiological mechanisms, particularly chronic low-grade inflammation, which can affect multiple organ systems, including the gastrointestinal and nervous systems. In this context, the relationship between the gastrointestinal tract and the nervous system has gained increasing attention in the scientific literature, especially following the identification of the gut-brain axis. The intestinal microbiota plays a fundamental role in modulating metabolic, immunological, and neuroendocrine processes. Alterations in the composition of this microenvironment, referred to as dysbiosis, are associated with increased intestinal permeability and activation of the immune system, impacting both gastrointestinal function and the nervous system. Evidence suggests that obesity may trigger alterations in this axis, contributing to neurobiological dysfunctions associated with depressive disorders.

Palavras-chave: Microbiota Inflammation Depression Obesity.

OBESITY, MENTAL HEALTH, AND HORMONAL CHANGES IN WOMEN: AN INTEGRATIVE REVIEW

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RESUMO

Introduction: Obesity is characterized by excessive accumulation of body fat and is commonly defined as a body mass index (BMI) of $\geq 30 \text{ kg/m}^2$. It is a chronic, multifactorial disease involving

metabolic, hormonal, behavioral, and psychosocial factors. In the context of women, this condition is particularly relevant, as women are exposed to hormonal fluctuations throughout their lives that influence energy metabolism, eating behavior, and mental health. Recent evidence also points to a bidirectional relationship between obesity and mental disorders, particularly depression and anxiety, in which both conditions act as risk factors for one another. Thus, understanding this interaction is fundamental for the development of more effective and targeted therapeutic approaches. Objective: To analyze the relationship between obesity, mental health, and hormonal changes in women. Methods: An integrative literature review was conducted by searching the PubMed, Lilacs, Scielo, and Oasis databases. Articles published in the last 10 years that addressed the association between obesity, mental health, and hormonal changes in women were selected. Studies that did not directly address the topic or were not conducted with women were excluded. An initial search yielded 155 articles; after applying filters, inclusion and exclusion criteria, and a full reading of the studies, 8 articles were selected for synthesis of the results. Results: In the studies analyzed, regarding mental health, it was observed that overweight women have a higher prevalence of depressive symptoms, anxiety, and dysfunctional eating patterns, such as binge eating and emotional eating. Conversely, psychiatric disorders can also contribute to weight gain, creating a feedback loop. Regarding hormonal and neuroendocrine factors, it was found that changes in estradiol levels are associated with increased adiposity, insulin resistance, and a higher risk of obesity. Furthermore, hormonal fluctuations throughout the menstrual cycle influence eating behavior, with increased caloric intake and a higher incidence of binge eating during the luteal phase, possibly mediated by the action of progesterone and the relative reduction in the effect of estradiol. These factors not only modulate energy metabolism but also interfere with emotional regulation, reinforcing the interaction between obesity and mental health in women. Conclusion: Obesity in women is a multifactorial condition resulting from the interaction between hormonal changes, metabolic dysfunctions, and psychological factors. Thus, the management of female obesity must integrate biological and psychosocial aspects, aiming not only at weight reduction but also at improving mental health and quality of life.

Palavras-chave: Keywords: Obesity Mental Health Hormonal Changes Women.

OFF-LABEL DRUG PRESCRIBING: SAFETY, EVIDENCE, AND ETHICS - A LITERATURE REVIEW

Rafael Adolfo Ruiz Donega / Giovanna de Oliveira Borelli; Gabriel Raab da Silva Gonçalves; Carlos Henrique Marzola Bissoli Junior; Igor Augusto Donega; Enzo Gonsales Rodrigues

RESUMO

This work presents a literature review on off-label drug prescribing, defined as the use of approved medicines for indications, doses, populations, routes, or frequencies not included in official labeling. The review synthesizes recent evidence on efficacy, safety, ethical aspects, and regulatory implications across dermatology, psychiatry, neurology, and cardiovascular medicine. Based on selected MEDLINE/PubMed studies, it discusses how off-label prescribing may be clinically necessary in specific contexts, while remaining associated with relevant uncertainties when supporting evidence is limited or heterogeneous. The work highlights the importance of individualized benefit-risk assessment, shared decision-making, documentation of scientific rationale, appropriate monitoring, and pharmacovigilance.

Palavras-chave: Uso Off-Label; Efeitos Colaterais E Reações Adversas Relacionados A Medicamentos; Medicina Baseada Em Evidências; Ética Médica; Farmacovigilância.

ORAL ALTERATIONS ASSOCIATED WITH AUTISM SPECTRUM DISORDER: INTERACTION BETWEEN BEHAVIORAL AND METABOLIC FACTORS - LITERATURE REVIEW

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RESUMO

Introduction: Individuals with Autism Spectrum Disorder (ASD) show a greater predisposition to oral health problems due to factors such as limitations in self-care, food selectivity, and sensory alterations that hinder oral hygiene. Furthermore, recent studies have demonstrated an association between alterations in the oral and intestinal microbiota and the clinical manifestations of ASD, suggesting the involvement of the gut-brain and oral- brain axes in neuroinflammatory and behavioral processes. **Objective:** To analyze the relationship between ASD, oral microbiota, and oral health, highlighting the main risk factors. **Materials and Methods:** This is a narrative literature review based on studies published in the PubMed database in the last two years. The descriptors used were: "autism spectrum disorder" and "oral health". Original articles, systematic reviews, and meta-analyses were included. **Results:** The findings indicate that individuals with ASD frequently exhibit food selectivity, as well as cariogenic eating habits, such as a preference for sugary and soft foods. Difficulties with oral hygiene are also common, involving both self-performance and supervision or performance by a caregiver, often associated with sensory hypersensitivity and behavioral resistance. The oral microbiota of these individuals shows significant alterations compared to neurotypical individuals, with evidence of dysbiosis associated with inflammatory processes and possible impacts on the central nervous system. Metabolites such as acetate, propionate, and indoles are increased, while butyrate is reduced, indicating relevant metabolic alterations. Individuals with ASD have a higher incidence of self-harming behaviors, which contributes to an increased risk of oral pathologies, including traumatic lesions. The frequent use of medications, such as antipsychotics and anticonvulsants, contributes to a reduction in salivary flow, increasing the risk of caries. Behaviors such as bruxism and deleterious oral habits are also frequent, increasing the risk of trauma and periodontal diseases. Despite this, evidence suggests that ASD, in isolation, is not a determining factor for oral diseases, with the main risk factors related to inadequate hygiene, diet, and caregiver support. Studies also highlight that the knowledge and attitudes of caregivers directly influence the oral health of children. **Conclusion:** Oral health in individuals with ASD is mainly influenced by hygiene, diet, medication use, and caregiver actions. Oral dysbiosis may be associated with systemic alterations, but there is no evidence that ASD, in isolation, is a determining factor for oral diseases, reinforcing the importance of preventive and educational strategies.

Palavras-chave: Autism Spectrum Disorder; Oral Health; Oral Microbiota; Microbial Dysbiosis.

PAPEL DA DISBIOSE INTESTINAL NO METABOLISMO DO TRIPTOFANO EM INDIVÍDUOS COM TEA

Maria Luiza Tereniak Valverde / Mariana Cupaiol Martins; Elizandra Aparecida de Oliveira Lopes

RESUMO

Intestinal dysbiosis has been associated with systemic alterations that extend beyond the gastrointestinal tract, particularly in the modulation of the gut-brain axis. In the context of Autism Spectrum Disorder (ASD), recent evidence indicates that changes in the intestinal microbiota can impact essential metabolic pathways, especially tryptophan metabolism. This amino acid is a precursor of neuroactive metabolites involved in the regulation of mood, behavior, and neurological development. This study aims to analyze the relationship between intestinal dysbiosis, alterations in tryptophan metabolism, and their neuroimmune and behavioral implications in individuals with ASD. This is a narrative literature review based on recent studies addressing this interaction. Studies investigating metabolic, immunological, and structural changes associated with dysbiosis, as well as microbiota-targeted therapeutic interventions, were included. Findings indicate that intestinal dysbiosis in individuals with ASD is associated with a shift in tryptophan metabolism toward the kynurenine pathway, reducing serotonin production. This imbalance contributes to increased pro-inflammatory metabolites and oxidative stress, directly influencing clinical manifestations of the disorder. Additionally, microbial metabolites such as short-chain fatty acids may impair intestinal permeability and blood-brain barrier integrity, promoting neuroinflammation. Chronic low-grade immune activation was also observed, intensifying neuroimmune and behavioral alterations. Therapeutic strategies including probiotics, prebiotics, synbiotics, dietary interventions, and fecal microbiota transplantation show potential benefits, although further standardization is required. In conclusion, intestinal dysbiosis plays a significant role in ASD pathophysiology through modulation of tryptophan metabolism, highlighting new perspectives for innovative therapeutic approaches.

Palavras-chave: Dysbiosis; Intestinal; AND; Tryptophan; Metabolism.

PARTIAL PANCREATECTOMY IN CONGENITAL HYPERINSULINISM IN PEDIATRIC PATIENTS: A LITERATURE REVIEW

Clarinda Alves De Arantes Sienna / Alicia Moura Subti; Gabriella Peron De Oliveira; Laura Mendes Abib Da Silva; Bianca Fonseca Repetti; Adriana Porto Nunes Gazetta

RESUMO

ABSTRACT Congenital hyperinsulinism is the leading cause of persistent hypoglycemia in neonates, resulting from inappropriate insulin secretion. Untreated hypoglycemia may cause irreversible neurological damage; although initial management is clinical, some patients are refractory. In such cases, partial pancreatectomy is indicated, being curative in focal forms and a glycemic control strategy in diffuse forms. This study aimed to analyze, through a literature review, the indications, clinical outcomes, and metabolic consequences of partial pancreatectomy in pediatric patients with congenital hyperinsulinism. A narrative literature review (2012-2025)

indexed in PubMed was conducted using the terms ((Congenital Hyperinsulinism) AND (Pancreatectomy)) AND (Pediatrics). Seven English-language studies on partial pancreatectomy in congenital hyperinsulinism were included, excluding adult populations and clinical treatment studies. The reviewed studies showed high rates of hypoglycemia resolution in focal congenital hyperinsulinism, with minimal long-term metabolic impact. Clinical reports demonstrated consistent resolution after limited pancreatic resection in focal disease. In contrast, outcomes in diffuse forms were heterogeneous, with partial reduction of hypoglycemia but frequent persistent dysglycemia and progression to diabetes mellitus. These findings indicate that surgical success depends on disease subtype, highlighting the importance of accurate preoperative classification. Additionally, long-term follow-up is essential to monitor postoperative metabolic complications. In conclusion, partial pancreatectomy is highly effective and often curative in focal congenital hyperinsulinism, whereas in diffuse forms it provides limited glycemic control and is associated with long-term metabolic complications.

Palavras-chave: Congenital Hyperinsulinism Pancreatectomy Pediatrics.

PATHOPHYSIOLOGY OF OBESITY-ASSOCIATED HYPERTENSION AND THE IMPACT OF NEW INCRETIN-BASED THERAPIES.

Emanuelli Salvador Presa / Maria Clara Sangueta; Márcia Rocha Gabaldi

RESUMO

ABSTRACT Introduction: Systemic Arterial Hypertension (SAH) is a multifactorial clinical condition, diagnosed by high and sustained blood pressure levels, resulting from the complex interaction between genetic, epigenetic, environmental and lifestyle factors. Among the main modifiable risk factors, excess body weight stands out due to its high prevalence and because it frequently coexists with hypertension. The relationship between these pathologies is bidirectional and complex and involves physiological, metabolic and inflammatory mechanisms, which significantly contribute to the increased risk of cardiovascular compromise. Objectives: To analyze the main pathophysiological mechanisms that explain the interaction between obesity and hypertension, as well as discuss the clinical implications of new therapeutic approaches. Methodology: This investigation is characterized as an integrative literature review with a qualitative and descriptive approach. Data were obtained through scientific evidence available in PubMed, Scielo, Clinical Hyperthersion covering the period from 2019 to 2025. The search strategy used (MeSH/DeCS) such as obesity, hypertension, cardiovascular risk and treatment. Eligibility criteria were applied to select clinical studies and reviews that addressed the pathophysiology of neurohormonal activation and contemporary pharmacological interventions. Results: Obesity contributes to the development of hypertension through several mechanisms, including insulin resistance, activation of the Sympathetic Nervous System and physical compression of the kidneys by retroperitoneal fat. Additionally, adipose tissue dysfunction promotes excessive secretion of leptin and pro-inflammatory cytokines, which stimulate the activation of the Renin-Angiotensin-Aldosterone System (RAAS), resulting in greater sodium reabsorption and vasoconstriction. Individuals with a normal BMI but a high percentage of visceral fat are at increased metabolic risk. Therefore, although lifestyle changes are the initial pillar, low adherence requires pharmacological support. Incretin-based therapies, such as Liraglutide, Semaglutide and Tirzepatide, have demonstrated superior results in concomitantly reducing weight

and blood pressure, while bariatric surgery and renal denervation remain options for severe or resistant cases. Conclusion: Systemic arterial hypertension (SAH) and obesity intensify cardiovascular risk through integrated metabolic pathways. Thus, incretin- based therapies promote a significant reduction in body weight and blood pressure, mainly mediated by weight loss, in addition to exerting direct hemodynamic and nephroprotective benefits "The management of these conditions therefore requires integrated and individualized therapeutic strategies to reduce damage to target organs and reduce cardiovascular mortality.

Palavras-chave: Obesity Hypertension Treatment Interaction.

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conditions therefore requires integrated and individualized therapeutic strategies to reduce damage to target organs and reduce cardiovascular mortality.

Palavras-chave: Obesity Hypertension Treatment Interaction.

POTENCIAL TERAPÊUTICO DOS INIBIDORES DE SGLT2 EM PACIENTES COM DOENÇA DE ALZHEIMER: DO CONTROLE GLICÊMICO ATÉ A NEUROPROTEÇÃO

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RESUMO

Doença de Alzheimer (DA) configura-se como uma condição neurodegenerativa progressiva, caracterizada fundamentalmente pela deposição de placas beta-amiloide, pela hiperfosforilação da proteína tau e pela consequente perda neuronal, processos que culminam em um declínio cognitivo acentuado. Evidências científicas contemporâneas demonstram que o Diabetes Mellitus tipo 2 (DM2) está intrinsecamente associado a um maior risco de desenvolvimento e progressão da DA, devido ao compartilhamento de mecanismos fisiopatológicos deletérios, como a resistência à insulina, o estresse oxidativo exacerbado e a inflamação crônica. Nesse contexto, os inibidores do cotransportador sódio-glicose tipo 2 (iSGLT2), fármacos amplamente consolidados no manejo do DM2, têm sido investigados por seus efeitos pleiotrópicos, incluindo uma possível ação neuroprotetora no sistema nervoso central. Entretanto, apesar dos recentes avanços, ainda persistem lacunas significativas na compreensão dos mecanismos moleculares desses fármacos e de seu impacto real na progressão da doença. Este estudo consistiu em uma revisão integrativa da literatura, baseada em evidências disponíveis na base de dados PubMed. A busca foi conduzida de forma estruturada utilizando-se a estratégia PICO e os descritores combinados "neuroprotective effects", "SGLT2 inhibitors" e "Alzheimer's disease". A triagem inicial identificou 37 estudos e, após a aplicação de critérios de inclusão que compreenderam o período de 2020 a 2026, idioma inglês e disponibilidade de texto integral gratuito foram selecionados 21 trabalhos. Após leitura e análise completa, 17 artigos compuseram a amostra final, com a última atualização realizada em 14 de abril de 2026. Foram incluídos estudos focados especificamente nos efeitos neuroprotetores dos iSGLT2 na DA, sendo excluídos aqueles sem essa associação direta ou que abordavam outras classes farmacológicas. A análise sistemática dos dados evidenciou uma associação positiva entre o uso de iSGLT2 e a neuroproteção, embora com notável heterogeneidade metodológica. Os principais mecanismos descritos incluem a indução de cetose leve, com elevação de β -hidroxibutirato e suporte à função mitocondrial, além da melhora da sinalização insulínica e do metabolismo energético cerebral. Observaram-se também efeitos anti-inflamatórios, antioxidantes e a preservação da integridade da barreira hematoencefálica, com impactos sobre a patologia amiloide, o recrutamento microglial e a inibição da apoptose neuronal. Conclui-se que, apesar do potencial promissor dos iSGLT2 na modulação de vias inflamatórias e metabólicas, a disparidade nos achados e a limitada evidência clínica disponível restringem a extrapolação dos resultados, reforçando a necessidade urgente de ensaios clínicos mais robustos para elucidar seu papel na interrupção da progressão da doença.

Palavras-chave: Doença De Alzheimer Inibidores De SGLT2 Neuroproteção Diabetes Mellitus Tipo 2 Declínio Cognitivo.

POTENTIAL DRUG INTERACTIONS AND METABOLIC IMPACT OF GLP-1 AND GIP RECEPTOR AGONISTS: A NARRATIVE REVIEW

Juliane Maria de Oliveira Alvarez / Juliane Maria de Oliveira Alvarez; Sandra Maria Barbalho

RESUMO

Title: POTENTIAL DRUG INTERACTIONS AND METABOLIC IMPACT OF GLP-1 AND GIP RECEPTOR AGONISTS: A NARRATIVE REVIEW **What it's about:** This study examines how new weight-loss and diabetes medications (such as Semaglutide/Ozempic and Tirzepatide/Mounjaro) can interfere with the absorption of other medications the patient is already taking. **Main point:** Because these medications slow down stomach emptying, they can delay or alter the effectiveness of treatments for high blood pressure, thyroid issues, ADHD, and anxiety. The study warns that doctors need to adjust the doses and timing of these other medications to ensure the patient remains safe and the treatment is effective.

Palavras-chave: GLP-1 Receptor Agonists Tirzepatide Drug Interactions Pharmacokinetics Chronic Diseases.

PREVALENCE OF DEPRESSIVE SYMPTOMS IN PATIENTS WITH JUVENILE IDIOPATHIC ARTHRITIS: CLINICAL IMPACT BEYOND JOINT MANIFESTATIONS

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RESUMO

Juvenile Idiopathic Arthritis (JIA) is the most common chronic rheumatic disease in childhood, characterized by persistent joint inflammation with onset before 16 years of age. In addition to physical manifestations, chronic pain, functional limitations, and psychosocial factors contribute to inflammatory changes and impact emotional well-being. Evidence indicates that JIA may compromise psychosocial development and increase vulnerability to depressive symptoms during critical growth phases. However, gaps remain regarding the prevalence of these symptoms and associated factors in this population. To assess the prevalence of depressive symptoms in patients with Juvenile Idiopathic Arthritis. This is a narrative literature review, with a structured search conducted in the PubMed database. English descriptors combined with Boolean operators were used, including “Juvenile Idiopathic Arthritis,” “Depression,” “Depressive Disorder,” and “Prevalence.” Studies published between 2019 and 2026, in English, were included. Initially, 35 articles were identified, and after selection by reading titles, abstracts, and full texts, 10 studies that assessed the prevalence of depressive symptoms in patients with juvenile idiopathic arthritis, with or without comparison to healthy individuals, were included. Data organization was guided by an adaptation of the PECO strategy. The prevalence of depressive symptoms in JIA patients ranged from 10% to 33%, depending on the assessment instrument and sample characteristics. Comparative studies showed heterogeneous results, with some indicating a higher risk of

depression in JIA patients, while others found no significant difference compared to healthy controls. Relevant rates of suicidal ideation (6%-12.2%) were also identified. Associated factors included female sex, higher disease activity, severe pain, functional limitation, and absence of remission. Notably, depressive symptoms were also observed in patients in clinical remission, in addition to the influence of the family context. JIA is associated with a significant prevalence of depressive symptoms, even during phases of clinical remission, highlighting that its impact extends beyond inflammatory control. The influence of clinical and psychosocial factors, combined with the heterogeneity of findings, reinforces the complexity of this relationship. In this context, the need to incorporate systematic mental health screening and multidisciplinary follow-up in JIA management is emphasized, aiming not only at disease control but also at promoting patients' quality of life and well-being.

Palavras-chave: Juvenile Idiopathic Arthritis; Depressive Symptoms; Prevalence.

RELAÇÃO ENTRE VITAMINA D E IMUNOMODULAÇÃO EM DOENÇAS CRÔNICAS

Letícia Borges Braos / Gabriella Dionísio Zampieri; Maria Luiza Moisés Jales

RESUMO

A vitamina D, vitamina lipossolúvel reconhecida por seu papel na homeostase óssea e mineral, recebeu destaque nas últimas décadas como um importante modulador do sistema imunológico. Estudos mostram que receptores de vitamina D estão presentes em diversas células imunes, permitindo que sua forma ativa exerça efeitos regulatórios sobre respostas inflamatórias e autoimunes, associando-se a menor nível da doença até mesmo em casos de Lúpus Eritematoso Sistêmico. Em pacientes com Diabetes Mellitus tipo 1 a suplementação de vitamina D foi capaz de reduzir a glicemia, melhorar a função das células β pancreáticas e inibir a ativação de linfócitos CD4⁺ por meio da regulação da catepsina G, evidenciando seu potencial terapêutico. Em doenças da tireoide, concentrações baixas de 25- hidroxivitamina D foram associadas a maior risco de hipotireoidismo e maior positividade de anticorpos antitireoidianos. Esses achados sustentam a hipótese de que a vitamina D desempenha papel central na imunomodulação de doenças crônicas, configurando-se como alvo promissor para estratégias terapêuticas complementares. O objetivo desse estudo é analisar e investigar os aspectos relacionados a relação entre a vitamina D e seu papel imunomodulador em doenças crônicas, com base em evidências científicas recentes. A metodologia adotada nessa pesquisa, consiste em uma descritiva e exploratória abordagem, envolvendo coleta de dados através de procedimentos padronizados. A pesquisa foi realizada na base de dados do pubmed, utilizando dos descritores "Vitamin D" AND "immunomodulation OR "immune response" AND "autoimmune diseases", adicionado o filtro de últimos 5 anos e selecionados entre os 11 artigos encontrados, 5 que se relacionavam diretamente com o tema proposto. A análise de dados foi realizada usando técnicas estatísticas para garantir confiabilidade e validade. Resultados preliminares indicam que a deficiência de vitamina D associou-se a piores desfechos em todas as doenças avaliadas. No diabetes tipo 1, a suplementação reduziu a glicemia e modulou a resposta imune, com diminuição de citocinas pró-inflamatórias. No lúpus, houve redução da atividade da doença e dos autoanticorpos, com o aumento de células T reguladoras. Na COVID-19, níveis baixos aumentam o risco de desfechos graves, enquanto a suplementação atenuou a resposta inflamatória e melhorou a resposta antiviral. Em doenças tireoidianas, níveis reduzidos de vitamina D, frequentemente associados à hipomagnesemia, correlacionam-se com o maior risco de hipotireoidismo e autoimunidade. Os achados, portanto, reforçam o papel

imunomodulador da vitamina D e seu potencial como estratégia adjuvante segura e de baixo custo. Esses achados destacam a relevância da investigação proposta e sua aplicabilidade em cenários práticos. Em conclusão, o estudo apoia a hipótese de que a vitamina D exerce papel imunomodulador essencial nas doenças crônicas, atuando na imunidade inata e adaptativa. Sua deficiência associa-se a maior risco e gravidade em diversas condições. A suplementação é uma estratégia adjuvante segura e de baixo custo, embora mais estudos sejam necessários para padronizar doses e confirmar seus benefícios. Recomenda-se monitorar e corrigir os níveis séricos de 25 (OH)D (30-40 ng/mL)

Palavras-chave: Vitamina D; Imunossuppressores; Autoimunidade; Doenças Crônicas; Suplementação.

SARCOPENIA AS A PROGNOSTIC FACTOR IN BREAST CANCER

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RESUMO

Breast cancer remains one of the main causes of morbidity and mortality among women worldwide, representing an important public health problem due to its high incidence, impact on quality of life, and costs associated with treatment. Despite therapeutic advances, the clinical heterogeneity of the disease imposes challenges in prognostic stratification and in the individualization of care. In this context, the identification of additional factors that influence clinical outcomes becomes essential. Sarcopenia, characterized by the progressive loss of muscle mass and function, has emerged as a potential prognostic biomarker in oncology patients, being associated with worse clinical outcomes, such as increased mortality and reduced survival. This study aimed to analyze the role of sarcopenia as a prognostic factor in patients with breast cancer. This is a narrative literature review conducted in the PubMed database, including studies published between 2020 and 2026. The descriptors “sarcopenia” AND “breast cancer” were used. Original articles available in full and in the English language, which addressed the association between sarcopenia and clinical outcomes in patients with breast cancer, such as mortality and survival, were included. Studies unrelated to the topic, duplicate publications, case reports, editorials, and studies with insufficient methodological information were excluded. After screening titles and abstracts, studies considered relevant were read in full. In this context, 10 studies were selected for qualitative analysis, including systematic reviews, cohort studies, observational analyses, and Mendelian randomization studies that investigated the relationship between sarcopenia and breast cancer prognosis. The literature shows that sarcopenia constitutes an independent prognostic factor and a marker of systemic vulnerability in patients with breast cancer. Its presence is associated with increased mortality, with hazard ratios ranging from 1.30 to 1.50, representing an increase of up to 50% in the risk of death. The prevalence of this condition in this population ranges from 20% to 40%, according to the diagnostic criteria adopted. In addition, sarcopenia is associated with worse overall survival and a higher incidence of treatment-related toxicity. However, differences in diagnostic criteria for sarcopenia limit the standardization of findings. The pathophysiological mechanisms involved include chronic inflammation, oxidative stress, alterations in energy metabolism, and increased protein degradation, involving pathways such as NF- κ B, myostatin, and AMPK. Furthermore,

mitochondrial dysfunction contributes to the progression of muscle loss and may impair therapeutic response. Sarcopenia is an important prognostic marker for cancer, being associated with mortality and increased therapeutic toxicity. Its early identification may enhance risk stratification and favor more individualized therapeutic approaches, reinforcing the importance of body composition assessment as a strategic component in comprehensive oncological care.

Palavras-chave: Sarcopenia Breast Cancer Prognosis.

SARCOPENIA AS A PROGNOSTIC FACTOR IN BREAST CANCER

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Its early identification may enhance risk stratification and favor more individualized therapeutic approaches, reinforcing the importance of body composition assessment as a strategic component in comprehensive oncological care.

Palavras-chave: Sarcopenia Breast Cancer Prognosis.

SARCOPENIA, NEURODEGENERATION, AND RISK OF FALLS: PATHOPHYSIOLOGICAL MECHANISMS AND CLINICAL IMPLICATIONS

Miguel Antonio de Souza / Caroline Barbalho Lamas; Mayra Coube; Maria José Marin; Camila de O. Marcondes; Sandra M. Barbalho

RESUMO

Introduction: Population aging is associated with an increased prevalence of sarcopenia, neurodegenerative diseases, and risk of falls, conditions that frequently coexist and share common pathophysiological mechanisms. The loss of muscle mass and function, coupled with cognitive impairment, significantly contributes to reduced autonomy and increased morbidity and mortality in older adults. Recent evidence suggests that chronic low-grade inflammation, oxidative stress, and neuromuscular dysfunction play a central role in the interaction between these conditions. **Objective:** To analyze the pathophysiological mechanisms that relate sarcopenia, neurodegeneration, and risk of falls, highlighting their clinical implications. **Methods:** This is a narrative literature review, with searches conducted in the PubMed, Scopus, and Web of Science databases, using descriptors related to sarcopenia, cognition, aging, and falls. Falls represent one of the main adverse events in older adults, being a significant cause of morbidity, loss of functional independence, and increased mortality in this population. Clinical, observational, and review studies addressing the interaction between muscle function, cognitive performance, and fall risk in older adults were included. **Results:** The findings indicate that sarcopenia is associated with reduced muscle strength, alterations in postural control, and decreased mobility, factors that increase the risk of falls. Simultaneously, neurodegenerative processes compromise executive functions, attention, and motor coordination, exacerbating functional instability. Common mechanisms include increased inflammatory mediators such as TNF- α , IL-6, and IL-1 β , elevated oxidative stress, and mitochondrial dysfunction. Furthermore, the interaction between the nervous system and skeletal muscle, through the neuromuscular unit, is impaired, contributing to functional decline. These factors, combined, increase the vulnerability of older adults to falls and their complications. **Conclusion:** The interaction between sarcopenia and neurodegeneration represents an important determinant of fall risk in older adults. Understanding these mechanisms is fundamental for the development of integrated preventive and therapeutic strategies aimed at preserving functionality and quality of life in this population.

Palavras-chave: Sarcopenia; Neurodegeneration; Falls; Aging; Inflammation.

SARCOPENIA, NEURODEGENERATION, AND RISK OF FALLS: PATHOPHYSIOLOGICAL MECHANISMS AND CLINICAL IMPLICATIONS

Kell Mazzini Ribeiro de Camargo / Caroline Barbalho Lamas; Mayra Coube; Maria José Marin; Camila de O. Marcondes; Sandra M. Barbalho

RESUMO

Introduction: Population aging is associated with an increased prevalence of sarcopenia, neurodegenerative diseases, and risk of falls, conditions that frequently coexist and share common pathophysiological mechanisms. The loss of muscle mass and function, coupled with cognitive impairment, significantly contributes to reduced autonomy and increased morbidity and mortality in older adults. Recent evidence suggests that chronic low-grade inflammation, oxidative stress, and neuromuscular dysfunction play a central role in the interaction between these conditions. **Objective:** To analyze the pathophysiological mechanisms that relate sarcopenia, neurodegeneration, and risk of falls, highlighting their clinical implications. **Methods:** This is a narrative literature review. Searches were conducted in the PubMed, Scopus, and Web of Science databases using descriptors such as "sarcopenia", "cognition", "neurodegeneration", "aging", "falls", "inflammation", "oxidative stress", and "neuromuscular function", combined with Boolean operators. Included studies were clinical, observational, and review articles addressing the interaction between muscle function, cognitive performance, and fall risk in older adults, published primarily within the last 15 years in English, Portuguese, or Spanish. Excluded were studies with populations younger than 60 years, case reports, editorials, conference proceedings, animal or in vitro studies, and duplicate articles. Study selection followed these steps: identification in the databases, removal of duplicates, title and abstract screening by two independent reviewers, full-text reading of preselected articles, and finally, descriptive data extraction and synthesis related to the pathophysiological mechanisms of interest. **Results:** The findings indicate that sarcopenia is associated with reduced muscle strength, alterations in postural control, and decreased mobility, factors that increase the risk of falls. Simultaneously, neurodegenerative processes compromise executive functions, attention, and motor coordination, exacerbating functional instability. Common mechanisms include increased inflammatory mediators such as TNF- α , IL-6, and IL-1 β , elevated oxidative stress, and mitochondrial dysfunction. Furthermore, the interaction between the nervous system and skeletal muscle, through the neuromuscular unit, is impaired, contributing to functional decline. These factors, combined, increase the vulnerability of older adults to falls and their complications. **Conclusion:** The interaction between sarcopenia and neurodegeneration represents an important determinant of fall risk in older adults. Understanding these mechanisms is fundamental for the development of integrated preventive and therapeutic strategies aimed at preserving functionality and quality of life in this population.

Palavras-chave: Sarcopenia; Neurodegeneration; Falls; Aging; Inflammation.

SARCOPENIC DYSPHAGIA AT THE BODY-MIND INTERFACE: ASSOCIATION WITH DEPRESSION AND DEMENTIA - LITERATURE REVIEW

Gabrielly pohl / Marina Pigozzi Biel; Ana Júlia Rossigalli Bolfi; Leandro Di Marchi Herreira; Letícia Zanoni Moreira; Eliana de Souza Bastos Mazuqueli Pereira

RESUMO

ABSTRACT **Introduction:** Population aging has intensified in recent decades, being associated with an increase in chronic diseases and geriatric syndromes, such as sarcopenia, characterized by the progressive loss of muscle mass, strength, and function. Among its clinical manifestations, sarcopenic dysphagia stands out, defined as impaired swallowing resulting from systemic muscle loss and the loss of orofacial muscles involved in this process. This condition is related to

malnutrition, aspiration pneumonia, and increased mortality. In parallel, mental disorders such as depression and dementia have a high prevalence in the elderly and are associated with multiple geriatric syndromes, including sarcopenia and dysphagia. Objective: To analyze sarcopenic dysphagia as an influential factor in cognitive decline, highlighting the importance of depression and dementia in swallowing function and sarcopenia in the elderly. Materials and Methods: This is an integrative literature review based on studies previously selected from the PubMed and SciELO databases, prioritizing studies from the last 5 years, supplemented by recent evidence on dysphagia, depression, and dementia. Studies addressing sarcopenia, dysphagia, oral function, mental health, and geriatric syndromes were included. Results: Sarcopenic dysphagia results from the loss of overall muscle mass and function, including muscles of the tongue, masseter, and pharyngeal structures, compromising swallowing efficiency and food security. Reduced tongue pressure and masticatory force are associated with poorer food intake and progression of malnutrition, contributing to the worsening of sarcopenia. In this context, dementia is strongly associated with geriatric syndromes such as dysphagia, sarcopenia, and malnutrition, being more prevalent in these individuals. Evidence suggests that brain atrophy and reduced neuronal volume may contribute to decreased skeletal muscle mass, indicating a bidirectional relationship between brain and muscle function. Furthermore, manifestations such as involuntary weight loss and reduced mobility precede the diagnosis of dementia, reinforcing frailty as a possible triggering factor. In the psychosocial context, dysphagia significantly impacts mental health. Patients frequently report fear of choking, embarrassment, and avoidance of eating in public, resulting in social isolation and a decline in quality of life. Depression and anxiety are associated with dysphagia and can influence the perception of swallowing difficulties, even in the absence of evident structural changes. These factors contribute to reduced food intake and worsen nutritional status, favoring the progression of sarcopenia. Conclusion: Sarcopenic dysphagia should be understood as a multifactorial condition integrating physical, cognitive, and psychosocial aspects. The association with dementia and depression reinforces its role as a possible early marker of functional and cognitive decline in older adults. The inclusion of mental health assessment in clinical practice is essential for a more accurate diagnosis and for the development of multidisciplinary therapeutic strategies that promote a better quality of life.

Palavras-chave: Dysphagia; Sarcopenia; Cognitive Decline; Depression; Dementia.

SARCOPENIC OBESITY AND ASSOCIATED METABOLIC COMPLICATIONS: A NARRATIVE REVIEW FOCUSING ON METABOLIC RISKS AND PREVENTION

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RESUMO

Introduction: Obesity is defined by the World Health Organization (WHO) as an abnormal or excessive accumulation of fat, with a body mass index (BMI) ≥ 30.0 kg/m². Sarcopenia is defined as the presence of progressive and generalized loss of muscle mass and strength. However, despite being distinct diseases, studies show that they function as a vicious cycle and share common pathophysiological characteristics (such as metabolic complications), making the search for preventive measures necessary. Objective: To investigate the association between sarcopenia and obesity, with emphasis on metabolic alterations and preventive alternatives. Material and Method: To carry out this analysis, a narrative review was conducted in PubMed, considering the period

2020-2025/2026. The following descriptors were used: “Sarcopenic Obesity”, “Metabolic Syndrome” and “Prevention” combined with the Boolean operators AND and OR and field restriction. Studies involving adult humans and available in English were considered, prioritizing systematic reviews, narratives, and meta-analyses. Articles published outside the defined period, duplicates, or those discussing sarcopenic obesity in other aspects unrelated to metabolic and preventive implications were excluded. The qualitative analysis, of an exploratory- descriptive nature, was organized into three thematic axes: conceptual aspects of sarcopenic obesity, associated metabolic complications, and preventive and interventional strategies. Results: From the total of 12 articles, a persistent correlation between obesity and sarcopenia was identified, defining it as sarcopenic obesity, in which there is muscle weakness and increased visceral adiposity simultaneously. This relationship occurs because adipose inflammation induces the differentiation of muscle progenitor cells into a phenotype comparable to that of an adipose cell, and thus the muscle becomes sarcopenic. Furthermore, studies have shown that sarcopenia makes muscle fibers hypotrophic, which opens the way for adipose tissue infiltration, leading to a vicious cycle between both pathologies. It has been noted that individuals with this condition have a greater predisposition to developing metabolic complications when compared to those with obesity and sarcopenia alone, particularly with a higher prevalence of dyslipidemia, insulin resistance, and chronic inflammation. Moreover, the reduction in muscle mass and the increase in adipose tissue between muscle bundles, potentiated by aging, favor the development of type 2 diabetes mellitus due to the advancement of insulin resistance, as well as oxidative stress and tissue lipotoxicity, due to impaired lipid oxidation caused by mitochondrial dysfunction. It has been observed that the combination of a diet rich in complete proteins, micronutrients, and antioxidants with aerobic and resistance exercise is a primary strategy for preventing sarcopenic obesity, mitigating the interconnected metabolic syndromes. Conclusion: It is concluded that sarcopenic obesity, correlated with metabolic alterations, emerges as a growing public health problem that requires the formulation of more comprehensive preventive and interventional public policies in order to offer a better quality of life to adults.

Palavras-chave: Sarcopenic Obesity; Metabolic Syndrome; Insulin Resistance; Prevention; Exercise.

SARCOPENIC OBESITY AND FUNCTIONAL DECLINE IN INDIVIDUALS UNDERGOING GASTROPLASTY: IMPACT ON THE BARTHEL INDEX AND PERFORMANCE ON TSL 30S

Giovana Cortez Rodolpho / Isabela Greggio Ferreira Manuela dos Santos Bueno Kelly Cristina Encides de Vasconcelos Donadai Renan Shida Marinho

RESUMO

Introduction: Sarcopenic obesity (SO) is a clinical condition characterized by the coexistence of excess body fat and low muscle mass/function. This combination is detrimental, as it negatively impacts activities of daily living (ADLs), strength, and functional performance. Objectives: To investigate the association between SO, the Barthel Index, and the TSL 30S in individuals undergoing gastroplasty. Methods: A cross-sectional observational study with patients hospitalized in the ward. Sarcopenia risk was analyzed using the SARC-F questionnaire, validated for the Brazilian population. For the purposes of this study, sarcopenia was considered present when the

score was ≥ 4 points, in accordance with the guidelines of the European Working Group on Sarcopenia in Older People (EWGSOP2). ADLs were assessed using the Barthel Index, with scores that imply the ability to dress, feed, and perform personal hygiene. The TSL 30S test was administered to evaluate functional performance, as well as lower limb strength and endurance. Data normality was tested using the Shapiro-Wilk test. Pearson's correlation coefficient was used to analyze associations, with a significance level of $p < 0.05$. Results: Twenty-six patients were assessed, with a mean age of 35 ± 8 years; the majority were female ($n = 21$, 77.8%). The body mass index (BMI) was 43 ± 5 kg/m². A moderate positive correlation was observed between the SARC-F and BMI kg/m² ($r = -0.612$; $p = 0.001$). Moderate positive correlation between TSL 30S and the Barthel Index ($r = 0.569$; $p = 0.005$). Moderate negative correlation between the Barthel Index and the SARC-F ($r = -0.452$; $p = 0.023$). Weak negative correlation between the Barthel Index and weight (kg) ($r = -0.399$; $p = 0.044$). Conclusions: SO in individuals undergoing gastroplasty is directly associated with functional decline and loss of autonomy. These findings reinforce the need for rehabilitation strategies focused on preserving muscle mass in order to optimize functional outcomes in the postoperative period.

Palavras-chave: Body Mass Index Barthel Index SARC-F TSL 30S Sarcopenic Obesity.

SÍNDROME DOS OVÁRIOS E SÍNDROME METABÓLICA: UMA REVISÃO DE LITERATURA

Adryel Tavares Brilhante / Camila Petersen de Carvalho; Gabriela Dionisio Zampieri; Maria Luiza Moises Jales

RESUMO

A síndrome dos ovários policísticos (SOP) é a endocrinopatia mais comum em mulheres jovens, com prevalência estimada entre 3% e 11% em adolescentes e até 18% em idade reprodutiva. Além das manifestações reprodutivas, como irregularidade menstrual e hiperandrogenismo, a SOP está fortemente associada à resistência insulínica e à síndrome metabólica, aumentando o risco de diabetes tipo 2, hipertensão, dislipidemia e doença hepática gordurosa não alcoólica. Estudos populacionais em diferentes países, incluindo Índia, Bangladesh e Estados Unidos, confirmam a elevada prevalência da SOP e sua estreita relação com comorbidades. Faz-se relevante, então, compreender essa associação em mulheres jovens para que haja diagnóstico precoce e estratégias de prevenção de complicações futuras. O objetivo foi analisar, por meio de estudos recentes, a prevalência da síndrome dos ovários policísticos em mulheres jovens e sua associação com a síndrome metabólica, destacando a influência da resistência insulínica, dos perfis hormonais e dos fatores de risco cardiometabólicos envolvidos. A pesquisa foi realizada na base de dados do PubMed, utilizando dos descritores "Polycystic Ovary Syndrome" AND "Metabolic Syndrome" AND "Young Adult" OR "adolescent" AND "prevalence", adicionado o filtro de últimos 5 anos e selecionados entre os 39 artigos, 5 que se relacionavam diretamente com o tema. A relação entre a SOP e as doenças metabólicas é complexa e bidirecional. Estudos evidenciam que mulheres com SOP têm níveis elevados de PCR, de forma que indica que a SOP causa elevada inflamação sistêmica intensificando o risco metabólico. Há pesquisas que indicam que os primeiros sinais da SOP com efeitos sistêmicos é a hipertensão arterial sistêmica, que aparece muitas vezes antes de qualquer alteração de composição corporal e em exames laboratoriais, sugerindo que alterações hormonais e cardiovasculares precedem as alterações metabólicas. Foi também avaliado fenótipos em que a SOP estava associada com comorbidades metabólicas, sendo mais prevalentes os

fenótipos tipo C e D. Nos estudos, também foi identificado um grupo pré-SOP no qual possuíam manifestações isoladas como: hiperandrogenismo, oligomenorreia ou morfologia ovariana policística isolada. A síndrome dos ovários policísticos apresenta elevada prevalência em mulheres jovens e demonstra forte associação com a síndrome metabólica, evidenciando sua natureza não apenas reprodutiva, mas também sistêmica. A resistência insulínica, as alterações hormonais e o estado inflamatório crônico configuram mecanismos centrais nessa relação, contribuindo para o aumento do risco cardiometabólico. Além disso, a identificação de fenótipos mais associados a comorbidades e de estágios iniciais, como o pré-SOP, reforça a importância do diagnóstico precoce. Dessa forma, torna-se essencial a implementação de estratégias de rastreamento e intervenção precoce, visando reduzir complicações a longo prazo e melhorar a qualidade de vida desses pacientes.

Palavras-chave: Síndrome Dos Ovários Policísticos Síndrome Metabólica Resistência à Insulina Prevalência.

STEM CELL THERAPY IN ALZHEIMER'S DISEASE: A PROMISING APPROACH IN THE MODULATION OF NEUROINFLAMMATION

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RESUMO

The increase in life expectancy has contributed to the increase in cases of neurodegenerative diseases such as Parkinson's disease, amyotrophic lateral sclerosis (ALS) and Huntington's disease, constituting an important public health problem. In this scenario, Alzheimer's Disease (AD) stands out for being the main cause of dementia in the world. Characterized by progressive cognitive decline and neuroinflammatory changes, AD represents an important challenge for public health. In this context, stem cell therapies emerge as a promising approach due to their regenerative and immunomodulatory potential. This work aims to make a narrative review of the literature on stem cell therapy as a strategy in the treatment of Alzheimer's disease. This is a narrative review carried out in the PubMed database, with the help of the Generative Artificial Intelligence Tool Consensus. The descriptors "Alzheimer's Disease", "Stem Cells" and "Neuroinflammation" were used, combined by the Boolean operator AND. Clinical trials and systematic reviews published in the last five years, in English and with full text available, were included. 10 studies were analyzed, which indicate that mesenchymal stem cell therapy is promising in the treatment of AD. This effect is related to the ability of these cells to self-renew and differentiate into multiple cell types, in addition to involving actions such as immunomodulatory effect, promotion of neuronal regeneration and production of neurotrophic factors. These processes are related to improved neural stability and reduced brain tissue loss and cognitive decline. The results suggest that stem cell therapies represent a promising strategy in the treatment of Alzheimer's disease, especially due to their immunomodulatory and neuroprotective effects. However, more robust clinical trials are needed to confirm their long-term efficacy and safety.

Palavras-chave: Neurodegenerative Diseases Alzheimer's Stem Cells Neuroinflammation.

TARDIVE DYSKINESIA AND "RABBIT SYNDROME": DIFFERENTIAL DIAGNOSIS IN OROFACIAL MOVEMENT DISORDERS INDUCED BY PSYCHOTROPIC DRUGS

Letícia Zandoni Moreira / Ana Júlia Rossigalli Bolfi; Andressa Natalino Marins; Henderson Egea de Almeida; Jéssica Gimenes de Araújo Lopes; Eliana de Souza Bastos Mazuqueli Pereira

RESUMO

Introduction: Psychotropic drugs, especially antipsychotics, are associated with the development of extrapyramidal effects resulting from dopaminergic dysfunction in the basal ganglia, including movement disorders with orofacial manifestations. Among these manifestations, tardive dyskinesia and "rabbit syndrome" stand out, frequently confused due to clinical overlap, but with relevant differences regarding pathophysiology, onset, and therapeutic response. These disorders can lead to functional impairments, impacting communication, feeding, and quality of life. **Objectives:** To comparatively analyze tardive dyskinesia and "rabbit syndrome," emphasizing their differences in onset, clinical manifestations, diagnosis, treatment, and orofacial functional impact. **Materials and Methods:** This is a narrative literature review based on studies published in the last five years and indexed in the PubMed database. Articles addressing psychotropic movement disorders were included, with an emphasis on tardive dyskinesia and "rabbit syndrome." The search strategy included descriptors related to "tardive dyskinesia", "rabbit syndrome" and "drug-induced movement disorders", prioritizing clinical studies, systematic reviews, and recent guidelines. **Results:** Tardive dyskinesia is associated with prolonged use of dopaminergic blockers and involves mechanisms such as hypersensitivity of dopaminergic receptors and alterations in basal ganglia circuits. Additional alterations involving glutamatergic and GABAergic systems also contribute to its pathophysiology. Clinically, it is characterized by involuntary, stereotyped, and choreiform movements, frequently involving the lips, tongue, and jaw, and can compromise functions such as speech, chewing, and swallowing. Furthermore, the psychosocial impact is significant, with stigma and reduced quality of life, which may persist even after withdrawal of the causative agent, reflecting the complexity of the clinical picture. In contrast, "rabbit syndrome" has an earlier onset and is frequently associated with drug-induced Parkinson's disease. It is characterized by rhythmic, rapid, and vertical movements of the perioral region, without significant involvement of the tongue, which constitutes an important criterion for clinical differentiation. This condition is frequently associated with signs such as rigidity and bradykinesia, and shows a good response to anticholinergics, unlike tardive dyskinesia. Besides antipsychotics, other drugs may be involved in the development of abnormal orofacial movements. Differential diagnosis requires detailed analysis of the movement pattern and medication history. Thus, tardive dyskinesia presents more complex and distributed movements, while "rabbit syndrome" presents a more restricted and rhythmic pattern. Coexistence between the disorders can occur, increasing the complexity of the diagnosis. Therefore, therapeutic management strategies include medication adjustment and specific pharmacological interventions, since VMAT2 (Vesicular Monoamine Transporter 2) inhibitors represent an effective approach for tardive dyskinesia, while anticholinergics are more indicated in "rabbit syndrome". Given the above, clinical management should be individualized and involve continuous monitoring. **Conclusion:** Tardive dyskinesia and "rabbit syndrome" present distinct clinical characteristics, despite being frequently confused. Differentiation based on movement pattern, tongue involvement, symptom onset, and therapeutic response is essential for proper management. Early recognition contributes to reducing functional impact and improving prognosis.

Palavras-chave: Tardive Dyskinesia; Rabbit Syndrome; Psychotropic Drugs; Orofacial Disorders; Differential Diagnosis.

TÉCNICAS DE APLICAÇÃO DE INSULINA E SUA RELAÇÃO COM A EFICÁCIA DO TRATAMENTO: REVISÃO DE EVIDÊNCIAS NO DIABETES TIPO 1.

Rafaela Dedemo Mesquita Lima / Ana Carolina Alvares Dalto Ribas; Iasmin Teruel Maia; Victor Eugênio Bezerra; Roger Marcelo Mesquita da Silva

RESUMO

INSULIN ADMINISTRATION TECHNIQUES AND THEIR RELATIONSHIP WITH TREATMENT EFFICACY: A REVIEW OF EVIDENCE IN TYPE 1 DIABETES Rafaela Dedemo Mesquita Lima ¹; Ana Carolina Alvares Dalto Ribas²; Iasmin Teruel Maia¹; Victor Eugênio Bezerra¹; Roger Marcelo Mesquita da Silva³; Marcia Rocha Gabaldi ⁴ . ¹ Pharmacy student, Pharmacy undergraduate program, University of Marília (UNIMAR), Marília, São Paulo, Brazil ² Biomedicine student, Pharmacy undergraduate program, University of Marília (UNIMAR), Marília, São Paulo, Brazil ³ Postgraduate student in the Structural and Functional Interactions in Rehabilitation program, University of Marília (UNIMAR), Marília, São Paulo, Brazil ⁴ Professor in the Department of Biochemistry, Pharmacy and Biomedicine courses, University of Marília (Unimar), Marília, São Paulo, Brazil **ABSTRACT** Introduction: Type 1 Diabetes Mellitus (T1DM) is an autoimmune disease characterized by the destruction of pancreatic beta cells, resulting in absolute insulin deficiency and the need for exogenous replacement through subcutaneous injections throughout the day. Inadequate insulin administration techniques may compromise therapeutic efficacy, including practices such as needle reuse and lack of rotation of injection sites, factors that interfere with subcutaneous insulin absorption and contribute to glycemic variability and metabolic imbalance. Due to the chronic nature of the disease, treatment requires patients to develop precise technical skills to ensure that insulin reaches the subcutaneous tissue in an appropriate and predictable manner. Objectives: To analyze the main errors related to insulin administration techniques and their influence on therapeutic efficacy and glycemic control in patients with T1DM, highlighting the pathophysiological consequences of improper administration. Methods: This is a narrative literature review conducted using the PubMed and SciELO databases, through the use of descriptors related to insulin, subcutaneous injections, lipohypertrophy, administration techniques, and health education. Studies published in the last five years, in English, were included. Results: Evidence shows that proper rotation of injection sites is essential for maintaining predictable insulin absorption and should be performed in recommended regions such as the abdomen, thigh, buttocks, and arm, not only across different anatomical areas but also within the same region, by dividing it into quadrants or equivalent areas, respecting a minimum interval of 1 cm between injections. The insertion angle should be 90°, with the use of 4 mm or 5 mm needles recommended without the need for a skinfold, and 6 mm needles with a skinfold, ensuring proper deposition in the subcutaneous tissue. Non-adherence to these practices is associated with the development of lipohypertrophy, characterized by structural changes in adipose tissue, including adipocyte hypertrophy, formation of nodules, and possible local inflammatory processes, which may impair insulin diffusion and pharmacokinetics, resulting in erratic absorption and increased glycemic variability. These nodules alter insulin pharmacokinetics, leading to unpredictable absorption that may result in both unexplained hyperglycemia and severe, unexpected hypoglycemia. In addition, needle reuse increases tissue

trauma and the risk of local infections, further compromising the integrity of injection sites. Conclusion: Proper insulin administration technique plays a determining role in therapeutic efficacy and glycemic control in patients with Type 1 Diabetes Mellitus. Continuous training and periodic review of injection technique should be integrated into the routine care of the entire interdisciplinary team. In this context, Pharmaceutical Care associated with Health Education in the outpatient setting is an essential strategy to optimize insulin use, reduce glycemic variability, and improve clinical outcomes. Keywords: Insulin; Subcutaneous Injections; Lipohypertrophy; Drug Administration; Health Education. TÉCNICAS DE APLICAÇÃO DE INSULINA E SUA RELAÇÃO COM A EFICÁCIA DO TRATAMENTO: REVISÃO DE EVIDÊNCIAS NO DIABETES TIPO 1. Rafaela Dedemo Mesquita Lima¹; Ana Carolina Alvares Dalto Ribas²; Iasmin Teruel Maia¹; Victor Eugênio Bezerra¹; Roger Marcelo Mesquita da Silva³; Marcia Rocha Gabaldi⁴ ¹ Estudante de Farmácia, Graduação de Farmácia da Universidade de Marília (UNIMAR), Marília, São Paulo, Brasil ² Estudante de Biomedicina, Graduação de Farmácia da Universidade de Marília (UNIMAR), Marília, São Paulo, Brasil ³ Pós-graduando no programa de Interações Estruturais e Funcionais na Reabilitação da Universidade de Marília (UNIMAR), Marília, São Paulo, Brasil ⁴ Professora no Departamento de Bioquímica, do curso de Farmácia e Biomedicina da Universidade de Marília (Unimar), Marília, São Paulo, Brasil RESUMO Introdução: O Diabetes Mellitus tipo 1 (DM1) é uma doença autoimune caracterizada pela destruição das células beta pancreáticas, resultando em deficiência absoluta de insulina e necessidade de reposição exógena por meio de injeções subcutâneas ao longo do dia. A inadequação das técnicas de administração de insulina pode comprometer a eficácia terapêutica, incluindo práticas como reutilização de agulhas e ausência de rodízio dos sítios de aplicação, fatores que interferem na absorção subcutânea da insulina e contribuem para variabilidade glicêmica e descontrole metabólico. Devido à cronicidade da doença, o tratamento exige que o paciente desenvolva competências técnicas precisas para garantir que a insulina atinja o tecido subcutâneo de forma adequada e previsível. Objetivos: Analisar os principais erros relacionados às técnicas de aplicação de insulina e sua influência na eficácia terapêutica e no controle glicêmico em pacientes com DM1, destacando as consequências fisiopatológicas da má administração. Métodos: Trata-se de uma revisão narrativa da literatura, realizada nas bases de dados PubMed e SciELO, por meio da utilização de descritores relacionados à insulina, injeções subcutâneas, lipohipertrofia, técnicas de administração e educação em saúde. Foram incluídos estudos publicados nos últimos 5 anos, no idioma inglês. Resultados: Evidencia-se que o rodízio adequado dos sítios de aplicação é fundamental para a manutenção da absorção previsível da insulina, devendo ser realizado em regiões recomendadas, como abdômen, coxa, nádegas e braço, não apenas entre diferentes áreas anatômicas, mas também dentro de uma mesma região, por meio da divisão em quadrantes ou áreas equivalentes, respeitando intervalo mínimo de 1 cm entre as aplicações. O ângulo de inserção deve ser de 90°, sendo recomendado o uso de agulhas de 4 mm ou 5 mm sem necessidade de prega cutânea, e de 6 mm com prega cutânea, garantindo deposição adequada no tecido subcutâneo. A não adesão a essas práticas está associada ao desenvolvimento de lipohipertrofia, caracterizada por alterações estruturais do tecido adiposo, incluindo hipertrofia de adipócitos, formação de nódulos e possíveis processos inflamatórios locais, que podem comprometer a difusão e a farmacocinética da insulina, resultando em absorção errática e maior variabilidade glicêmica. Esses nódulos alteram a farmacocinética da insulina, resultando em absorção errática que pode levar tanto a hiperglicemias inexplicáveis quanto a hipoglicemias graves e inesperadas. Além disso, a reutilização de agulhas aumenta o trauma tecidual e o risco de infecções locais, agravando ainda mais a integridade dos sítios de aplicação. Conclusão: A técnica adequada de administração de insulina desempenha papel determinante na eficácia terapêutica e no controle glicêmico em pacientes com Diabetes Mellitus tipo 1. O treinamento contínuo e a

revisão periódica da técnica de aplicação devem ser integrados à rotina de cuidados de toda a equipe interdisciplinar. Nesse contexto, a Atenção Farmacêutica associada à Educação em Saúde no ambiente ambulatorial configura-se como estratégia essencial para otimizar o uso da insulina, reduzir a variabilidade glicêmica e melhorar os desfechos clínicos. Palavras-chave: Insulina; Injeções Subcutâneas; Lipohipertrofia; Administração de Medicamentos; Educação em Saúde.

Palavras-chave: Insulina; Injeções Subcutâneas; Lipohipertrofia; Administração De Medicamentos; Educação Em Saúde.

TEMPOROMANDIBULAR DYSFUNCTIONS AND PSYCHOSOCIAL FACTORES: RECENT EVIDENCE IN THE LITERATURE

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RESUMO

Temporomandibular dysfunctions (TMDs) correspond to alterations in the temporomandibular joint and associated muscles, resulting in pain, functional limitation and impairment of mandibular movements. It is one of the main causes of non-odontogenic orofacial pain with a significant impact on individual's quality of life. The etiology of TMDs is multifactorial, involving biological, biomechanical, environmental and psychosocial aspects. Among the psychosocial factors, stress, anxiety and depression stand out, as they have been strongly associated with both the development and progression of the disease. Objectives: This study aims to analyze the current evidence of the relationship between psychosocial factors and TMDs (Temporomandibular Dysfunctions). Materials and Methods: A narrative literature review was conducted based on studies published in the PubMed database over the past two years. The search were conducted using the descriptors contained in the earch strategy “temporomandibular dysfunctions” and “psychosocial factors”. Original articles, clinical trials, systematic reviews, meta-analyses and randomized controlled trials with a direct approach to the topic were incorporated. Results: Anxiety and depression disorders have been associated with temporomandibular dysfunctions (TMD) with elevated levels of psychological stress correlating with greater pain severity and function impairment. The presence of anxiety, depression and stress in TMD's patients can exacerbate pain perception, prolong the duration of treatment and reduce therapeutic sucess. Psychosocial stress can trigger physiological changes, such as muscle hypertonia, peripheral and central sensitization and can also promote parafunction habits such as bruxism and teeth clenching which contribute to overloading the stomatognathic system and worsening TMDs (temporomandibular dysfunctions). Conclusion: Recent evidences in the literature reinforce that temporomandibular dysfunctions has multifactorial nature with psychosocial factors performing an importante role both in genesis and in maintenance of the syntoms. Identifying the psychosocial factors present in individuals affected by temporomandibular dysfunctions is fundamental for a multidisciplinary approach that integrates physical and emotional aspects aiming to improve the quality of life of affected individuals.

Palavras-chave: Temporomandibular Dysfunctions; Psychosocial Factors; Anxiety; Depression; Facial Pain.

THE EFFECTIVENESS OF VITAMIN D SUPPLEMENTATION IN GLYCEMIC CONTROL AND THE PREVENTION OF DIABETES MELLITUS

Vinicius Willian Calderon da Silva / Gustavo Silveira Pires; Vitor Padovan Piacenti; Rafael de Oliveira Tabian; Filipe Gabriel Januario

RESUMO

Introduction: Type 2 diabetes mellitus (T2DM) represents a major public health issue, affecting approximately 10.5% of the adult Brazilian population, corresponding to nearly 20 million people. In this context, vitamin D has gained attention due to its potential modulatory effects on glucose homeostasis, influencing pancreatic β -cell function and insulin sensitivity. Although vitamin D deficiency has been associated with insulin resistance and an increased risk of progression to type 2 diabetes, some studies suggest that vitamin D supplementation may improve glycemic markers, such as fasting glucose and HbA1c, particularly in individuals with prediabetes. **Objective:** This study aims to analyze the effectiveness of vitamin D supplementation in glycemic control and in the prevention of diabetes mellitus. **Materials and Methods:** A systematic review of randomized controlled clinical trials was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The research question was structured using the PICO framework, focusing on patients without a prior diagnosis of T2DM, comparing vitamin D supplementation with no supplementation, and evaluating improvements in glycemic control and reduction in disease incidence. The search was carried out in the PubMed/Medline database until April 24, using filters for clinical studies published within the last 10 years, in English, and with full text available. Inclusion criteria comprised studies analyzing glycemic control (measured by C-peptide, insulin sensitivity, and effects on pancreatic cells) and supplementation with active or inactive forms of vitamin D, including patients with prediabetes. Studies involving exposure to other supplements or physical exercise interventions were excluded. The outcomes analyzed were fasting blood glucose, glycated hemoglobin (HbA1c), and insulin resistance (HOMA-IR). Risk of bias was assessed using the Cochrane Collaboration tool. **Results:** Four randomized, double-blind, placebo- controlled clinical trials were selected for data synthesis. The studies included sample sizes ranging from 54 to 2,243 participants, with vitamin D supplementation varying between daily or weekly doses and intervention durations ranging from 16 weeks to 24 months. Although supplementation consistently increased serum 25-hydroxyvitamin D levels, its direct impact on glycemic markers in individuals without diabetes was limited or absent. In prediabetic individuals, daily supplementation for 24 months did not improve insulin sensitivity or pancreatic β -cell function compared to placebo, except in a subgroup with severe vitamin D deficiency at baseline. However, in patients already diagnosed with T2DM and vitamin D deficiency, supplementation resulted in significant improvements in glycemic control, including reductions in HbA1c and fasting glucose, as well as a lower need for hypoglycemic medications. **Conclusion:** Vitamin D supplementation is effective in restoring serum vitamin D levels. However, current evidence suggests a primarily adjuvant role in metabolic control: its use is associated with significant improvement in glycemic markers (HbA1c and fasting glucose) only in patients with established type 2 diabetes mellitus and documented vitamin D deficiency. In contrast, among populations at moderate risk (prediabetes), isolated supplementation did not provide statistically significant benefits in modulating insulin sensitivity or pancreatic β -cell function. Therefore, recommending vitamin D supplementation as a universal primary prevention strategy for T2DM is not currently supported by robust evidence from randomized controlled trials.

Palavras-chave: Vitamin D Glycemic Control Type 2 Diabetes Mellitus Supplementation Insulin Resistance.

THE IMPORTANCE OF WEIGHT ESTIMATION FOR HOSPITALIZED PATIENTS WITH CHRONIC NON- COMMUNICABLE DISEASES: AN INTEGRATIVE REVIEW

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RESUMO

THE IMPORTANCE OF WEIGHT ESTIMATION FOR HOSPITALIZED PATIENTS WITH CHRONIC NON-COMMUNICABLE DISEASES: AN INTEGRATIVE REVIEW ABSTRACT

Accurate body weight assessment is essential in the clinical management of hospitalized patients, particularly those with chronic non-communicable diseases (NCDs), as it directly influences medication dosing, nutritional support, and fluid management. However, in critically ill, bedridden, or mobility-impaired patients, direct weight measurement is often not feasible, making weight estimation methods important alternatives in hospital practice. This study aimed to analyze the clinical relevance and accuracy of body weight estimation methods in hospitalized patients with NCDs, considering their impact on clinical decision-making and patient safety. This study consists of an integrative literature review with a qualitative approach, guided by the following research question: “What are the clinical relevance and accuracy of body weight estimation methods in hospitalized patients with chronic non- communicable diseases?” The search was conducted in the PubMed/MEDLINE, Web of Science, and SciELO databases using the MeSH/DeCS descriptors “Body Weight,” “Weight Estimation,” “Hospitalized Patients,” “Chronic Disease,” “Anthropometry,” and “Clinical Nutrition,” combined with the Boolean operators AND/OR. Studies published between January 2021 and March 2026 in English and Portuguese were included, comprising original articles, systematic reviews, and meta-analyses. Duplicate, incomplete, or unrelated studies were excluded after screening titles, abstracts, and full texts. The findings demonstrated that inaccurate body weight estimation remains common in hospital settings, particularly when based on visual assessment or non-standardized methods, frequently resulting in systematic overestimation or underestimation. In some contexts, estimates provided by patients and family members showed greater accuracy compared with those performed by healthcare professionals. Furthermore, anthropometric equations based on measurements such as arm, abdominal, and calf circumferences demonstrated promising accuracy, especially among immobilized patients and in low-resource settings. In the context of NCDs, weight changes, malnutrition, and obesity were significantly associated with worse clinical prognosis, longer hospital stays, and increased hospital morbidity and mortality. Despite its clinical relevance, body weight is still frequently underreported in medical records, compromising therapeutic safety and quality of care. Body weight estimation plays an essential role in the management of hospitalized patients with NCDs when direct measurement is not feasible. However, variability in the accuracy of available methods remains an important limitation. The findings reinforce the need for standardized protocols and for the development of accessible and population-specific predictive models aimed at improving patient safety and supporting more accurate clinical decision-making.

A IMPORTÂNCIA DA ESTIMATIVA DO PESO CORPORAL EM PACIENTES HOSPITALIZADOS COM DOENÇAS CRÔNICAS NÃO TRANSMISSÍVEIS: UMA REVISÃO INTEGRATIVA RESUMO A avaliação precisa do peso corporal é fundamental no manejo clínico de pacientes hospitalizados, especialmente daqueles com doenças crônicas não transmissíveis (DCNT), por influenciar diretamente a dosagem medicamentosa, o suporte nutricional e o manejo de fluidos. Entretanto, em pacientes críticos, acamados ou com mobilidade reduzida, a mensuração direta do peso frequentemente não é viável, tornando os métodos de estimativa alternativas importantes na prática hospitalar. O estudo objetivou analisar a relevância clínica e a acurácia dos métodos de estimativa do peso corporal em pacientes hospitalizados com DCNT, considerando seu impacto na tomada de decisão clínica e na segurança do paciente. Trata-se de uma revisão integrativa da literatura, com abordagem qualitativa, conduzida a partir da seguinte questão norteadora: “Qual a relevância clínica e a acurácia dos métodos de estimativa do peso corporal em pacientes hospitalizados com doenças crônicas não transmissíveis?”. A busca foi realizada nas bases PubMed/MEDLINE, Web of Science e SciELO, utilizando os descritores MeSH/DeCS “Body Weight”, “Weight Estimation”, “Hospitalized Patients”, “Chronic Disease”, “Anthropometry” e “Clinical Nutrition”, combinados pelos operadores booleanos AND/OR. Foram incluídos estudos publicados entre janeiro de 2021 e março de 2026, nos idiomas inglês e português, incluindo artigos originais, revisões sistemáticas e meta-análises. Estudos duplicados, incompletos ou não relacionados ao tema foram excluídos após leitura de títulos, resumos e textos completos. Os achados demonstraram que a estimativa imprecisa do peso corporal permanece frequente em ambientes hospitalares, especialmente quando baseada em avaliação visual ou em métodos não padronizados, resultando em superestimação ou subestimação sistemática. Em alguns contextos, estimativas fornecidas por pacientes e familiares apresentaram maior precisão em comparação às realizadas por profissionais de saúde. Além disso, equações antropométricas baseadas em medidas como circunferência do braço, abdominal e da panturrilha demonstraram acurácia promissora, sobretudo em pacientes imobilizados e em ambientes com recursos limitados. No contexto das DCNT, alterações ponderais, desnutrição e obesidade apresentaram associação significativa com pior prognóstico clínico, aumento do tempo de internação e maior morbimortalidade hospitalar. Apesar de sua relevância clínica, o peso corporal ainda é frequentemente subregistrado nos prontuários, comprometendo a segurança terapêutica e a qualidade da assistência. Conclui-se que a estimativa do peso corporal desempenha papel essencial no manejo de pacientes hospitalizados com DCNT quando a mensuração direta não é possível. Contudo, a variabilidade na acurácia dos métodos disponíveis ainda representa uma limitação importante. Os resultados reforçam a necessidade de protocolos padronizados e do desenvolvimento de modelos preditivos acessíveis e específicos para diferentes populações hospitalares, visando aprimorar a segurança do paciente e a tomada de decisão clínica.

Palavras-chave: Keywords: Body Weight Estimation Hospitalized Patients Chronic Diseases Anthropometry Clinical Nutrition.

THE INFLUENCE OF MITOCHONDRIAL DYSFUNCTION, OXIDATIVE STRESS, AND METABOLIC SYNDROME ON CARDIOVASCULAR DISEASES: A LITERATURE REVIEW

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RESUMO

INTRODUCTION: Metabolic Syndrome (MetS) is a growing global health concern associated with sedentary lifestyles and frequent consumption of ultra-processed, high-fat, and high-sugar foods, negatively impacting health and quality of life. MetS is characterized by obesity, insulin resistance, glucose metabolism dysfunction, increased abdominal circumference. These alterations affect white adipose tissue, promoting adipocyte hypertrophy and changes in adipokine secretion, which contribute to a chronic pro-inflammatory state and systemic metabolic imbalance. Mitochondrial dysfunction and oxidative stress play key roles in MetS progression by increasing reactive oxygen species (ROS) production and reducing ATP synthesis, leading to inflammation, cellular damage, and increased cardiovascular risk. **OBJECTIVE:** This review aims to elucidate the relationship between inflammation, metabolic syndrome (MetS), oxidative stress, and mitochondrial dysfunction in the development and progression of cardiovascular diseases (CVD). **METHODOLOGY:** This literature review was based on a PubMed search using descriptors related to metabolic syndrome, mitochondrial dysfunction, oxidative stress, and cardiovascular risk. Original articles, systematic reviews, and narrative reviews that investigated the association between mitochondrial dysfunction, metabolic syndrome, oxidative stress, and the development of cardiovascular disease were included. **RESULTS:** In MetS, excessive caloric intake and chronic inflammation in white adipose tissue (WAT) alter lipid metabolism and promote mitochondrial dysfunction. During oxidative phosphorylation, an overload of nutrients increases electron transfer in the respiratory chain, generating excessive ROS and an imbalance between oxidant and antioxidant defenses. These oxidative molecules can damage DNA, proteins, and cellular signaling pathways, leading to apoptosis and tissue dysfunction. Mitochondria generate ATP through oxidative phosphorylation by transferring electrons from NADH and FADH₂ through the electron transport chain. In MetS, excess nutrients and low energy expenditure increase NADH accumulation and electron leakage, resulting in ROS overproduction. ROS activate NF- κ B signaling and stimulate the release of pro-inflammatory cytokines such as TNF- α , IL-6, IL-1 β , and MCP-1, creating a chronic inflammatory environment that enhances insulin resistance, lipolysis, and systemic metabolic dysfunction. Oxidative stress also causes vascular endothelial dysfunction through lipid peroxidation, protein oxidation, and LDL oxidation. Oxidized LDL (ox-LDL) is phagocytosed by macrophages, generating foam cells that accumulate in the vascular intima and initiate atherosclerotic plaque formation. Increased vascular permeability, platelet aggregation, and matrix metalloproteinase activation contribute to plaque rupture and thrombus formation, increasing the risk of myocardial infarction and cardiovascular disease. Mitochondrial dysfunction in MetS is also associated with reduced ATP production, impaired beta-oxidation, decreased AMPK activity, mtDNA damage, and deregulated mitophagy. These alterations increase ROS production, inflammatory signaling, apoptosis, and insulin resistance, affecting multiple tissues, including liver, skeletal muscle, kidneys, and cardiovascular tissue. Consequently, MetS promotes systemic metabolic dysfunction and increases the risk of cardiovascular and chronic degenerative diseases. **CONCLUSION:** In summary, mitochondrial dysfunction and oxidative stress play central roles in the progression of MetS and cardiovascular diseases by promoting chronic inflammation, endothelial dysfunction, insulin resistance, and cellular damage. Future studies should focus on therapeutic strategies targeting mitochondrial function and oxidative balance, as well as on identifying biomarkers associated with early cardiovascular and metabolic alterations.

Palavras-chave: Metabolic Syndrome/MetS Oxidative Stress Mitochondrial Dysfunction Cardiovascular Diseases Inflammation.

THE INTERFACE BETWEEN GASTROESOPHAGEAL REFLUX DISEASE AND SLEEP BRUXISM: CURRENT EVIDENCE

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RESUMO

ABSTRACT Introduction: GERD (Gastroesophageal Reflux Disease) is a condition involving the retrograde movement of gastric contents into the esophagus and, in some cases, beyond the upper esophageal sphincter, potentially affecting structures of the upper airways and digestive tract, such as the pharynx, larynx, and oral cavity. Sleep bruxism (SB) is defined as masticatory muscle activity during sleep, characterized as rhythmic (phasic) or non-rhythmic (tonic). These two conditions (GERD and SB) have received particular interest from dental professionals because, when they occur simultaneously, they can have a synergistic effect, aggravating damage to the teeth and compromising the structures of the stomatognathic system. Objectives: This study aimed to analyze the current evidence of the relationship between sleep bruxism and gastroesophageal reflux disease. Materials and Methods: A narrative literature review was conducted based on studies published in the PubMed database over the last 4 years. The search was performed using the descriptors "sleep bruxism" and "gastroesophageal reflux disease". Original articles, clinical trials, systematic reviews, meta-analyses, and randomized controlled trials with a direct approach to the topic were included. Results: Some recent studies show an association between salivary gland dysfunction (SB) and GERD, with a higher prevalence of SB in individuals with GERD, due to the protective role that SB may play in mitigating the risk of intrinsic chemical wear of teeth through stimulation of the salivary glands. This is because saliva is one of the most important protective factors against dental erosion due to its buffering capacity, remineralization potential, and role in the formation of the acquired pellicle of dental enamel. Furthermore, both conditions (SB and GERD) are linked to microarousals and sleep fragmentation. This direct relationship between SB, GERD, and the frequency of microarousals has been questioned, with sleep architecture appearing to play a role in modulating this interaction. Although many studies demonstrate an association between SB and GERD, little is known about the possible pathophysiological mechanisms linking these two clinical conditions. Conclusion: The pathophysiological mechanisms that explain the association between BS and GERD are not yet fully elucidated, and further studies investigating this interaction in more detail are needed. A better understanding of the interface between these conditions is fundamental for the development of more effective and interdisciplinary clinical approaches.

Palavras-chave: Gastroesophageal Reflux Sleep Bruxism Stomatognathic System Sleep Fragmentation.

THE INTERFACE BETWEEN MENTAL AND ORAL HEALTH: AN INTERDISCIPLINARY APPROACH - LITERATURE REVIEW

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RESUMO

ABSTRACT Introduction: The relationship between oral health and mental health, especially in the context of depression, represents an increasingly relevant yet underexplored field of study. Mental disorders significantly compromise the quality of life and psychosocial functioning of individuals. People with depression frequently exhibit low motivation and energy, leading them to neglect their oral hygiene. Furthermore, psychotropic medications can cause xerostomia, contributing to the exacerbation of oral conditions such as dental caries and periodontitis. Studies indicate that poor oral health can intensify depressive symptoms due to chronic pain, impact on self-esteem, and social interaction. Disorders such as anxiety and depression can aggravate or favor the development of bruxism, which may lead to temporomandibular disorders (TMD), causing severe orofacial discomfort and tooth wear, thus compromising both the oral health and the psychological well-being of the individual. Objective: This study aims to investigate the complex relationship between mental health and oral health, highlighting the importance of an interdisciplinary approach in the prevention and treatment of dental and mental conditions. Material and Methods: This study consists of a narrative literature review, conducted using publications indexed in the PubMed database over the last two years. The search was performed using the descriptors "mental health" and "oral health," including original articles, systematic reviews, and meta-analyses. Results: Individuals with depression and anxiety present a significantly higher risk of developing dental caries and periodontal disease, primarily due to poorer oral hygiene and a lower frequency of dental care. Moreover, in individuals over 50 years of age, chronic stress and depression are associated with increased dental plaque, gingivitis, and elevated cortisol levels, reinforcing the link between mental health, immune response, and oral health impairment. Research highlights the relationship between the oral microbiome and mental disorders, suggesting that oral dysbiosis is associated with systemic inflammation and may play a role in the pathophysiology of depression. The maintenance of oral hygiene and the management of periodontal disease may promote mental well-being by attenuating inflammatory and neurochemical processes associated with depression. Evidence indicates significant differences in the structure of the oral microbial community between individuals with mild and severe depression, showing that changes in the diversity, evenness, and composition of this microbiome are directly related to the severity of depressive symptoms. This complex relationship between oral and mental health, particularly in the context of depression, requires an interdisciplinary approach. Dentists, psychologists, psychiatrists, and other healthcare professionals must work in an integrated manner, recognizing that oral healthcare can play a relevant role in the prevention and management of mental disorders, just as mental health directly influences oral hygiene habits, immune response, and the quality of life of individuals. Conclusion: The integration of oral and mental health is fundamental for a more effective and humanized approach in clinical practice. Awareness regarding this connection should be encouraged in healthcare services, reinforcing the importance of a holistic perspective for comprehensive patient care.

Palavras-chave: Oral Health Mental Health Depression Holistic Health.

THE WARBURG EFFECT AND ITS CLINICAL IMPLICATIONS IN CANCER

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RESUMO

Introdução: O efeito Warburg, também conhecido como glicólise aeróbica, descreve a preferência das células cancerígenas pela glicólise em detrimento da fosforilação oxidativa (OxPhos) para a produção de energia, apesar da presença de altos níveis de oxigênio e mitocôndrias totalmente ativas. Warburg propôs que a respiração nas células cancerígenas era insuficiente para reduzir a fermentação aeróbica (glicólise) e defendeu a ideia de que o câncer surgia da deficiência crônica de OxPhos, mesmo ao avaliar células cancerígenas cujo consumo de oxigênio era semelhante ao de células não cancerígenas. **Objetivo:** O objetivo deste estudo é investigar o efeito Warburg e suas implicações clínicas no desenvolvimento do câncer. **Métodos:** Trata-se de uma revisão narrativa, com buscas realizadas no PubMed utilizando descritores relacionados ao efeito Warburg, implicações clínicas e câncer. **Ensaios clínicos e revisões sistemáticas relevantes** que abordam a interação entre o efeito Warburg e o metabolismo das células cancerígenas foram incluídos. **Resultados:** O efeito Warburg promove a produção rápida de ATP, alimenta vias biossintéticas e contribui para a homeostase redox, facilitando a regeneração de NAD⁺ citosólico por meio da produção e secreção de lactato. Além disso, é evidente em vários tipos de tumores, incluindo câncer colorretal, câncer de mama, câncer de pulmão e glioblastoma, que consomem grandes quantidades de glicose e a fermentam principalmente em lactato, em vez de oxidá-la. No entanto, esse efeito não se limita às células cancerígenas; também é observado em várias células não cancerígenas sob certas condições fisiológicas ou patológicas, por exemplo, durante a divisão celular rápida, a ativação de células imunes ou durante a fase de reparo e regeneração tecidual, quando as células dependem mais da glicólise para obter energia. **Conclusão:** O efeito Warburg representa uma importante reprogramação metabólica das células cancerígenas, favorecendo a glicólise mesmo em condições aeróbicas. Embora não seja exclusivo do câncer, sua presença consistente em diferentes tipos de tumores reforça seu papel central na biologia do câncer. Portanto, uma compreensão mais profunda desse fenômeno amplia as perspectivas para o desenvolvimento de estratégias terapêuticas direcionadas ao metabolismo tumoral, contribuindo potencialmente para abordagens mais eficazes no diagnóstico, prognóstico e tratamento do câncer.

Palavras-chave: Efeito Warburg; Câncer; Glicólise; Implicações Clínicas.

TRANSTORNO DO JOGO EM APOSTAS ONLINE BASES NEUROBIOLOGICAS E DESFECHOS PSICOSSOCIAIS

Mateus Saca de Almeida

RESUMO

O avanço das tecnologias digitais, aliado à regulamentação das apostas esportivas no Brasil (Lei nº 13.756/2018 e normativas posteriores), tem impulsionado o crescimento exponencial das apostas online, configurando um relevante desafio de saúde pública contemporâneo, especialmente no campo da saúde mental. O desenho dessas plataformas, frequentemente baseado em esquemas de reforçamento intermitente, cria condições altamente favoráveis ao desenvolvimento do transtorno do jogo (gambling disorder), classificado no DSM-5-TR como transtorno aditivo. Além disso, tais

mecanismos podem potencializar a hiperativação do sistema de recompensa mesolímbico e a disfunção do córtex pré-frontal, comprometendo processos relacionados ao controle inibitório, à tomada de decisão e à regulação emocional. O presente projeto de Iniciação Científica tem como objetivo realizar uma revisão sistemática da literatura, seguindo as recomendações do PRISMA 2020, para integrar as bases neurobiológicas e fisiológicas do transtorno do jogo em apostas online aos seus desfechos sociais e comportamentais. A busca será realizada nas bases PubMed/MEDLINE, PsycINFO, Scopus, Web of Science, SciELO e LILACS (período 2015-2026), utilizando a estratégia PICO e descritores em português e inglês. Os estudos selecionados serão analisados por meio de análise temática, organizados em eixos que abrangem mecanismos neurobiológicos, aspectos fisiológicos, funções executivas, desfechos sociais/comportamentais e comparações com outras condições comportamentais. A hipótese do estudo é que os mecanismos neurobiológicos (hiperativação dopaminérgica e disfunção pré-frontal) e os esquemas de reforçamento intermitente atuam de forma integrada e sinérgica, gerando e perpetuando ciclos coercitivos nas relações humanas e graves prejuízos psicossociais, tais como endividamento crônico, conflitos familiares, isolamento social, declínio acadêmico e profissional, ansiedade, depressão e risco de suicídio. Espera-se que os resultados evidenciem a articulação entre biologia e comportamento, subsidiando estratégias preventivas alinhadas às diretrizes do Ministério da Saúde frente à atual epidemia de apostas no contexto brasileiro.

Palavras-chave: Transtorno Do Jogo Apostas Online Neurobiologia Desfechos Psicossociais Reforçamento Intermitente Esquema De Reforço.

USE OF ARTIFICIAL INTELLIGENCE IN SCREENING THE RISK OF DEPRESSION IN NON-COMMUNICABLE CHRONIC DISEASES: A NARRATIVE LITERATURE REVIEW

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RESUMO

Global population aging, driven by declining fertility rates and increased life expectancy, has contributed to the growing prevalence of non-communicable chronic diseases (NCDs). In this context, depression among older adults is a frequent disorder, associated with adverse outcomes, including functional disability, poorer clinical prognosis, increased mortality, and rising healthcare costs. The coexistence of depression and NCDs results in complex patterns of multimorbidity, making the development of effective strategies for early identification of at-risk individuals essential. This study aims to analyze the use of artificial intelligence (AI) models in predicting and screening the risk of depression in patients with NCDs. This is a narrative literature review guided by the SANRA (Scale for the Assessment of Narrative Review Articles) criteria, including studies published between 2018 and 2025, indexed in the PubMed and ScienceDirect databases. The search strategy used the terms: (“machine learning” OR “artificial intelligence”) AND depression AND “risk prediction”. Original articles, observational studies, longitudinal studies, and systematic reviews investigating the use of AI in predicting depression in individuals with NCDs were included, while studies not addressing NCDs or AI methods were excluded. A total of 12 articles

were selected, with qualitative analysis of the main predictors and models used. The analyzed studies demonstrate that AI models show satisfactory performance in predicting depression in patients with NCDs. The main predictors identified include factors related to physical health (self-perception, bodily pain, and functional limitations in activities of daily living), cognitive aspects, behavioral variables (sleep duration, smoking, and alcohol consumption), and psychosocial factors (life satisfaction and socioeconomic conditions), highlighting the multifactorial nature of the outcome and contributing to the discriminative capacity of the models. In an analytical observational study with 3,959 participants aged 60 years or older, the prevalence of depression was 19.2%, approximately twice as high in females. These findings correspond to the characterization of the sample and the definition of the outcome, forming the basis for the development of predictive screening models. Based on these data, algorithms such as logistic regression, Random Forest, Support Vector Machine, k-Nearest Neighbors, and AdaBoost were applied, showing high performance. Random Forest combined with the SMOTE (Synthetic Minority Oversampling Technique) balancing method stood out, demonstrating excellent discriminative ability (AUROC ~0.95; AUPRC 0.920; accuracy 0.891; sensitivity 0.875). In contrast, another study with 7,121 participants identified a prevalence of 21.5% and better performance with logistic regression combined with SMOTE (LR-SM), although with more moderate metrics (AUROC 0.612; AUPRC 0.468; accuracy 0.619; sensitivity 0.546), yet consistent in external validation, highlighting the influence of sample and methodological differences on results. In summary, risk prediction models demonstrate satisfactory performance in identifying depression among older adults with NCDs, indicating their potential as screening tools. However, limitations such as the use of self-reported data, class imbalance, and the scarcity of external validation still restrict their generalizability, requiring future studies with greater standardization.

Palavras-chave: Artificial Intelligence; Screening; Depression; Non- Communicable Chronic Diseases.

VISCERAL ADIPOSITY AND COGNITIVE DECLINE: A LITERATURE REVIEW ON NEUROINFLAMMATORY MECHANISMS AND BIOMARKERS AND NEURODEGENERATION

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RESUMO

ABSTRACT Introduction: Obesity is a growing pandemic associated with neurodegenerative diseases. Recent evidence indicates that the distribution of body fat, specifically visceral adiposity, is more strongly correlated with cognitive impairment than total adiposity alone. Understanding the inflammatory and metabolic mechanisms of this relationship is crucial for preventive strategies. Objectives: To investigate the association between visceral obesity and cognitive impairment, highlighting the neurobiological mechanisms and biomarkers involved in neurodegeneration. Methods: Literature review conducted in April 2026 in the PubMed, LILACS, and CAPES Periodicals Portal databases. The search strategy included the descriptors "Abdominal Obesity," "Cognitive Dysfunction," and "Neuroinflammation," focusing on meta-analyses, cohort studies, and clinical trials published between 2021 and 2026. Results: Central obesity, measured by waist

circumference (WC), was associated with a 10% increased risk of dementia (HR = 1.10; 95% CI: 1.05-1.15), a risk that increases to 13% in individuals over 65 years of age. Indicators such as waist-to-hip ratio (WHR) and waist-to-height ratio (WHtR) have proven to be more consistent predictors of cognitive performance than BMI. Meta-analyses have revealed that elevated BMI correlates negatively with cerebral blood flow ($\beta = -0.31$), resulting in global and regional reductions (hippocampus, thalamus, and frontal/temporal lobes). Mechanistically, visceral obesity promotes neuroinflammation, hyperinsulinemia, and accumulation of β -amyloid peptide and Tau protein. Additionally, the comorbidity between abdominal obesity and depression exerts additive effects, significantly worsening the decline in executive function in adults over 45 years of age. Conclusion: Visceral adiposity negatively impacts cognitive function through hemodynamic and metabolic changes in the brain. The superiority of WC and WHR over BMI as risk predictors highlights the need for multidimensional anthropometric assessments in clinical practice. Strategies aimed at reducing abdominal fat and controlling neuroinflammation are essential to mitigate the progression of pathologies such as Alzheimer's Disease.

Palavras-chave: Obesity; Cognitive Dysfunction; Waist Circumference; Executive Function; Inflammation.

ACCESSIBILITY BARRIERS TO PSYCHOLOGICAL SERVICES FOR DEAF INDIVIDUALS: A SYSTEMATIC LITERATURE REVIEW

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RESUMO

RESUMO O direito à saúde é garantido pela Constituição Federal brasileira e reforçado por marcos legais de inclusão, como a Lei nº 10.436/2002, que reconhece a Língua Brasileira de Sinais (Libras) como meio legal de comunicação, e a Lei Brasileira de Inclusão da Pessoa com Deficiência (Lei nº 13.146/2015). Apesar desses avanços, evidências apontam que pessoas surdas apresentam maiores taxas de sofrimento psíquico, revelando dificuldades persistentes no acesso equitativo aos serviços de saúde mental. No contexto psicológico, destacam-se a escassez de profissionais capacitados em Libras, a dependência de intérpretes em contextos clínicos, a ausência de práticas culturalmente sensíveis e a limitada produção científica sobre acessibilidade nessa interface. O presente estudo tem como objetivo analisar, por meio de revisão sistemática da literatura, as barreiras de acessibilidade - linguísticas, culturais, organizacionais e legais - que dificultam o acesso de pessoas surdas ao atendimento psicológico, bem como seus efeitos sobre a utilização, a qualidade e os desfechos percebidos em saúde mental. Realizou-se uma revisão sistemática da literatura no período de 2015 a 2025, em bases de dados nacionais e internacionais (PubMed, Scopus e Biblioteca Virtual em Saúde - BVS). A busca combinou descritores controlados (DeCS/MeSH) e termos livres relacionados à surdez, acessibilidade e saúde mental. Foram incluídos estudos empíricos e relatos clínicos publicados em português ou inglês; excluíram-se duplicatas, revisões teóricas e estudos restritos à dimensão biomédica da surdez. A seleção e extração de dados foram realizadas de forma independente por dois revisores, seguindo as recomendações do PRISMA, com análise qualitativa e categorização temática das evidências. O estudo encontra-se na fase de triagem e extração de dados. A análise preliminar dos artigos identificou três eixos centrais: (1) barreiras de comunicação, marcadas pela escassez de psicólogos proficientes em Libras e pela dependência de intérpretes, comprometendo a espontaneidade e a confidencialidade da relação terapêutica; (2)

barreiras organizacionais e estruturais, caracterizadas pela ausência de protocolos específicos, baixa adesão ao tratamento e insuficiência de políticas públicas adaptadas; e (3) estratégias de inclusão emergentes, como o desenvolvimento de glossários bilíngues e a formação de profissionais bilíngues e biculturais. Embora incipientes, essas iniciativas demonstram potencial para ampliar o acesso, reduzir desigualdades e fortalecer a comunicação terapêutica. Os resultados parciais evidenciam a necessidade urgente de políticas de capacitação profissional, produção de materiais acessíveis e elaboração de diretrizes que garantam um atendimento psicológico inclusivo, ético e culturalmente sensível. A efetivação do direito à saúde mental da pessoa surda requer a superação das barreiras comunicacionais e estruturais que ainda limitam seu acesso e permanência nos serviços. Tem-se como hipótese que a escassez de estudos sobre a acessibilidade na interface entre saúde mental e surdez contribui para a insuficiência de políticas públicas e ações efetivas de inclusão dessa população.

Palavras-chave: Pessoas Com Deficiência Auditiva; Acessibilidade; Saúde Mental; Língua De Sinais.

ESTRATÉGIAS NÃO FARMACOLÓGICAS INTERDISCIPLINARES PARA MITIGAÇÃO DO DELIRIUM EM PACIENTES CRÔNICOS CRÍTICOS: UMA REVISÃO ACADÊMICA SISTEMÁTICA

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RESUMO

O delirium é uma síndrome neurocognitiva complexa caracterizada por disfunção cerebral aguda, frequentemente exacerbada em Unidades de Terapia Intensiva (UTI) por neuroinflamação, privação de sono e desregulação sensorial. Pacientes com multicomorbidades crônicas apresentam maior vulnerabilidade ao declínio cognitivo a longo prazo e aumento da mortalidade. Enfrentar esse desafio exige uma robusta sinergia interdisciplinar entre enfermagem e fisioterapia por meio de agrupamentos não farmacológicos baseados em evidências. O objetivo deste estudo foi avaliar evidências acadêmicas de alto impacto sobre intervenções não farmacológicas interdisciplinares, lideradas pela enfermagem e fisioterapia, para o manejo do delirium em pacientes crônicos na UTI. Para isso, foi realizada uma revisão sistemática nas bases de dados PubMed/MEDLINE, Cochrane Library e CINAHL para estudos publicados entre 2021 e 2026. A estratégia de busca focou em ensaios clínicos controlados e aleatorizados, metanálises e estudos de coorte que investigaram protocolos multiprofissionais como o bundle ABCDEF, orientação cognitiva e otimização ambiental em UTIs adultas. A metodologia priorizou estudos com validação por revisão por pares, excluindo pesquisas focadas em sedação farmacológica, cuidados pediátricos ou relatos puramente descritivos. As evidências sintetizadas indicam que a convergência da higiene circadiana liderada pela enfermagem - especificamente a mitigação de ruído abaixo de 45dB e a fototerapia - combinada com a mobilização precoce conduzida pela fisioterapia em até 48 horas após a admissão, reduz a prevalência de delirium em aproximadamente 25%. Protocolos avançados como o "e- Bundle" destacam que a estimulação cognitiva e a integração familiar, coordenadas pela enfermagem, atenuam significativamente os sintomas de delirium subsindrômico. Além disso, a intervenção fisioterapêutica precoce reduz a duração da ventilação mecânica e a incidência de fraqueza adquirida na UTI. Conclui-se que o manejo interdisciplinar não farmacológico representa

o padrão-ouro para a segurança neurocognitiva em pacientes crônicos, demonstrando que a atuação integrada entre enfermagem e fisioterapia é um fator protetor crítico contra a Síndrome Pós-Cuidados Intensivos (PICS) e essencial na otimização dos desfechos clínicos modernos.

Palavras-chave: Delirium Cuidados Críticos Cuidados De Enfermagem Modalidades De Fisioterapia Doença Crônica.

AVOCADO CONSUMPTION AND LDL-CHOLESTEROL REDUCTION: AN UMBRELLA REVIEW OF SYSTEMATIC REVIEWS AND META-ANALYSES

Bruno Moreira Candeloro

RESUMO

Dyslipidaemia is one of the main modifiable risk factors for cardiovascular disease, and dietary interventions have been widely investigated as non-pharmacological strategies for cardiometabolic risk management. Avocado, due to its high content of monounsaturated fatty acids, fibre, and bioactive compounds, has been associated with potential beneficial effects on lipid profile. This study aimed to synthesise high-level evidence on the effects of avocado consumption on LDL-cholesterol reduction in adults. An umbrella review of systematic reviews and meta-analyses was conducted in accordance with Cochrane methodological recommendations and registered in PROSPERO. Searches were performed in EMBASE, MEDLINE/PubMed, Scopus, Web of Science, LILACS, CINAHL, and the Cochrane Library for studies published up to June 2024. Systematic reviews and meta-analyses evaluating avocado consumption and its effects on lipid markers in adults were eligible. Methodological quality and certainty of evidence were assessed using PRISMA 2020, AMSTAR 2, and GRADE. Eight reviews met the eligibility criteria. Overall, the main findings consistently indicated reductions in LDL-cholesterol among individuals with dyslipidaemia or hypercholesterolaemia, with effect magnitudes ranging from approximately 9.4 to 17 mg/dL, alongside reductions in total cholesterol in part of the included reviews. In contrast, findings for HDL-cholesterol and triglycerides were inconsistent across studies. Methodological appraisal revealed important variability in review quality, with predominantly low to very low certainty of evidence for several lipid outcomes. In conclusion, avocado consumption may contribute to lowering LDL-cholesterol, particularly in individuals with pre-existing lipid abnormalities, suggesting a potential benefit in the prevention and management of chronic cardiometabolic diseases. However, methodological heterogeneity and limitations in the quality of evidence indicate the need for more standardised and longer-term clinical trials.

Palavras-chave: Avocado; LDL-cholesterol; Dyslipidaemia; Cardiovascular Risk; Umbrella Review.

BREAST CANCER AND NON-APOPTOTIC PROGRAMMED CELL DEATH: A NARRATIVE REVIEW

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RESUMO

Breast cancer is the most common malignant tumor among women worldwide, presenting many occurrences and high mortality rates, in addition to great biological variety and therapeutic resistance. Classic treatments such as apoptosis have proven insufficient to eliminate resistant tumor cells. Recent studies demonstrate that new forms of programmed cell death, such as ferroptosis, cuproptosis, disulfide, and pyroptosis, play a very important role in tumor progression and treatment response. These forms are directly related to cellular metabolism, oxidative stress, and modulation of the tumor microenvironment, opening new therapeutic perspectives.

Palavras-chave: Breast Cancer; Ferroptosis; Programed Cell Death; Tumor Resistance; Targeted Therapy.

BREAST CANCER AND NON-APOPTOTIC PROGRAMMED CELL DEATH: A NARRATIVE REVIEW

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RESUMO

Breast cancer is the most common malignant tumor among women worldwide, presenting many occurrences and high mortality rates, in addition to great biological variety and therapeutic resistance. Classic treatments that primarily induce apoptosis have proven insufficient to eliminate resistant tumor cells. Recent studies demonstrate that new forms of programmed cell death, such as ferroptosis, cuproptosis, disulfidoptosis, and pyroptosis, play a very important role in tumor progression and treatment response. These forms are directly related to cellular metabolism, oxidative stress, and modulation of the tumor microenvironment, opening new therapeutic perspectives.

Palavras-chave: Breast Cancer Ferroptosis Programmed Cell Death Tumor Resistance Targeted Therapy.

CÂNCER DE MAMA MASCULINO ASSOCIADO AO AUMENTO DA OBESIDADE NO SÉCULO XXI

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RESUMO

Introduction: Male breast cancer is relatively rare compared to female breast cancer, which explains the limited number of studies on the subject. However, an increase in diagnoses in recent decades has generated greater visibility for the topic. Parallel to this, there is also a growing prevalence of overweight and obesity in the current population, demonstrating that it is one of the main public health problems of the 21st century. The increase in both diagnoses has raised questions about the

degree of association between male breast cancer and obesity, with obesity being a risk factor. Objective: The objective of this study is to evaluate how the increase in obesity in the current population may affect the diagnosis of male breast cancer. Methods: This is a narrative literature review encompassing articles from 2015 to 2025 from the PubMed (MEDLINE) database. Of the 10 articles initially selected, 5 were used due to their greater relevance to the topic. The descriptors "Male breast cancer" and "Obesity" were used to select systematic reviews and observational studies. Results and discussion: studies have shown a consistent association between obesity and male breast cancer. Observational studies show a progressive increase in risk related to increased body mass index (BMI), which is even more pronounced in central obesity, measured by abdominal circumference and the height-to- circumference ratio. In other words, abdominal circumference is more reliable when measuring breast cancer risk in men. Apparently, the mechanism behind this risk is related to increased estrogen levels resulting from androgen aromatization in adipose tissue. Obese men tend to have higher estrogen production and bioavailability, which favors the proliferation of breast cells, especially in tumors with positive hormone receptors, which represent the majority of cases. Another analysis that should be considered is the role of adipose tissue as an inflammatory mediator. Low-grade inflammation resulting from obesity and metabolic alterations such as insulin resistance contribute to a pro-tumor environment due to cellular stress. Thus, abdominal obesity potentiates these effects, since it is metabolically more reactive, justifying the increased risks. Interestingly, some studies have shown an increased risk for individuals with a low BMI; however, this finding has not yet been fully elucidated. Despite the limitations inherent in observational studies, the data reinforce obesity as an important risk factor for male breast cancer. Conclusion: Although studies related to male breast cancer are scarce, and those relating it to obesity are even rarer, it is possible to affirm that obesity is closely linked to an increased risk of developing breast cancer in men, generating greater concern related to the increased incidence in the 21st century, in which obesity is a daily challenge.

Palavras-chave: Cancer Male Breast Cancer Obesity.

CARDIOTOXICITY ASSOCIATED WITH DOXORUBICIN AND TRASTUZUMAB THERAPY IN BREAST CANCER: AN INTEGRATIVE REVIEW

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RESUMO

Breast cancer has a high incidence in Brazil, within 73,610 new cases between 2023 and 2025. Pharmacological treatment is primarily administered with anthracyclines, such as doxorubicin

(60% of cases) and epirubicin, as well as humanized monoclonal antibodies, such as trastuzumab (most commonly used) and pertuzumab. However, cardiotoxicity caused by these agents requires attention and demands multidisciplinary monitoring during therapy. In this context, the present study aims to provide a literature review on cardiac dysfunctions associated with doxorubicin and trastuzumab in breast cancer therapy. A review was conducted in the PubMed, SciELO, and BVS databases using the descriptors: "Breast cancer", "Anthracyclines", "Trastuzumab", "Cardiotoxicity" and Boolean operators "AND" and "OR." Clinical trials and literature reviews in English, published between 2016 and 2026 with free full text, were included. Articles not related to doxorubicin and trastuzumab were excluded. 81 articles were found and 72 were selected. Studies show that cardiotoxicity is a challenge in breast cancer therapy. Anthracyclines, especially doxorubicin, may cause irreversible and dose-dependent cardiac damage in 10% to 20% of patients. In turn, the isolated use of trastuzumab or pertuzumab might lead to reversible cardiotoxicity in up to 7% of patients. The concomitant use of doxorubicin and trastuzumab increases risk up to 32%, with left ventricular dysfunction being the main effect observed with this combination. These effects urge early and continuous monitoring with echocardiography and cardiac biomarkers measurement, interruption of antineoplastic agents and initiation of angiotensin receptor blockers or angiotensin-converting enzyme inhibitors and beta-blockers. These findings reinforce the relevance of individualized and multidisciplinary cardio- oncology follow-up for the prevention and early diagnosis of cardiac alterations and greater patient safety. Keywords: breast cancer, antineoplastic chemotherapy, doxorubicin, trastuzumab, cardiotoxicity.

Palavras-chave: Breast Cancer; Antineoplastic Chemotherapy; Doxorubicin; Trastuzumab; Cardiotoxicity.

CHARACTERIZATION OF THE TEMPORAL TREND OF HEART FAILURE MORTALITY IN YOUNG ADULTS IN THE STATE OF SÃO PAULO, 2014-2024

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RESUMO

Introduction: Heart failure is a major cause of cardiovascular mortality, with a significant impact on public health. Although it is more prevalent in the elderly, an increasing involvement of young adults has been observed, possibly related to the early onset of cardiovascular risk factors. The analysis of the temporal trend of heart failure mortality in this population allows the identification of changes in the epidemiological profile and supports the development of prevention strategies and health planning. In the state of São Paulo, studies focusing on this issue are still scarce. **Objectives:** To analyze the temporal trend of heart failure mortality in young adults (aged 20 to 49 years) in the state of São Paulo from 2014 to 2024, describing its distribution over the years and across age groups. **Methods:** This is an epidemiological, ecological, retrospective, and descriptive study based on the analysis of secondary data on heart failure mortality (ICD-10: I50) in individuals aged 20 to 49 years, residents of the state of São Paulo, from 2014 to 2024. Data were extracted from the Mortality Information System (SIM), provided by the Department of Informatics of the Brazilian Unified Health System (DATASUS). The analysis included absolute numbers of deaths and their temporal distribution over the years, with a descriptive presentation of the findings. **Results:** Between 2014 and 2024, 2,813 deaths due to heart failure were recorded in young adults in the state of São Paulo. There was a marked predominance in the age group of 40 to 49 years (67.12%), with a progressive decrease in younger age groups, indicating an association between advancing age and a higher occurrence of deaths. Temporal analysis showed an increasing trend starting in 2020, with a peak in 2021 (10.49%), followed by persistently high levels through 2024 (10.10%), in contrast to the lowest percentage observed in 2019 (7.54%). **Conclusions:** There was a predominance of heart failure mortality in young adults in the 40-49 years age group, with a percentage increase in deaths from 2020 onward. These findings suggest a recent worsening of the heart failure burden in this population, reinforcing the importance of early cardiovascular prevention strategies and the strengthening of young adult healthcare.

Palavras-chave: Heart Failure; Mortality; Time Factors; Young Adults.

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Palavras-chave: Heart Failure; Mortality; Time Factors; Young Adults.

CHOCOLATE: GOING BEYOND PLEASANT TASTE DIRECTLY TO THE IMPROVEMENT OF COGNITION

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RESUMO

Introduction: The search for modifiable lifestyle factors that improve cognitive performance and prevent cognitive decline has intensified in recent years, with particular interest in dietary components. Cocoa and chocolate, rich in flavanols and methylxanthines, have been associated with neuroprotective and cognitive-enhancing effects, potentially mediated by antioxidant, anti-inflammatory, and vascular mechanisms. **Objective:** To evaluate the effects of chocolate and cocoa-derived compounds on cognitive performance and their underlying neurobiological mechanisms. **Methods:** This is an integrative literature review conducted through searches in PubMed using

descriptors related to chocolate and cognition. Filters were applied for the last five years and free full-text availability. Original clinical trials, crossover studies, and relevant mechanistic and review studies addressing cognitive outcomes were included, totaling thirteen selected articles. Results: Evidence from randomized and crossover trials suggests that chocolate rich in cocoa flavanols may improve cognitive performance, particularly executive function, reaction time, and sustained attention, especially under conditions of cognitive demand or fatigue. These effects appear to be mediated by increased cerebral blood flow, improved endothelial function, and enhanced neural efficiency, as demonstrated by neuroimaging studies showing reduced cortical activation during equivalent cognitive tasks. Additionally, reductions in mental fatigue were consistently associated with improved cognitive outcomes. At the molecular level, bioactive compounds such as flavanols and theobromine can modulate synaptic transmission and neuroplasticity, including interactions with adenosine receptors and potential neuroprotective effects against neurodegenerative processes. Observational and longitudinal data further suggest an association between habitual chocolate consumption and reduced cognitive decline. However, findings are not entirely consistent, with some systematic reviews reporting limited or low-to-moderate-quality evidence and the absence of significant effects in certain populations. Conclusion: Chocolate and cocoa-derived compounds demonstrate potential as modulators of cognitive performance, particularly in executive domains and under cognitively demanding conditions. Their effects are likely multifactorial, involving vascular, metabolic, and neurobiological mechanisms. Despite promising findings, heterogeneity among studies and variability in methodological quality highlight the need for further well- designed clinical trials to establish definitive conclusions.

Palavras-chave: Chocolate Cognition Flavanols Cerebral Blood Flow Executive Function.

CHOCOLATE: GOING BEYOND PLEASANT TASTE DIRECTLY TO THE IMPROVEMENT OF DEPRESSION

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RESUMO

Introduction: Depression is a multifactorial mental disorder with increasing interest in modifiable lifestyle factors, particularly dietary patterns. Chocolate, a widely consumed food rich in bioactive compounds such as polyphenols and methylxanthines, has been investigated for its potential influence on mood and depressive symptoms, although current evidence remains heterogeneous. Objective: The aim of thi study is to investigate the relationship between chocolate consumption and depressive symptoms, as well as the underlying biological mechanisms involved. Methods: This integrative literature review was conducted through searches in the PubMed database using the descriptors chocolate and depression. Filters for free full- text availability and publication within the last five years were initially applied, followed by expansion to the last ten years to increase the number of eligible studies. Clinical and observational studies addressing the association between chocolate consumption, dietary patterns, and depressive outcomes were included, totaling six selected articles for qualitative analysis. The selected articles involved multi-ethnicpopulations, middle-aged and older adults, and menopausal women. Results: Evidence from observational studies, involving men and women from different backgrounds, indicates that dietary

patterns characterized by high intake of sugar, saturated fat, and ultra-processed foods are consistently associated with a higher prevalence of depressive symptoms. Chocolate consumption, particularly when integrated into such dietary patterns, has been associated with an increased likelihood of depression in some populations; however, this relationship appears to be influenced by confounding factors such as overall diet quality, socioeconomic variables, and lifestyle habits. Conversely, findings from a randomized clinical trial demonstrated that daily consumption of high-cocoa dark chocolate significantly reduced depression scores, suggesting a potential beneficial effect under controlled conditions. Proposed mechanisms include the antioxidant and anti-inflammatory properties of cocoa polyphenols, modulation of neurotransmitter pathways, reduction of oxidative stress, and improvements in cerebral blood flow. Furthermore, dietary patterns rich in fruits, vegetables, and nutrient-dense foods were consistently associated with lower rates of depressive symptoms. Conclusion: The relationship between chocolate consumption and depression is complex and appears to depend on both the type of chocolate and the broader dietary context. While unhealthy dietary patterns are associated with increased depressive symptoms, dark chocolate may exert protective effects due to its bioactive compounds. Further well-designed clinical trials are necessary to clarify causality and support evidence-based dietary recommendations.

Palavras-chave: Chocolate Depression Diet Polyphenols Mental Health.

CHOCOLATE: GOING BEYOND PLEASANT TASTE DIRECTLY TO THE IMPROVEMENT OF SLEEP QUALITY

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RESUMO

Introduction: Sleep disorders are increasingly prevalent and are associated with significant impacts on physical and mental health. Dietary factors have emerged as potentially modifiable determinants of sleep quality, with particular interest in functional foods such as chocolate, which is rich in bioactive compounds, including flavonoids and tryptophan, and may influence neuroendocrine pathways involved in sleep regulation. Objective: To evaluate the effects of chocolate consumption on sleep quality. Methods: This is an integrative literature review conducted through a search in the PubMed database using the descriptors chocolate and sleep quality. Initially, filters for the last 5 years were applied, identifying 11 studies, of which 3 were selected after title and abstract screening. Subsequently, the time frame was expanded to the last 10 years, resulting in 17 studies, including 1 additional relevant article, for a total of 4 studies in the final analysis. Results: The evidence demonstrates heterogeneous findings. A randomized clinical trial in menopausal women showed that daily consumption of dark chocolate (78% cocoa) for eight weeks significantly improved depressive symptoms but did not result in statistically significant improvements in overall sleep quality. In contrast, observational studies suggest that dietary intake, including chocolate, is associated with sleep patterns, possibly mediated by mechanisms involving tryptophan, serotonin, and melatonin. Furthermore, pediatric studies indicate that higher consumption of chocolate and processed foods is associated with worse sleep-related outcomes, including increased severity of sleep-disordered breathing. Conclusion: Chocolate consumption alone does not consistently improve sleep quality. However, overall dietary patterns appear to play

a significant role in sleep regulation, likely mediated by neuroendocrine and metabolic mechanisms. Further studies are needed to clarify the specific role of chocolate in sleep outcomes.

Palavras-chave: Chocolate Sleep Quality Diet Melatonin Nutrition.

EFFECTS OF AÇAÍ CONSUMPTION ON TOTAL LIPIDS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Bruno Moreira Candeloro

RESUMO

Chronic non-communicable diseases, particularly cardiovascular and metabolic disorders, remain major public health challenges, and dietary interventions have been widely investigated as non-pharmacological strategies to modulate cardiometabolic risk factors. Açaí (*Euterpe oleracea*), a fruit rich in bioactive compounds, antioxidants and plant-derived lipids, has been studied for its potential effects on metabolic markers. This study aimed to synthesise the available evidence on the impact of açaí consumption on total lipid levels in humans. A systematic review with meta-analysis was conducted in accordance with PRISMA guidelines, using searches in MEDLINE/PubMed, EMBASE, Scopus and Web of Science. Clinical trials and intervention studies involving human participants receiving açaí in any form and reporting data on total lipids were eligible. Study selection, data extraction and risk of bias assessment were performed by independent reviewers, and the quantitative synthesis used a random-effects model. Of 188 records initially identified, 8 studies met the eligibility criteria for the systematic review, and 2 provided sufficient data for meta-analysis of the total lipids outcome. The pooled analysis showed a significant reduction in total lipid levels associated with açaí consumption, with a mean difference of -9.80 mg/dL, 95% confidence interval from -13.94 to -5.66, and no observed heterogeneity across the included studies. Although other lipid markers yielded inconsistent findings across the broader literature, the specific outcome of total lipids showed a favourable and methodologically consistent signal in this synthesis. In conclusion, açaí consumption may contribute to reducing total lipid levels, suggesting a potential cardiometabolic benefit. However, the current evidence base remains limited by the small number of studies available for this outcome, highlighting the need for more robust randomised clinical trials to confirm the magnitude and clinical applicability of this effect.

Palavras-chave: Açaí; *Euterpe Oleracea*; Total Lipids; Cardiovascular Diseases; Systematic Review.

EFFECTS OF ARTICHOKE EXTRACT ON TOTAL CHOLESTEROL: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

Bruno Moreira Candeloro

RESUMO

Dyslipidaemia is a major modifiable risk factor for atherosclerotic cardiovascular disease, and non-pharmacological interventions have been investigated as complementary strategies for lipid management. Artichoke extract (*Cynara scolymus*) has been widely used as a nutraceutical;

however, findings from randomised controlled trials on its lipid-lowering effects remain heterogeneous. This study aimed to synthesise the available evidence on the effect of *Cynara scolymus* supplementation on total cholesterol in adults. A systematic review with meta-analysis of randomised controlled trials was conducted in accordance with PRISMA guidelines and registered in PROSPERO. Searches were performed in EMBASE, LILACS, CINAHL, MEDLINE/PubMed, Cochrane Library, Scopus and Web of Science, from database inception to December 2025. Studies involving adults receiving *Cynara scolymus* in any form, compared with placebo, and reporting total cholesterol were eligible. Study selection, data extraction and risk of bias assessment were conducted by independent reviewers. The meta-analysis used a random-effects model, with standardised mean difference and 95% confidence intervals. A total of 604 records were identified, of which 13 randomised controlled trials met the criteria for the systematic review, and 9 contributed to the meta-analysis of total cholesterol. The pooled analysis showed a significant reduction in total cholesterol favouring artichoke extract supplementation, with a standardised mean difference of -0.73, 95% confidence interval from -1.36 to -0.11, and $p=0.02$. However, considerable heterogeneity was observed across the included studies, with $I^2=89\%$, and the certainty of evidence was rated as low. In conclusion, *Cynara scolymus* supplementation may reduce total cholesterol in adults, suggesting a potential cardiometabolic benefit. Nevertheless, the high heterogeneity and methodological limitations of the available trials indicate that these findings should be interpreted cautiously, and more robust randomised controlled trials using standardised preparations are required to clarify the clinical relevance of this effect.

Palavras-chave: *Cynara Scolymus*; Artichoke; Total Cholesterol; Dyslipidaemia; Meta-analysis.

EFFECTS OF WHEY PROTEIN SUPPLEMENTATION PLUS EXERCISE ON HDL-CHOLESTEROL IN OVERWEIGHT AND OBESE ADULTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Bruno Moreira Candeloro

RESUMO

Overweight and obesity are associated with relevant cardiometabolic disturbances, including dyslipidaemia and increased cardiovascular risk, which has encouraged the investigation of interventions combining exercise and nutritional supplementation. Among these strategies, whey protein has been proposed as a potential adjunct to improve metabolic markers; however, its additional effects on lipid profile remain uncertain. This study aimed to synthesise the available evidence on the effects of whey protein supplementation combined with exercise on HDL-cholesterol in adults with overweight or obesity. A systematic review with meta-analysis of randomised controlled trials was conducted in accordance with PRISMA guidelines and registered in PROSPERO. Searches were performed in EMBASE, LILACS, CINAHL, MEDLINE/PubMed, Cochrane Library, Scopus, and Web of Science up to January 2026. Studies involving adults with overweight or obesity receiving whey protein supplementation combined with structured exercise programmes, compared with placebo or exercise alone, were eligible. Risk of bias was assessed using the Cochrane RoB 2 tool, and certainty of evidence was evaluated using the GRADE framework. Seven randomised controlled trials were included in the qualitative synthesis, and three contributed to the meta-analysis of the HDL-cholesterol outcome. The pooled analysis showed a significant increase in HDL-cholesterol favouring the intervention with whey protein plus exercise,

with a mean difference of 6.05 mg/dL, 95% confidence interval from 1.29 to 10.80, $p=0.01$, and no observed heterogeneity. Despite this finding, the remaining lipid outcomes did not show consistent benefits, and the certainty of evidence for HDL-cholesterol was rated as very low. In conclusion, whey protein supplementation combined with exercise may increase HDL-cholesterol in adults with overweight or obesity, but this finding should be interpreted cautiously given the small number of studies, limited sample size, and methodological weaknesses of the included trials.

Palavras-chave: Whey Protein; Exercise; HDL-cholesterol; Obesity; Meta- analysis.

EFICÁCIA E SEGURANÇA DO TRANSPLANTE DE PRECURSORES NEURAIS DOPAMINÉRGICOS DERIVADOS DE CÉLULAS TRONCO PLURIPOTENTES INDUZIDAS NO TRATAMENTO DA DOENÇA DE PARKINSON

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RESUMO

A doença de Parkinson (DP) é um distúrbio neurodegenerativo que afeta 10 milhões de pessoas mundialmente. É caracterizada pela perda de neurônios dopaminérgicos, principalmente na substantia nigra pars compacta. A deficiência de dopamina resultante desencadeia tremores de repouso, rigidez muscular e comprometimentos cognitivos. A terapia padrão foca na reposição de dopamina. O transplante de progenitores neuronais dopaminérgicos (DNP) derivados de células-tronco pluripotentes induzidas (iPSC) apresenta-se como uma nova terapia, visando a restauração biológica das vias neurais. Este estudo visa avaliar a eficácia e a segurança do transplante de DNP derivados de iPSC na modificação dos sintomas motores e na produção de dopamina. Foi realizada uma revisão de literatura na base de dados PubMed com os termos “Induced pluripotent stem cells” AND “Parkinson disease”, resultando em 2 estudos que foram incluídos para análise. Os 2 resultados apresentavam resultados do ensaio de Kyoto, que incluiu 7 pacientes com DP diagnosticada pelos critérios clínicos da Movement Disorder Society. Foi realizado um transplante bilateral no putâmen, utilizando DNP derivados de iPSC; 3 pacientes receberam um transplante de baixa dose (LDT) ($2,1-2,6 \times 10^6$ células por hemisfério) e 4 um transplante de alta dose (HDT) ($5,3-5,5 \times 10^6$ células por hemisfério). As iPSC derivaram de sangue periférico de um indivíduo saudável homozigoto para o haplótipo mais frequente na população japonesa. A imunossupressão consistiu em tacrolimus (0,06 mg/kg duas vezes ao dia) com níveis basais alvo de 5-10 ng ml⁻¹. Houve 73 efeitos adversos, dose-independentes, sendo 72 leves e 1 caso moderado de discinesia; o evento mais frequente foi prurido no local da administração. Na ressonância magnética, o enxerto mostrou aumento contínuo de volume, sem sinais de crescimento tumoral ou inflamação nas áreas do transplante e circundantes, mesmo após a descontinuação da imunossupressão. Seis pacientes mostraram aumento na discinesia na Unified Dyskinesia Rating Scale e, durante o período on-time, os pacientes relataram discinesia nos diários motores de autorrelato. Contudo, no período off-time, não houve aumento na discinesia. Nove pacientes apresentaram melhora na função motora pela MDS Unified Parkinson's Disease Rating Scale, 5 on-time e 4 off-time, a melhora foi dose-independente. Cinco pacientes melhoraram o estágio Hoehn-Yahr, 4 off-time e 1 on-time. Não houve melhoras aos 24 meses no Parkinson's Disease Questionnaire de 39 itens (PDQ-39). Os valores totais Ki de F-DOPA putaminal aumentaram aos 24 meses, 7% no LDT e 63,5% no HDT.

Enquanto os valores totais Ki de F-DOPA no núcleo caudado diminuíram. Portanto, o transplante de DNPs derivados de iPSC prova ser segura e eficaz, promovendo a restauração da via dopaminérgica em pacientes com DP. O procedimento é viável, mostrando sobrevivência sustentada do enxerto e um aumento dose-dependente na produção de dopamina, sem evidências de formação de tumor ou inflamação após a descontinuação da imunossupressão. Embora melhoras motoras significativas tenham sido observadas nas escalas MDS e Hoehn-Yahr, a persistência de discinesias e a falta de impacto na qualidade de vida dos pacientes ainda requerem investigação adicional. Mais ensaios clínicos são necessários, comparando a intervenção ao placebo e a terapias consagradas.

Palavras-chave: Células-tronco Pluripotentes Induzidas; Doença De Parkinson; Neurônios Dopaminérgicos.

ESTRESSE ACÚSTICO NA UTI NEONATAL: O CONTROLE AMBIENTAL MULTIDISCIPLINAR COMO ESTRATÉGIA PARA PREVENIR SEQUELAS AUDITIVAS E COGNITIVAS CRÔNICAS

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RESUMO

A Unidade de Terapia Intensiva Neonatal (UTIN) constitui um ambiente de alta complexidade sensorial, onde a coexistência de tecnologias de suporte à vida e a intensa atividade clínica geram níveis de pressão sonora que rotineiramente excedem os padrões de segurança. Para o recém-nascido pré- termo, cujo sistema auditivo se encontra em um estágio crítico de maturação estrutural e funcional, a exposição prolongada ao ruído contínuo e a picos sonoros súbitos atua como um potente estressor epigenético. Embora as consequências clínicas sejam bem documentadas na literatura, observa-se uma lacuna persistente na discussão sobre medidas preventivas eficazes e no engajamento da equipe multidisciplinar. Portanto, este estudo justifica-se pela necessidade de validar estratégias de controle ambiental que superem os desafios de implementação nas UTINs, enfatizando a integração da equipe como pilar do cuidado neuroprotetor. Analisar as evidências científicas publicadas nos últimos cinco anos acerca do impacto do manejo do ambiente acústico na UTIN, enfocando sua eficácia como intervenção clínica na prevenção de deficiências crônicas no neurodesenvolvimento. Realizou-se uma revisão abrangente da literatura científica nas bases de dados PubMed, Web of Science e Cochrane Library. Os critérios de inclusão selecionaram revisões sistemáticas, ensaios clínicos e estudos observacionais publicados em português e inglês, entre os anos de 2021 e 2026. A busca utilizou descritores MeSH e DeCS: "Efeitos do Ruído", "Cuidado Intensivo Neonatal", "Neurodesenvolvimento" e "Controle Ambiental". A seleção dos artigos seguiu um rigoroso processo de triagem em três etapas: análise inicial por título, leitura técnica dos resumos e avaliação criteriosa do texto completo. Foram estabelecidos como critérios de exclusão estudos que não focassem na população neonatal ou que apresentassem metodologias inconsistentes com o recorte temporal proposto. Dados compilados entre 2022 e 2025 revelam que os níveis médios de ruído nas UTINs flutuam entre 60 e 70 dB, com picos que ultrapassam 90 dB, distanciando-se significativamente do limite de 35-45 dB recomendado pela Academia Americana de Pediatria. Tais níveis elevados interrompem o sono REM, essencial para a sinaptogênese e para a poda neural. Evidências demonstram que protocolos multidisciplinares, como a "Hora do Psíu",

o posicionamento estratégico de incubadoras e o uso de barreiras acústicas, reduzem as taxas de taquicardia e episódios de dessaturação. O papel proativo do enfermeiro no gerenciamento de alarmes, aliado à expertise do fisioterapeuta na estimulação sensorial individualizada e redução de vibrações, é fundamental para a estabilidade hemodinâmica e proteção cerebral do neonato. O controle do ambiente acústico transcende a medida de conforto, configurando-se como uma terapia neuroprotetora não farmacológica de alto impacto. A mitigação de sequelas auditivas e cognitivas exige uma mudança de paradigma institucional, onde a redução do ruído seja monitorada como um indicador clínico vital. A colaboração interprofissional entre enfermagem e fisioterapia é indispensável para assegurar um ambiente terapêutico que preserve a integridade neurofuncional a longo prazo do neonato de alto risco.

Palavras-chave: Ruído Unidade De Terapia Intensiva Neonatal Neurodesenvolvimento Perda Auditiva Cuidado Interdisciplinar.

HOSPITALIZATIONS FOR MENTAL DISORDERS AMONG ADOLESCENTS IN BRAZIL (2019-2024): A TEMPORAL AND REGIONAL ANALYSIS IN THE CONTEXT OF THE COVID-19 PANDEMIC

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RESUMO

INTRODUCTION: Adolescent mental health has emerged as one of the leading public health concerns over the past decade, a scenario further impacted by the COVID-19 pandemic. In Brazil, structural weaknesses within the child and adolescent psychosocial care network were strained by social isolation and the reorganization of healthcare delivery, thereby exacerbating gaps in continuous care. Within this context, psychiatric hospitalizations among adolescents constitute a sensitive marker of mental illness severity, reflecting cases in which outpatient support was insufficient or absent. **OBJECTIVE:** To analyze temporal trends and regional variations in hospital admissions due to mental and behavioral disorders among adolescents in Brazil and across its macro-regions during the pre-, intra-, and post- pandemic periods. **MATERIALS AND METHODS:** A descriptive epidemiological study was conducted using secondary data extracted from the Brazilian Unified Health System Hospital Information System (SIH/SUS), made available via DATASUS. Hospitalizations recorded between 2019 and 2024 were included, considering individuals aged 10 to 19 years (adolescents according to the World Health Organization) and a primary diagnosis classified under Chapter V of the ICD-10 (F00-F99). Data were organized by year of care and Brazilian macro-region. The analysis was descriptive, with percentage variation calculated between the first and last years of the study period, considering 2019 as pre-pandemic, 2020-2021 as the pandemic period, and 2022-2024 as the post-pandemic period. **RESULTS AND DISCUSSION:** During the analyzed period, 118,488 psychiatric hospitalizations among adolescents were recorded in Brazil. In 2019, there were 21,097 admissions, which decreased to 16,067 in 2020 (-23.9%), coinciding with the period of greatest healthcare restrictions imposed by the COVID-19 pandemic. From 2021 onward, a progressive recovery was observed, with 17,478

admissions that year, reaching a peak of 22,123 in 2023-exceeding pre-pandemic levels. In 2024, 21,164 admissions were recorded, maintaining this elevated level. Regionally, the South and Southeast accounted for the highest absolute numbers of hospitalizations, with 43,408 and 41,873, respectively. Despite this, the South experienced a reduction of 18.1%, whereas the Southeast showed an increase of 13.9%. The Central-West also registered a decline of 20.4%. In contrast, the North and Northeast regions showed increases of approximately 24.7% and 24.6%, respectively, suggesting a rising demand in historically more vulnerable regions. The data reveal a biphasic pattern in psychiatric hospitalizations among Brazilian adolescents: a sharp decline in 2020, coinciding with pandemic-related healthcare restrictions, followed by a recovery that surpasses pre-pandemic levels. The disproportionate growth observed in the North and Northeast contrasts with the reductions seen in the South and Central-West-even in the post-pandemic period-which may be related to differences in outpatient and psychosocial care capacity, potentially containing cases before progression to hospitalization. The increase in the Southeast, in turn, should be interpreted in light of the region's higher population density. **CONCLUSION:** These findings underscore the need for territorially sensitive public policies, with strengthening of the psychosocial care network in regions of greater socioeconomic vulnerability. As a limitation, the use of secondary data is highlighted, given its susceptibility to underreporting and the absence of population-adjusted analyses.

Palavras-chave: Mental Health; Hospitalization; Adolescent; COVID-19 Pandemic.

IMPACT OF MOBILE APPLICATIONS ON THERAPEUTIC ADHERENCE AND GLYCATED HEMOGLOBIN CONTROL: NA INTEGRATIVE REVIEW

Iasmin teruel maia / Rafaela Dedemo Mesquita -Unimar; Victor Eugênio Bezerra - Unimar; Roger Marcelo Mesquita da Silva -Unimar; Ana Carolina Alvares Dalto Ribas- Unimar; Márcia Rocha Gabaldi -Unimar

RESUMO

Impact of Mobile Applications on Therapeutic Adherence and Glycated Hemoglobin Control: Na Integrative Review Iasmin Teruel Maia¹ Rafaela Dedemo Mesquita¹; Roger Marcelo Mesquita da Silva³; Ana Carolina Alvares Dalto Ribas²; Vitor Eugênio Bezerra¹; Márcia Rocha Gabaldi ⁴ ¹ Pharmacy student, Pharmacy undergraduate program at the University of Marília (UNIMAR), Marília, São Paulo, Brazil. ² Biomedical student, Pharmacy undergraduate program at the University of Marília (UNIMAR), Marília, São Paulo, Brazil ³ Postgraduate student in the Structural and Functional Interactions in Rehabilitation program at the University of Marília (UNIMAR), Marília, São Paulo, Brazil ⁴ Professor in the Department of Biochemistry, Pharmacy and Biomedicine course at the University of Marília (Unimar), Marília, São Paulo, Brazil **ABSTRACT** Introduction: Diabetes mellitus (DM) is a chronic disease with a significant impact on public health, requiring complex management strategies ranging from insulin therapy to lifestyle interventions and medications. Adequate glycemic control is fundamental to avoid short- and long-term complications. In this scenario, Digital Health, specifically through Mobile Health (mHealth), emerges as na essential tool for the control and maintenance of patient health. Monitoring applications offer continuous support that transcends the traditional clinical environment, allowing for real-time tracking of biomarkers and daily habits, which promotes patient empowerment and the precision of therapeutic decisions. Objective: To evaluate the role of monitoring applications in diabetes management, highlighting their effectiveness as a tool for self-care, treatment adherence, and improvement of clinical outcomes. Methodology: This is na integrative literature

review, of a qualitative and descriptive nature. Data collection was carried out through searches in the PubMed database, including articles published between 2011 and 2020, in Portuguese and English. The search strategy used descriptors (MeSH/DeCS) such as “Mobile Applications”, “Diabetes Mellitus”, “Self- Management”, and “Telemedicine”. Inclusion criteria focused on clinical trials and reviews that analyzed the impact of digital technologies on glycated hemoglobin (HbA1c) and the quality of life of patients. Results: It was demonstrated that the use of monitoring apps and digital technologies had a positive impact on treatment adherence in patients with diabetes mellitus (DM). Evidence showed improved glycemic control, with a reduction in glycated hemoglobin (HbA1c) levels, attributed to self-monitoring and the graphical visualization of glycemic variations, facilitating understanding of the pathophysiology and strengthening self-care. Benefits such as intelligent medication reminders, automated carbohydrate counting, and integration with continuous glucose monitoring sensors were also identified. Some studies also pointed to improvements in secondary clinical outcomes, such as blood pressure control, lipid profile, and quality of life. The literature suggests that these tools reduce glycemic variability and increase time-in-range, crucial factors for the prevention of acute complications. Conclusion: It is concluded that the use of monitoring apps and other digital technologies are effective complementary strategies to improve treatment adherence in patients with diabetes, favoring glycemic control, self-care, and the prevention of complications associated with the disease. Evidence shows that these tools can contribute to better clinical outcomes and greater patient engagement in diabetes management. However, challenges related to accessibility, personalization, and scaling up the use of these technologies remain. Therefore, greater investment and further research are needed to strengthen the implementation of digital health as a complementary strategy in the care of diabetic patients and those with other pathologies. Keywords: Telemedicine; Diabetes Mellitus; Self-Management; Mobile Applications; Digital Health; Glycemic Control

Impacto dos Aplicativos Móveis na Adesão Terapêutica e no Controle da Hemoglobina Glicada: Uma Revisão Integrativa Iasmin Teruel Maia¹ Rafaela Dedemo Mesquita¹; Roger Marcelo Mesquita da Silva³; Ana Carolina Alvares Dalto Ribas²; Vitor Eugénio Bezerra¹; Márcia Rocha Gabaldi ⁴ ¹ Estudante de Farmácia, Graduação de Farmácia da Universidade de Marília (UNIMAR), Marília, São Paulo, Brasil. ² Estudante de Biomedicina, Graduação de Farmácia da Universidade de Marília (UNIMAR), Marília, São Paulo, Brasil ³ Pós-graduando no programa de Interações Estruturais e Funcionais na Reabilitação da Universidade de Marília (UNIMAR), Marília, São Paulo, Brasil ⁴ Professora no Departamento de Bioquímica, do curso de Farmácia e Biomedicina da Universidade de Marília (Unimar), Marília, São Paulo, Brasil

RESUMO Introdução: O diabetes mellitus (DM) é uma crônica de grande impacto na saúde pública, dividida exigindo estratégias de manejo complexas que variam desde a insulino-terapia como intervenções no estilo de vida e medicamentos. O controle glicêmico adequado é fundamental para evitar complicações a curto e a longo prazo. Nesse cenário, a Saúde Digital, especificamente através a Saúde Móvel (mHealth) surge como uma ferramenta essencial para o controle e manutenção da saúde do paciente. Os aplicativos de monitoramento oferecem um suporte contínuo que transcende o ambiente clínico tradicional, permitindo o acompanhamento em tempo real de biomarcadores e hábitos diários, o que favorece o empoderamento do paciente e a precisão das decisões terapêuticas. Objetivo: Avaliar o papel dos aplicativos de monitoramento no controle do diabetes, destacando sua eficácia como ferramenta de autocuidado, adesão ao tratamento e melhora dos desfechos clínicos. Metodologia: Trata-se de uma revisão integrativa de literatura, de caráter qualitativo e descritivo. A coleta de dados foi realizada por meio de buscas nas bases de dados PubMed, com inclusão de artigos publicados entre 2011 e 2020, nos idiomas português e inglês. A estratégia de busca utilizou descritores (MeSH/DeCS) como "Mobile Applications", "Diabetes Mellitus", "Self-Management" e "Telemedicine". Foram

aplicados critérios de inclusão focados em ensaios clínicos e revisões que analisassem o impacto das tecnologias digitais na hemoglobina glicada (HbA1c) e na qualidade de vida dos pacientes. Resultados: Ficou demonstrado que o uso de aplicativos de monitoramento e tecnologias digitais apresentou impacto positivo na adesão ao tratamento de pacientes com DM . As evidências demonstraram melhora no controle glicêmico, com redução dos níveis de hemoglobina glicada (HbA1c), atribuída ao automonitoramento e à visualização gráfica das variações glicêmicas facilita a compreensão da fisiopatologia e o fortalece o autocuidado. Também foram identificados benefícios como lembretes inteligentes para medicação, registro automatizado de contagem de carboidratos e integração com sensores de monitoramento contínuo de glicose. Alguns estudos ainda apontaram melhora em desfechos clínicos secundários, como controle da pressão arterial, perfil lipídico e qualidade de vida. A literatura sugere que essas ferramentas reduzem a variabilidade glicêmica e aumentam o tempo no alvo (Time-in-Range), fatores cruciais para a prevenção de complicações agudas. Conclusão: Conclui-se que o uso de aplicativos de monitoramento e outras tecnologias digitais são estratégias complementares eficazes para melhorar a adesão ao tratamento em pacientes com diabetes, favorecendo o controle glicêmico, o autocuidado e a prevenção de complicações associadas à doença. As evidências demonstram que essas ferramentas podem contribuir para melhores desfechos clínicos e maior engajamento dos pacientes no manejo da diabetes. Entretanto, ainda existem desafios relacionados à acessibilidade, personalização e ampliação do uso dessas tecnologias. Dessa forma, são necessários maiores investimentos e novas pesquisas para fortalecer a implementação da saúde digital como estratégia complementar no cuidado ao paciente diabético e outras patologias. Palavras - chave: Telemedicina; Diabetes Mellitus; Autogestão; Aplicativos Móveis; Saúde Digital; Controle Glicêmico

Palavras-chave: Telemedicina Diabetes Mellitus Autogestão Aplicativos Móveis Saúde Digital Controle Glicêmico.

IMPACT OF MOBILE APPLICATIONS ON THERAPEUTIC ADHERENCE AND GLYCATED HEMOGLOBIN CONTROL: NA INTEGRATIVE REVIEW

Iasmin teruel maia / Rafaela Dedemo Mesquita -Unimar; Victor Eugênio Bezerra - Unimar; Roger Marcelo Mesquita da Silva -Unimar; Ana Carolina Alvares Dalto Ribas- Unimar; Márcia Rocha Gabaldi -Unimar

RESUMO

Impact of Mobile Applications on Therapeutic Adherence and Glycated Hemoglobin Control: Na Integrative Review Iasmin Teruel Maia¹ Rafaela Dedemo Mesquita¹; Roger Marcelo Mesquita da Silva³; Ana Carolina Alvares Dalto Ribas²; Vitor Eugênio Bezerra¹; Márcia Rocha Gabaldi ⁴ ¹ Pharmacy student, Pharmacy undergraduate program at the University of Marília (UNIMAR), Marília, São Paulo, Brazil. ² Biomedical student, Pharmacy undergraduate program at the University of Marília (UNIMAR), Marília, São Paulo, Brazil ³ Postgraduate student in the Structural and Functional Interactions in Rehabilitation program at the University of Marília (UNIMAR), Marília, São Paulo, Brazil ⁴ Professor in the Department of Biochemistry, Pharmacy and Biomedicine course at the University of Marília (Unimar), Marília, São Paulo, Brazil

ABSTRACT Introduction: Diabetes mellitus (DM) is a chronic disease with a significant impact on public health, requiring complex management strategies ranging from insulin therapy to lifestyle interventions and medications. Adequate glycemic control is fundamental to avoid short- and long-term complications. In this scenario, Digital Health, specifically through Mobile Health (mHealth),

emerges as an essential tool for the control and maintenance of patient health. Monitoring applications offer continuous support that transcends the traditional clinical environment, allowing for real-time tracking of biomarkers and daily habits, which promotes patient empowerment and the precision of therapeutic decisions. Objective: To evaluate the role of monitoring applications in diabetes management, highlighting their effectiveness as a tool for self-care, treatment adherence, and improvement of clinical outcomes. Methodology: This is an integrative literature review, of a qualitative and descriptive nature. Data collection was carried out through searches in the PubMed database, including articles published between 2011 and 2020, in Portuguese and English. The search strategy used descriptors (MeSH/DeCS) such as “Mobile Applications”, “Diabetes Mellitus”, “Self- Management”, and “Telemedicine”. Inclusion criteria focused on clinical trials and reviews that analyzed the impact of digital technologies on glycated hemoglobin (HbA1c) and the quality of life of patients. Results: It was demonstrated that the use of monitoring apps and digital technologies had a positive impact on treatment adherence in patients with diabetes mellitus (DM). Evidence showed improved glycemic control, with a reduction in glycated hemoglobin (HbA1c) levels, attributed to self-monitoring and the graphical visualization of glycemic variations, facilitating understanding of the pathophysiology and strengthening self-care. Benefits such as intelligent medication reminders, automated carbohydrate counting, and integration with continuous glucose monitoring sensors were also identified. Some studies also pointed to improvements in secondary clinical outcomes, such as blood pressure control, lipid profile, and quality of life. The literature suggests that these tools reduce glycemic variability and increase time-in-range, crucial factors for the prevention of acute complications. Conclusion: It is concluded that the use of monitoring apps and other digital technologies are effective complementary strategies to improve treatment adherence in patients with diabetes, favoring glycemic control, self-care, and the prevention of complications associated with the disease. Evidence shows that these tools can contribute to better clinical outcomes and greater patient engagement in diabetes management. However, challenges related to accessibility, personalization, and scaling up the use of these technologies remain. Therefore, greater investment and further research are needed to strengthen the implementation of digital health as a complementary strategy in the care of diabetic patients and those with other pathologies. Keywords: Telemedicine; Diabetes Mellitus; Self-Management; Mobile Applications; Digital Health; Glycemic Control Impactos dos Aplicativos Móveis na Adesão Terapêutica e no Controle da Hemoglobina Glicada: Uma Revisão Integrativa Iasmin Teruel Maia¹ Rafaela Dedemo Mesquita¹; Roger Marcelo Mesquita da Silva³; Ana Carolina Alvares Dalto Ribas²; Vitor Eugênio Bezerra¹; Márcia Rocha Gabaldi⁴ ¹ Estudante de Farmácia, Graduação de Farmácia da Universidade de Marília (UNIMAR), Marília, São Paulo, Brasil. ² Estudante de Biomedicina, Graduação de Farmácia da Universidade de Marília (UNIMAR), Marília, São Paulo, Brasil ³ Pós-graduando no programa de Interações Estruturais e Funcionais na Reabilitação da Universidade de Marília (UNIMAR), Marília, São Paulo, Brasil ⁴ Professora no Departamento de Bioquímica, do curso de Farmácia e Biomedicina da Universidade de Marília (Unimar), Marília, São Paulo, Brasil RESUMO Introdução: O diabetes mellitus (DM) é uma crônica de grande impacto na saúde pública, dividida exigindo estratégias de manejo complexas que variam desde a insulino-terapia como intervenções no estilo de vida e medicamentos. O controle glicêmico adequado é fundamental para evitar complicações a curto e a longo prazo. Nesse cenário, a Saúde Digital, especificamente através a Saúde Móvel (mHealth) surge como uma ferramenta essencial para o controle e manutenção da saúde do paciente. Os aplicativos de monitoramento oferecem um suporte contínuo que transcende o ambiente clínico tradicional, permitindo o acompanhamento em tempo real de biomarcadores e hábitos diários, o que favorece o empoderamento do paciente e a precisão das decisões terapêuticas. Objetivo: Avaliar o papel dos

aplicativos de monitoramento no controle do diabetes, destacando sua eficácia como ferramenta de autocuidado, adesão ao tratamento e melhora dos desfechos clínicos. Metodologia: Trata-se de uma revisão integrativa de literatura, de caráter qualitativo e descritivo. A coleta de dados foi realizada por meio de buscas nas bases de dados PubMed, com inclusão de artigos publicados entre 2011 e 2020, nos idiomas português e inglês. A estratégia de busca utilizou descritores (MeSH/DeCS) como "Mobile Applications", "Diabetes Mellitus", "Self-Management" e "Telemedicine". Foram aplicados critérios de inclusão focados em ensaios clínicos e revisões que analisassem o impacto das tecnologias digitais na hemoglobina glicada (HbA1c) e na qualidade de vida dos pacientes. Resultados: Ficou demonstrado que o uso de aplicativos de monitoramento e tecnologias digitais apresentou impacto positivo na adesão ao tratamento de pacientes com DM. As evidências demonstraram melhora no controle glicêmico, com redução dos níveis de hemoglobina glicada (HbA1c), atribuída ao automonitoramento e à visualização gráfica das variações glicêmicas facilita a compreensão da fisiopatologia e o fortalece o autocuidado. Também foram identificados benefícios como lembretes inteligentes para medicação, registro automatizado de contagem de carboidratos e integração com sensores de monitoramento contínuo de glicose. Alguns estudos ainda apontaram melhora em desfechos clínicos secundários, como controle da pressão arterial, perfil lipídico e qualidade de vida. A literatura sugere que essas ferramentas reduzem a variabilidade glicêmica e aumentam o tempo no alvo (Time-in-Range), fatores cruciais para a prevenção de complicações agudas. Conclusão: Conclui-se que o uso de aplicativos de monitoramento e outras tecnologias digitais são estratégias complementares eficazes para melhorar a adesão ao tratamento em pacientes com diabetes, favorecendo o controle glicêmico, o autocuidado e a prevenção de complicações associadas à doença. As evidências demonstram que essas ferramentas podem contribuir para melhores desfechos clínicos e maior engajamento dos pacientes no manejo da diabetes. Entretanto, ainda existem desafios relacionados à acessibilidade, personalização e ampliação do uso dessas tecnologias. Dessa forma, são necessários maiores investimentos e novas pesquisas para fortalecer a implementação da saúde digital como estratégia complementar no cuidado ao paciente diabético e outras patologias. Palavras - chave: Telemedicina; Diabetes Mellitus; Autogestão; Aplicativos Móveis; Saúde Digital; Controle Glicêmico

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Iasmin teruel maia / Rafaela Dedemo Mesquita -Unimar; Victor Eugênio Bezerra - Unimar; Roger Marcelo Mesquita da Silva -Unimar; Ana Carolina Alvares Dalto Ribas- Unimar; Márcia Rocha Gabaldi -Unimar

RESUMO

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O controle glicêmico adequado é fundamental para evitar complicações a curto e a longo prazo. Nesse cenário, a Saúde Digital, especificamente através a Saude Móvel (mHealth) surge como uma ferramenta essencial para o controle e manutenção da saúde do paciente. Os aplicativos de monitoramento oferecem um suporte contínuo que transcende o ambiente clínico tradicional, permitindo o acompanhamento em tempo real de biomarcadores e hábitos diários, o que favorece o empoderamento do paciente e a precisão das decisões terapêuticas. **Objetivo:** Avaliar o papel dos aplicativos de monitoramento no controle do diabetes, destacando sua eficácia como ferramenta de autocuidado, adesão ao tratamento e melhora dos desfechos clínicos. **Metodologia:** Trata-se de uma revisão integrativa de literatura, de caráter qualitativo e descritivo. A coleta de dados foi realizada por meio de buscas nas bases de dados PubMed, com inclusão de artigos publicados entre 2011 e 2020, nos idiomas português e inglês. A estratégia de busca utilizou descritores (MeSH/DeCS) como "Mobile Applications", "Diabetes Mellitus", "Self-Management" e "Telemedicine". Foram aplicados critérios de inclusão focados em ensaios clínicos e revisões que analisassem o impacto das tecnologias digitais na hemoglobina glicada (HbA1c) e na qualidade de vida dos pacientes. **Resultados:** Ficou demonstrado que o uso de aplicativos de monitoramento e tecnologias digitais apresentou impacto positivo na adesão ao tratamento de pacientes com DM. As evidências demonstraram melhora no controle glicêmico, com redução dos níveis de hemoglobina glicada (HbA1c), atribuída ao automonitoramento e à visualização gráfica das variações glicêmicas facilita a compreensão da fisiopatologia e o fortalece o autocuidado. Também foram identificados benefícios como lembretes inteligentes para medicação, registro automatizado de contagem de carboidratos e integração com sensores de monitoramento contínuo de glicose. Alguns estudos ainda apontaram melhora em desfechos clínicos secundários, como controle da pressão arterial, perfil lipídico e qualidade de vida. A literatura sugere que essas ferramentas reduzem a variabilidade glicêmica e aumentam o tempo no alvo (Time-in-Range), fatores cruciais para a prevenção de complicações agudas. **Conclusão:** Conclui-se que o uso de aplicativos de monitoramento e outras tecnologias digitais são estratégias complementares eficazes para melhorar a adesão ao tratamento em pacientes com diabetes, favorecendo o controle glicêmico, o autocuidado e a prevenção de complicações associadas à doença. As evidências demonstram que essas ferramentas podem contribuir para melhores desfechos clínicos e maior engajamento dos pacientes no manejo da diabetes. Entretanto, ainda existem desafios relacionados à acessibilidade, personalização e ampliação do uso dessas tecnologias. Dessa forma, são necessários maiores investimentos e novas pesquisas para fortalecer a implementação da saúde digital como estratégia complementar no cuidado ao paciente diabético e outras patologias. **Palavras-chave:** Telemedicina; Diabetes Mellitus; Autogestão; Aplicativos Móveis; Saúde Digital; Controle Glicêmico

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Brasil. ² Estudante de Biomedicina, Graduação de Farmácia da Universidade de Marília (UNIMAR), Marília, São Paulo, Brasil ³ Pós-graduando no programa de Interações Estruturais e Funcionais na Reabilitação da Universidade de Marília (UNIMAR), Marília, São Paulo, Brasil ⁴ Professora no Departamento de Bioquímica, do curso de Farmácia e Biomedicina da Universidade de Marília (Unimar), Marília, São Paulo, Brasil

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IMPACT OF RESPIRATORY SYNCYTIAL VIRUS IMMUNIZATION STRATEGIES ON THE REDUCTION OF BRONCHIOLITIS HOSPITALIZATIONS IN INFANTS: A NARRATIVE REVIEW

Eduardo Garcia da Silveira Neto / Heloísa da Silva Fernandes - Fundação Educacional do Município de Assis (FEMA); ; Luana Heim de Castro - Fundação Educacional do Município de Assis (FEMA); ; Marina Nantes Nuñez - Fundação Educacional do Município de Assis (FEMA); ; Luiza Netto de Carvalho Medeiros - Universidade de Marília (UNIMAR).

RESUMO

Bronchiolitis remains a leading cause of infant hospitalization worldwide, with Respiratory Syncytial Virus (RSV) as its primary etiological agent. This narrative review evaluates the impact of RSV immunization strategies, particularly nirsevimab and maternal vaccination, on reducing bronchiolitis-related hospitalizations. Real-world data from Spain, France, and the United States demonstrate nirsevimab effectiveness exceeding 70% in preventing RSV hospitalizations, with reductions up to 87% in hospital admissions and 90% in PICU admissions. Maternal vaccination showed efficacy above 80% against severe lower respiratory tract infections. In Brazil, 2026 preliminary data indicate a 52% reduction in RSV-associated hospitalizations in children under two years of age.

Palavras-chave: Respiratory Syncytial Virus; ; Bronchiolitis; ; Nirsevimab; ; Maternal Vaccination; ; Hospitalization.

IMPACTO DO ARMAZENAMENTO INADEQUADO NA ESTABILIDADE DA INSULINA. UMA REVISÃO INTEGRATIVA

Iasmin teruel maia / Rafaela Dedemo Mesquita Lima; Victor Eugênio Bezerra; Roger Marcelo Mesquita da Silva; Ana Carolina Alvares Dalto Ribas; Márcia Rocha Gabaldi

RESUMO

Introduction: Type 1 diabetes mellitus (DM1) corresponds to approximately 5% to 10% of diabetes cases and is characterized by the autoimmune destruction of pancreatic beta cells, resulting in absolute insulin deficiency. Although it predominantly affects children and adolescents, it can also manifest itself in adults. Considering that individuals with T1D have continuous dependence on insulin for glycemic control and life maintenance, the preservation of the therapeutic efficacy of this drug becomes indispensable. In this context, adequate storage of insulin plays a key role, since, because it is a sensitive protein molecule, temperature changes, exposure to light and inadequate conservation conditions can compromise its stability, reduce its potency and negatively impact the effectiveness of the treatment. **Objective:** To analyze the appropriate conditions of insulin storage recommended by the competent bodies, identifying how temperature variations, light exposure and inadequate conservation can interfere with its stability. To evaluate the impacts of insulin potency loss on glycemic control in patients with T1DM, as well as highlight the importance of patient orientation regarding the correct management and storage of the drug, seeking to prevent errors that may compromise the safety of the user in their daily lives. **Methodology:** This is a bibliographical research, with a descriptive and qualitative approach, carried out through the survey and analysis of scientific publications, guidelines and regulatory documents available in the PubMed and SciELO databases, published in the last five years, in the English language.

Descriptors related to insulin, storage, drug stability and type 1 Diabetes Mellitus were used. As inclusion criteria, articles were selected that identified evidence on the factors that interfere with the conservation of the molecule and its therapeutic impacts. As exclusion criteria, duplicate studies in the databases, productions that did not make the full text available for analysis, as well as theses, dissertations and book chapters were disregarded. Additionally, research focused on the stability of other injectable medications or that lacked direct relevance to clinical outcomes in type 1 Diabetes Mellitus was excluded. Results: Demonstrate that the stability of insulin is directly related to the appropriate storage conditions, especially temperature control. Unopened insulins should be maintained, in general, under refrigeration between 2°C and 8°C, a range considered ideal for the preservation of its molecular structure and therapeutic power. Temperatures above this range can accelerate degradation processes, while freezing can cause irreversible damage to the molecule. In addition, it was observed that exposure to light, particularly when associated with heat, may favor physicochemical changes capable of compromising the stability of the drug. It was also found that thermal stress can induce structural modifications in insulin, such as denaturation, aggregation and loss of the conformation necessary for its biological activity. Such changes reduce their potency, compromise their therapeutic efficacy and may result in glycemic variability, failures in metabolic control and increased risk of clinical complications. In addition, the incorrect transport of the product during daily commutes was identified as a frequent risk variable that requires greater attention from health professionals. Conclusion: That adequate storage is decisive for the maintenance of stability, quality and efficacy of insulin. The preservation of the conservation chain between 2°C and 8°C, protection against light exposure and the prevention of heat stress are essential measures to prevent structural changes in the molecule and consequent loss of potency of the drug. Thus, ensuring correct storage conditions and strengthening patient guidance are key strategies to promote effective glycemic control, reduce treatment-associated risks, and ensure the safety of individuals with type 1 diabetes mellitus. Therefore, it is recommended to implement continuous health education actions and ethical pharmaceutical counseling to empower patients in relation to the safe management of their therapy.

Palavras-chave: Estabilidade De Medicamentos; Armazenamento; Diabetes Mellitus Tipo 1; Insulina; Atenção Farmacêutica.

INTERVENÇÕES PRECOSES PARA REDUÇÃO DE ATRASOS NO NEURODESENVOLVIMENTO EM RECÉM-NASCIDOS DE MUITO BAIXO PESO: O IMPACTO DO POSICIONAMENTO TERAPÊUTICO E DO MANUSEIO MÍNIMO

Leticia Camargo Teles / Wesley Gabriel Fantato; Universidade Estadual Paulista (UNESP); Rio Claro; São Paulo.; Mariana Cristina da Silva Almeida; Universidade Estadual Paulista (UNESP); Marília; São Paulo.

RESUMO

Recém-nascidos de muito baixo peso (RNMBP) apresentam elevada vulnerabilidade a comprometimentos no neurodesenvolvimento, decorrentes da imaturidade do sistema nervoso central e da exposição prolongada ao ambiente estressante da Unidade de Terapia Intensiva Neonatal (UTIN). Estímulos sensoriais inadequados e o manuseio excessivo podem desencadear instabilidade fisiológica, contribuindo para sequelas neurológicas crônicas e impactando negativamente a saúde mental futura. Avaliar o impacto clínico de protocolos de posicionamento terapêutico e manuseio mínimo como estratégias de neuroproteção e estabilização fisiológica em

RNMBP internados em terapia intensiva. Foi conduzida uma revisão integrativa da literatura através de busca sistemática nas bases de dados PubMed, Cochrane Library, CINAHL e Web of Science, utilizando os descritores "Infant, Very Low Birth Weight", "Neurodevelopmental Disorders", "Patient Positioning" e "Neonatal Nursing". A seleção abrangeu estudos primários, revisões sistemáticas e ensaios clínicos publicados no recorte temporal dos últimos cinco anos (2021-2026), selecionando-se apenas artigos disponíveis na íntegra nos idiomas inglês ou português, enquanto foram desconsiderados editoriais, relatos de caso isolados e pesquisas cujo foco principal não contemplasse abordagens interdisciplinares ou recém-nascidos pré-termo. As evidências demonstram que o posicionamento terapêutico em flexão (ninho) otimiza a variabilidade da frequência cardíaca e a saturação de oxigênio, promovendo estados de sono profundo essenciais para a plasticidade cerebral. A implementação do manuseio mínimo reduziu drasticamente os picos hipertensivos intracranianos e a secreção de catecolaminas associadas à dor e ao estresse crônico. A integração entre o cuidado de enfermagem e as manobras fisioterapêuticas resultou em uma redução significativa nas taxas de hemorragia peri-intraventricular e de leucomalácia periventricular, além de acelerar a transição para a alimentação oral e reduzir o tempo total de internação hospitalar. Intervenções precoces estruturadas entre enfermagem e fisioterapia constituem um pilar essencial na prevenção de deficiências funcionais permanentes. A padronização desses cuidados não apenas preserva a integridade neurocomportamental do neonato, mas também mitiga os custos sociais e de saúde associados às doenças crônicas do desenvolvimento, garantindo uma melhor trajetória de saúde mental para a criança e sua família.

Palavras-chave: Recém-Nascido De Muito Baixo Peso Transtornos Do Neurodesenvolvimento Posicionamento Do Paciente Enfermagem Neonatal Especialidade De Fisioterapia.

LIQUID BIOPSY IN BREAST CANCER: A PARADIGM SHIFT IN BIOMARKER MONITORING

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RESUMO

Breast cancer (BC) is one of the leading causes of cancer mortality among women worldwide. Tissue biopsy is considered the gold standard for diagnosis; however, it is an invasive procedure and limited in representing tumor heterogeneity. In this sense, liquid biopsy (LB) emerges as a minimally invasive tool for early and personalized detection. Given the above, this study aims to analyze the role of liquid biopsy in detecting tumor biomarkers and its application in the diagnosis, therapeutic monitoring, and prognosis of breast cancer. A narrative review was conducted using the PubMed database. The search strategy utilized the descriptors: "liquid biopsy" AND "breast cancer." Randomized clinical trials, controlled studies, and systematic reviews published between 2021 and 2026 in English were included. Among the main liquid biopsy biomarkers, circulating tumor DNA (ctDNA) stands out. It consists of DNA fragments released by tumor cells, allowing for the identification of clinically relevant mutations and the detection of minimal residual disease (MRD). Circulating tumor cells (CTCs), in turn, are intact neoplastic cells associated with

prognosis and tumor dissemination. Furthermore, extracellular vesicles, especially exosomes, reflect the tumor's molecular profile and participate in intercellular communication, acting both as biomarkers and in disease progression. It is concluded that liquid biopsy represents a promising tool in precision oncology, contributing to a more dynamic and individualized approach to the management of breast cancer.

Palavras-chave: Liquid Biopsy; Breast Cancer; Biomarkers.

LONG COVID AS A MULTISYSTEM DISORDER: A LITERATURE REVIEW ON PATHOPHYSIOLOGY, CLINICAL MANIFESTATIONS, AND GLOBAL BURDEN

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RESUMO

Introduction: Coronavirus disease 2019 (COVID-19), caused by SARS-CoV-2, represents one of the most widespread infectious pandemics in modern history, significantly burdening public and private healthcare systems. Beyond the acute phase, a substantial proportion of individuals develop persistent symptoms, a condition known as long COVID or post-acute sequelae of SARS-CoV-2 infection (PASC). According to the World Health Organization, long COVID is defined as symptoms that arise within three months of infection, persist for at least two months, and cannot be explained by alternative diagnoses. **Objective:** To analyze the epidemiology, clinical manifestations, pathophysiological mechanisms, and socioeconomic impact of long COVID as a multisystem disorder. **Methods:** This study is a narrative review based on recent literature addressing long COVID. Data were gathered from observational studies, meta-analyses, and clinical reports focusing on prevalence, symptomatology, underlying mechanisms, and long-term outcomes associated with post-COVID-19 conditions. The searched databases were PUBMED and EMBASE. **Results:** The prevalence of long COVID varies widely, ranging from 4.7% to 80%, reflecting heterogeneity in study designs and populations. Approximately 22-38% of individuals report at least one symptom 12 weeks after infection, while 12-17% present with three or more symptoms. Clinical manifestations are multisystemic, including fatigue, dyspnea, chest pain, palpitations, cognitive impairment, autonomic dysfunction, musculoskeletal pain, gastrointestinal disturbances, and neuropsychiatric symptoms. Notably, long COVID can affect individuals regardless of age, initial disease severity, or symptomatic status during the acute phase. Pathophysiological mechanisms involve persistent inflammation, immune dysregulation, endothelial dysfunction, mitochondrial impairment, and possible viral persistence. Severe acute complications, such as acute respiratory distress syndrome (ARDS), may contribute to long-term sequelae, including reduced pulmonary function, decreased exercise capacity, and chronic dysfunction of cardiovascular, renal, and neurological systems. Longitudinal evidence suggests that these effects may persist for years, increasing the risk of chronic diseases. Additionally, long COVID imposes a substantial socioeconomic burden, including reduced functional capacity, increased prevalence of anxiety and depression, and decreased workforce productivity. **Conclusion:** Long COVID is a complex and multifactorial multisystem condition with significant clinical and economic implications. A better understanding of its mechanisms, along with standardized diagnostic criteria and targeted therapeutic strategies, is essential to reduce its long-term global burden.

Palavras-chave: Long COVID; SARS-CoV-2; Post-acute Sequelae; Inflammation; Multisystem Disease.

LOW-GRADE INFLAMMATION, OBESITY, AND INSULIN RESISTANCE: A NARRATIVE REVIEW

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RESUMO

Low-grade chronic inflammation has been widely recognized as a central factor in the development of metabolic disorders, particularly those associated with obesity and insulin resistance. Unlike acute inflammation, this condition is characterized by a persistent systemic inflammatory response, primarily linked to excess adipose tissue and physical inactivity. Recent evidence indicates that inflammatory mediators, such as interleukin- 6 (IL-6) and tumor necrosis factor-alpha (TNF- α), play a significant role in inducing metabolic alterations, including impaired insulin signaling and endothelial dysfunction.

Palavras-chave: Low-grade Chronic Inflammation; Obesity; Insulin Resistance; Adipose Tissue; Cytokines.

LOW-GRADE INFLAMMATION, OBESITY, AND INSULIN RESISTANCE: A NARRATIVE REVIEW

Felipe Afonso Negrão / Felipe Afonso Negrão¹ Nome do Coautor: Eduardo Negrão¹ Marcelo Dib Bechara² Karina Quesada² 1. Medical Student at the University of Marília (UNIMAR); Marília; São Paulo; Brazil 2. Professor at the University of Marília (UNIMAR); Marília; São Paulo; Brazil

RESUMO

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Palavras-chave: : Low-grade Chronic Inflammation Obesity Insulin Resistance Adipose Tissue Cytokines.

MEDITERRANEAN DIET AND REDUCED RISK OF COLORECTAL

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RESUMO

Colorectal cancer is among the most common carcinomas worldwide, representing a significant challenge for public health due to its high morbidity and mortality rates and the socioeconomic impact associated with diagnosis and treatment. Various modifiable risk factors, such as sedentary lifestyles, obesity, and unhealthy dietary patterns, contribute significantly to its development. In this context, preventive lifestyle strategies have gained prominence, especially in the field of nutrition. The Mediterranean diet, characterized by a high consumption of fruits, vegetables, whole grains, olive oil, and fish, stands out for its anti-inflammatory, antioxidant, and gut microbiota-regulating effects, and is being widely investigated for its potential protective role against the development of colorectal cancer. The aim of this study is to examine the relationship between the Mediterranean diet and a decreased likelihood of colorectal cancer, based on findings from non-experimental research, evidence syntheses, and statistical integrations. To investigate the anti-inflammatory and antioxidant actions of foods. To examine the reduction in contact time of harmful substances with the colonic mucosa through high-fiber meals. To evaluate the role of dietary intake in controlling precursor lesions and stages of carcinogenesis. In addition, it is necessary to highlight the Mediterranean diet as a modifiable lifestyle habit in maintaining gastrointestinal homeostasis. A narrative literature review was conducted using the PubMed database, selected due to its broad coverage of biomedical and nutritional studies. The search included articles published between 2020 and 2025, using the MeSH descriptors “Mediterranean diet”, “colorectal cancer”, and “reduction of colorectal cancer”, combined with the Boolean operator AND. Inclusion criteria comprised full-text articles with free access and classified as meta-analyses investigating the association between adherence to the Mediterranean diet and colorectal cancer prevention. Exclusion criteria included articles outside the established period, studies unrelated to the proposed theme, and publications without direct relevance to colorectal cancer prevention. The articles were initially screened through title and abstract analysis, followed by full-text reading of eligible studies. By convenience sampling, the first 10 articles that met the eligibility criteria were selected for inclusion in this review. The selected studies were analyzed descriptively, emphasizing the effects of the Mediterranean diet on inflammation, oxidative stress, intestinal microbiota, and colorectal carcinogenesis. Scientific studies reveal that greater adherence to the Mediterranean diet is linked to the mitigation of colorectal cancer, with an estimated decrease in incidence of between 15% and 26%. Results were homogeneous across various demographic groups and resulted in a reduced incidence of precursor lesions, such as polyps. Thus, fiber, antioxidants, and inflammatory modulation contributed to this effect. Thus, it is observed that the Mediterranean diet is linked to a lower risk of colorectal carcinoma, corresponding to the results of anti-inflammatory, antioxidant and intestinal microbiota effects. Although observational evidence exists, it stands out as an effective preventive method.

Palavras-chave: Mediterranean Diet; Colorectal Cancer; Cancer Prevention; Oxidative Stress; Risk Reduction.

NUTRITIONAL LITERACY INSTRUMENT FOR BRAZILIAN CHILDREN AND ADOLESCENTS WITH DIABETES: PRE- TEST

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graduação Interdisciplinar em Interações Estruturais e Funcionais na Reabilitação da Universidade de Marília (UNIMAR).

RESUMO

Nutritional literacy (NL) refers to the ability to understand and use nutritional information in everyday food choices, including the interpretation of labels, portion sizes, and dietary recommendations. In Brazil, there is an instrument designed to assess NL in individuals with diabetes, validated only for adults and elderly, called Nutritional Literacy among people with Diabetes (LND). However, there is a lack of validated instruments to assess NL in children and adolescents with diabetes, highlighting a gap in the literature. This motivated the proposal of a validation study of the LND for children and adolescents with diabetes. In this process, the LND was first adapted by a committee of experts, followed by a pre-test phase with the target audience to assess the understanding of the instrument's items. This abstract aims to present the results of this pre-test, which was developed through a methodological and qualitative-quantitative study. Data collection was carried out with diabetic patients aged eight to 19 years treated at the Interdisciplinary Diabetes Center (CENID) of the University of Marília (UNIMAR). A sample of 20 participants was selected. Patients who did not speak Brazilian Portuguese, who had vision and/or hearing problems or special educational needs that could interfere with the understanding of the instrument, as well as those without authorization from their guardians through the signing of the Informed Consent Form (ICF) and/or without the participant's assent through the signing of the Informed Assent Form (IAF), were excluded. The pre-test was conducted by trained interviewers, with individual application in an outpatient setting, where there was a computer with a slide presentation containing instructions on how to answer and the 24 items of the LND instrument. The answers were recorded by the research interviewers. At the end, each participant underwent an interview to verify their understanding of the items, words, and completion of the answers. The instrument was simple and quick to administer, with an average time of five to ten minutes, demonstrating good comprehension by the participants. Its interpretation is based on the number of correct answers in the 24 word associations, with those who correctly answered at least 18 associations (75%) being considered literate, according to the cutoff point originally established for the LND instrument. In the present study, of the total participants ($n = 20$), 65% were female, with a mean age of $13,6 \pm 4$ years. The average score obtained was 18.9 correct answers, ranging from 12 to 23, and 75% scored 18 points or higher, being considered literate according to the established cutoff point. Of the 24 items proposed in the LND, two of them had a percentage of correct answers of 40% or less. After the application, most reported no difficulties in understanding the instrument; however, 40% of the sample reported difficulties in understanding and associating some words. Given the satisfactory results, the LND for children and adolescents with diabetes, now called LND-Criadoc, was considered suitable for the subsequent stages and did not require modifications.

Palavras-chave: Adolescent; Information Literacy; Child; Diabetes Mellitus; Psychometrics.

PEOPLE EXPERIENCING HOMELESSNESS WITH CHRONIC PSYCHIATRIC COMORBIDITIES: AN EPIDEMIOLOGICAL AND INTEGRATIVE REVIEW

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RESUMO

INTRODUÇÃO: A população em situação de rua ocupa uma posição de profunda fragilidade no sistema de saúde, marcada pela sobreposição de doenças crônicas, sofrimento psíquico e dificuldades concretas de acesso ao cuidado. Não se trata apenas de exclusão social, trata-se de um ciclo em que a ausência de moradia agrava as condições de saúde e, ao mesmo tempo, o adoecimento dificulta a saída das ruas. Estudos epidemiológicos recentes apontam que a prevalência vitalícia de transtornos mentais nesse grupo pode ultrapassar 77%, número que revela a magnitude do problema. Quando se considera ainda a coexistência de esquizofrenia, depressão grave e transtornos por uso de substâncias com doenças físicas crônicas, o quadro clínico resultante extrapola a capacidade de resposta dos modelos convencionais de atenção à saúde. **OBJETIVOS:** Buscou-se analisar o perfil epidemiológico dessa população e mapear os principais entraves terapêuticos, bem como as estratégias que têm demonstrado efetividade no manejo de indivíduos com comorbidades psiquiátricas e clínicas crônicas. **MATERIAIS E MÉTODOS:** Realizou-se uma revisão integrativa de caráter descritivo, analisando 11 estudos e documentos epidemiológicos recentes de acesso aberto voltados à multimorbidade e à atenção à saúde dessa população. A seleção dos estudos priorizou aqueles que investigaram tanto a prevalência de condições psiquiátricas quanto os desfechos de intervenções terapêuticas distintas. **RESULTADOS:** Os dados reunidos evidenciam elevada ocorrência de dor crônica, depressão grave, distúrbios do sono, uso problemático de substâncias psicoativas e transtornos psicóticos, configurando um cenário clínico de alta complexidade e demanda por cuidado longitudinal. A isso se somam obstáculos de ordem estrutural e social (precariedade habitacional, violência cotidiana, estigma, discriminação nos serviços e fragmentação entre atenção primária, saúde mental e assistência social) que comprometem a adesão e os resultados do tratamento. Por outro lado, experiências com cuidado integrado, equipes multiprofissionais, vínculo longitudinal e busca ativa mostraram-se capazes de melhorar a continuidade do acompanhamento, diminuir internações de urgência e ampliar o alcance do cuidado para pessoas com diagnósticos duplos. **CONCLUSÃO:** O cuidado efetivo dessa população não se resolve com protocolos isolados. Requer abordagem ampla, contínua e humanizada, que reconheça os determinantes sociais como parte indissociável do processo saúde-doença e que integre, de forma coerente, o cuidado clínico, a saúde mental e o suporte social. Novos estudos são necessários para avaliar a efetividade a longo prazo dos modelos de cuidado integrado e subsidiar políticas públicas de saúde baseadas em evidências para essa população.

Palavras-chave: Pessoas Em Situação De Rua; Comorbidades Crônicas; Saúde Mental; Epidemiologia; Cuidado Integrado.

PHARMACOLOGICAL INTERVENTIONS EFFECT FOR DEPRESSION IN GLYCEMIC CONTROL AND WEIGHT VARIATION IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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RESUMO

Introduction: The coexistence of type 2 diabetes mellitus (T2DM) and major depressive disorder has become an increasingly common reality worldwide. This raises concern, as evidence indicates that this mood disorder tends to be more persistent and recurrent in this patient profile, in addition

to feeding back into the pathophysiology of the endocrine disorder itself. This occurs because of inadequate diet, low levels of physical activity, and poor medication adherence, which are factors that are very common among patients with depression, further exacerbate insulin resistance. In this context, pharmacological approaches to depression are promising and emerge as an important pillar in the treatment of this metabolic disease, contributing to glycemic and weight control within the specific targets for this population. Objective: To evaluate the effect of pharmacological interventions with selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs) on glycemic control, assessed through glycated hemoglobin (HbA1c), and on body weight variation in patients with T2DM, whether receiving diabetes treatment or not. Methods: A systematic review was conducted in accordance with the PRISMA guidelines, aiming to answer the following question: “In patients with type 2 diabetes mellitus, do interventions for depression improve glycemic control and weight change compared with usual care?”, developed based on the PICO(T) acronym. The search was performed in the PubMed and Cochrane Library databases using the descriptors “Diabetes Mellitus, Type 2” AND “Antidepressive Agents” AND “Glycemic Control”. The inclusion criteria comprised randomized clinical trials, observational cohort studies, multicenter studies, and systematic reviews published in English within the last 10 years, while the exclusion criteria comprised other study designs. A total of 10 studies were selected. Results: The analyzed studies demonstrated heterogeneous results regarding the efficacy of antidepressants on glycemic control in patients with T2DM. In a cohort analysis, a statistically significant association was observed when treatment duration extended up to 36 months after the diagnosis of T2DM, compared with the control group (HR 1.17; 95% CI 1.02-1.34). However, although some studies suggest an association between antidepressant use and improved glycemic control, with reductions in HbA1c levels after the initiation of antidepressant therapy, most of them did not demonstrate consistent findings between exposed and unexposed groups, while some associated the use of multiple subclasses of antidepressants with higher HbA1c levels. Furthermore, findings related to weight loss outcomes were divergent with the administration of SSRIs or SNRIs in patients undergoing diabetes treatment. Initial weight loss was observed during the first months, followed by subsequent weight regain at 12 months. All SNRI users presented greater weight reduction throughout follow-up, especially during the first 6 months. In contrast, antidepressant users with type 2 diabetes mellitus presented significantly higher BMI compared with non-users (31.2 kg/m² versus 30.1 kg/m²; $p < 0.001$). Conclusion: Antidepressants, especially SSRIs and SNRIs, may benefit patients with T2DM and depression, with possible effects on glycemic control and weight variation. However, the evidence remains limited, and further studies on differences between drug classes and their metabolic impacts are needed to assist in therapeutic decision-making for these patients.

Palavras-chave: Diabetes Mellitus; Antidepressive Agents; Glycemic Control.

**REGIONAL INEQUALITIES IN THE INCIDENCE OF BREAST CANCER IN BRAZIL:
A COMPARATIVE ANALYSIS BETWEEN RECENT TRIENNIUMS. EM PORTUGUÊS:
PERFIL EPIDEMIOLÓGICO DA COMPARAÇÃO DE CÂNCER DE MAMA NAS
REGIÕES DO BRASIL.**

Ana Elisa Landgraf Sormani / Ana Livia Chiarelli; Manuela dos Santos bueno

RESUMO

Este estudo epidemiológico analisa as desigualdades regionais na incidência de câncer de mama no Brasil, comparando as estimativas dos triênios 2020- 2022 e 2023-2025 com base em dados do INCA. Os resultados destacam que o câncer de mama permanece como a neoplasia mais incidente entre as mulheres brasileiras, com uma previsão de 73.610 novos casos para 2025, evidenciando a manutenção da maior carga epidemiológica na região Sudeste, que registrou um aumento de 3,77% (de 81,39 para 84,46 casos por 100.000 mulheres). Em contraste, a região Sul apresentou uma redução de 11,87%, enquanto as regiões Nordeste e Norte mostraram crescimentos acentuados de 21,08% e 17,10%, respectivamente, sugerindo uma reconfiguração do perfil da doença no país. Conclui-se que as disparidades regionais persistem, reforçando a necessidade urgente de políticas públicas voltadas ao rastreamento precoce e ao acesso equitativo ao tratamento em todo o território nacional. Em inglês- This epidemiological study analyzes regional inequalities in breast cancer incidence in Brazil by comparing estimates from the 2020-2022 and 2023-2025 trienniums based on INCA data. The findings highlight that breast cancer remains the most frequent neoplasm among Brazilian women, with 73,610 new cases predicted for 2025, showing that the Southeast region maintains the highest epidemiological burden with a 3.77% increase (from 81.39 to 84.46 cases per 100,000 women). In contrast, the South region saw an 11.87% decrease, while the Northeast and North regions recorded sharp increases of 21.08% and 17.10%, respectively, suggesting a shift in the disease's national profile. The study concludes that regional disparities persist, reinforcing the urgent need for public policies focused on early screening and equitable access to treatment across the country.

Palavras-chave: Brest Câncer; Regiões Of Brazil; Epidemiológicas Profile; Câncer De Mama; Regiões No Brasil; Perfil Epidemiológico.

REGIONAL INEQUALITIES IN THE INCIDENCE OF BREAST CANCER IN BRAZIL: A COMPARATIVE ANALYSIS BETWEEN RECENT TRIENNIUMS. EM PORTUGUÊS: PERFIL EPIDEMIOLÓGICO DA COMPARAÇÃO DE CÂNCER DE MAMA NAS REGIÕES DO BRASIL.

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SLEEP DISORDERS AND PSYCHIATRIC AND FUNCTIONAL REPERCUSSIONS IN HEALTHCARE PROFESSIONALS: AN INTEGRATIVE REVIEW

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RESUMO

Introduction: Sleep deprivation is a frequent condition among healthcare professionals, especially due to prolonged working hours, shift work, and high occupational workload, and is associated with negative repercussions on mental health and overall functioning. **Objective:** To analyze, through an integrative review, the association between sleep deprivation and psychiatric and functional outcomes among healthcare professionals. **Methods:** This integrative literature review was conducted through searches in the PubMed, Scopus, Web of Science, and Scielo databases, including observational studies, systematic reviews, and meta-analyses investigating the relationships addressed in this study. Studies evaluating outcomes such as insomnia, depression, anxiety, burnout, and other occupational stressors were included, with qualitative analysis of the findings. **Results:** The analyzed studies demonstrated a high prevalence of insomnia among healthcare professionals, ranging from approximately 36.36% to 43.5%, especially in contexts involving prolonged working hours and night work. Shift work, particularly night shifts, was associated with poorer sleep quality and a higher occurrence of depressive symptoms, with a 49% increased risk of depression among professionals exposed to night shifts (OR=1.49; 95%CI 1.26-1.76), in addition to prevalence rates of anxiety and depression of 58.82% and 62.08%, respectively, among nurses working in shifts. During the COVID-19 pandemic, sleep disturbances acted as partial mediators between occupational stressors and depressive symptoms among healthcare professionals, accounting for approximately 17% of this association. In post- pandemic settings, sleep disorders remained frequent, with 22.7% of professionals presenting moderate insomnia, in addition to prevalence rates of anxiety and depression of 33% and 28.4%, respectively. Among medical students and medical residents, high prevalence rates of depression (43%), anxiety (44%), and sleep disorders (48%) were observed. Observational studies also demonstrated that professionals subjected to on-call shifts had a mean sleep duration of 5.43±1.38 hours, with 82.3% presenting sleep deprivation (<7h/night) and 16.4% excessive daytime sleepiness. In Brazil, there is a scarcity of studies with robust longitudinal designs and direct focus on psychiatric outcomes related to sleep deprivation, with predominance of cross-sectional or indirect evidence. **Conclusion:** Sleep deprivation is strongly associated with psychiatric morbidity among healthcare professionals, especially anxiety, depression, and burnout. The findings suggest an important influence of occupational factors and highlight the need for longitudinal studies and institutional strategies aimed at promoting sleep and mental health in this population.

Palavras-chave: Sleep Deprivation Healthcare Workers Mental Health Insomnia Depression.

SMOKING AS A CENTRAL DRIVER OF CARDIOVASCULAR DISEASE AND CANCER: IMPLICATIONS FOR INTEGRATED CARDIO-ONCOLOGY PREVENTION

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RESUMO

Background: Cardiovascular disease (CVD) and cancer are the leading causes of death worldwide and increasingly recognized as interconnected conditions within the field of cardio-oncology. These diseases share multiple modifiable risk factors and biological mechanisms, with smoking emerging as the most significant and preventable contributor. Tobacco exposure induces systemic inflammation, oxidative stress, endothelial dysfunction, and direct DNA damage, creating a common pathophysiological substrate for both atherosclerosis and carcinogenesis. Objective: To review the role of smoking as a central shared risk factor for CVD and cancer, and to highlight the importance of integrated screening and preventive strategies in high-risk populations, particularly current and former smokers. Methods: A narrative review of the literature was conducted, focusing on high-impact publications and guidelines from major international journals and societies (including The Lancet, NEJM, JAMA, BMJ, and GOLD reports). Studies addressing epidemiological associations, biological mechanisms, and preventive strategies linking smoking, cardiovascular disease, and cancer were included. Results: Smoking increases the risk of coronary artery disease by two- to four-fold and accounts for approximately 30% of cardiovascular mortality. Concurrently, it is responsible for nearly 30% of all cancer deaths and up to 85-90% of lung cancer cases. Shared mechanisms include chronic inflammation, immune dysregulation, pro-thrombotic states, and genomic instability. Notably, the excess risk persists for years after smoking cessation, particularly among heavy former smokers. Evidence supports structured screening strategies, such as annual low-dose computed tomography for lung cancer in individuals aged 50-80 years with significant smoking history, as recommended by major guidelines. In addition, chronic obstructive pulmonary disease (COPD), frequently underdiagnosed in smokers, represents an important intermediary condition that further amplifies both cardiovascular and oncologic risk. Conclusion: Smoking is a central and unifying driver of both cardiovascular disease and cancer. A cardio-oncology approach integrating systematic smoking assessment, early detection strategies, and aggressive cessation interventions is essential to reduce morbidity and mortality. Multidisciplinary models targeting shared risk factors, particularly smoking, should be prioritized in clinical practice and public health policies.

Palavras-chave: Smoking; Cardio-oncology; Cardiovascular Disease; Cancer; Lung Cancer Screening; COPD; Risk Factors.

TEMPORAL TREND OF SUICIDE MORTALITY IN YOUNG ADULTS IN THE STATE OF SÃO PAULO (2014-2024)

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RESUMO

Introduction: Heart failure is a major cause of cardiovascular mortality, with a significant impact on public health. Although it is more prevalent among the elderly, an increasing occurrence in young adults has been observed, possibly related to the early rise in cardiovascular risk factors. The analysis of the temporal trend of heart failure mortality in this population allows the identification of changes in the epidemiological profile and supports the development of prevention strategies and health planning. In the state of São Paulo, studies with this focus remain scarce. **Objectives:** To analyze the temporal trend of heart failure mortality in young adults (20-49 years) in the state of São Paulo from 2014 to 2024, describing its distribution over the years and by age groups. **Methods:** This is an epidemiological, ecological, retrospective, and descriptive study based on the analysis of secondary mortality data due to heart failure (ICD-10: I50) in individuals aged 20-49 years, residents of the state of São Paulo, from 2014 to 2024. Data were extracted from the Mortality Information System (SIM), provided by the Department of Informatics of the Brazilian Unified Health System (DATASUS). The analysis included absolute numbers of deaths and their temporal distribution over the years, with a descriptive presentation of the findings. **Results:** Between 2014 and 2024, 2,813 deaths due to heart failure were recorded in young adults in the state of São Paulo. There was a marked predominance in the 40-49 age group (67.12%), with a progressive reduction in younger age groups, indicating an association between advancing age and a higher occurrence of deaths. The temporal analysis showed an increasing trend starting in 2020, with a peak in 2021 (10.49%), followed by persistently high values until 2024 (10.10%), in contrast to the lowest percentage observed in 2019 (7.54%). **Conclusions:** There was a predominance of heart failure mortality in young adults in the 40-49 age group, with a percentage increase in deaths from 2020 onward. These findings suggest a recent worsening of the heart failure burden in this population, reinforcing the importance of early cardiovascular prevention strategies and strengthening healthcare for young adults.

Palavras-chave: Heart Failure; Mortality; Time Factors; Young Adults.

USO DA TOXINA BOTULÍNICA TIPO A NO TRATAMENTO DA DOR PÉLVICA CRÔNICA EM MULHERES: UMA REVISÃO DE LITERATURA DE ENSAIOS CLÍNICOS RANDOMIZADOS

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RESUMO

A dor pélvica crônica (DPC) é uma síndrome persistente, não cíclica, frequentemente associada à hipertonia do assoalho pélvico e mialgia, afetando até 26% da população feminina global. Devido o impacto severo na qualidade de vida e função sexual, e frequente refratariedade à fisioterapia convencional, novas abordagens são necessárias. Nesse cenário, a toxina botulínica tipo A (BTx-A) surge como alternativa terapêutica devido às suas propriedades miorelaxantes e antinociceptivas, embora sua eficácia e segurança a longo prazo permaneçam em debate. O objetivo do estudo foi avaliar a eficácia e o perfil de segurança da BTx-A no tratamento da DPC em mulheres, através da análise de ensaios clínicos randomizados (RCTs). Realizou-se uma revisão de literatura na base de dados PubMed utilizando a estratégia PICO e os descritores “Botulinum toxins” AND “Chronic pelvic pain”. A seleção restringiu-se a RCTs que avaliaram mulheres com DPC e disfunção do assoalho pélvico. Dois estudos preencheram os critérios de elegibilidade (n=60 e n=94 participantes). No estudo com 60 participantes, a BTx-A (80U) promoveu redução significativa na dispareunia ($p < 0,001$) e na dor pélvica não menstrual ($p = 0,009$) em comparação ao basal, além de reduzir a pressão do assoalho pélvico de forma superior ao placebo ($p < 0,001$). Já no estudo com 94 participantes (BTx-A 100U associada à fisioterapia), não houve diferença estatisticamente significativa na redução de dor $\geq 33\%$ entre o grupo intervenção (33%) e o placebo (20%; $p = 0,19$). Ambos os estudos observaram melhora nos escores de qualidade de vida e dor ao longo do tempo, sugerindo um potencial efeito placebo ou benefício do manejo multidisciplinar. Eventos adversos foram majoritariamente leves e transitórios (sangramento local, constipação e fraqueza muscular), embora relatos isolados de incontinência exijam cautela. Eventos adversos mais significativos foram dois episódios de gravidezes na vigência do tratamento que resultaram em má-formação e complicação gestacional. Os estudos convergem para uma evidência de eficácia clínica limitada a longo prazo, apesar da redução objetiva da atividade muscular. Observa-se uma dissociação clínico-fisiológica, onde o relaxamento muscular nem sempre se traduz em alívio sustentado da dor. A BTx-A apresenta um perfil de segurança aceitável, mas seu uso deve ser criteriosamente avaliado em mulheres em idade fértil, sendo recomendada a fenotipagem de pacientes para identificar subgrupos beneficiados.

Palavras-chave: Toxina Botulínica Tipo A; Dor Pélvica; Mulheres.

INSULIN RESISTANCE: MOLECULAR BASIS AND SYSTEMIC REPERCUSSIONS

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RESUMO

To investigate, through a narrative literature review, the main molecular mechanisms involved in insulin resistance, with emphasis on alterations in insulin signaling, inflammatory processes, oxidative stress, and accumulation of intracellular lipids, as well as to discuss their systemic impact on the development of metabolic diseases, especially type 2 diabetes mellitus and cardiovascular diseases.

Palavras-chave: Keywords: Insulin Resistance Molecular Mechanisms Insulin Signaling Inflammation Oxidative Stress Metabolic Diseases.

SISTEMAS DE ASPIRAÇÃO FECHADA E PREVENÇÃO DE PNEUMONIA ASSOCIADA À VENTILAÇÃO (PAV): UMA REVISÃO SISTEMÁTICA SOBRE TECNOLOGIA, BIOSSEGURANÇA E PROTEÇÃO PULMONAR

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RESUMO

A aspiração traqueal é rotineira em terapia intensiva; contudo, a relação custo-benefício do Sistema de Aspiração Fechada (SAF) frente ao sistema aberto na redução da Pneumonia Associada à Ventilação Mecânica (PAV) e proteção pulmonar ainda é debatida. O estudo justifica-se pela necessidade de analisar o impacto do SAF na estabilidade alveolar, biossegurança e prevenção da lesão induzida pelo ventilador (VILI), com o objetivo de analisar as evidências científicas sobre o impacto dessa tecnologia na prevenção de PAV, estabilidade hemodinâmica e biossegurança em cuidados críticos de longo prazo. Para tanto, desenvolveu-se uma revisão sistemática conduzida conforme as diretrizes do PRISMA, com busca realizada em abril de 2026 nas bases PubMed, Web of Science e Cochrane (período de 2021 a 2026). A estratégia PICO norteou a pergunta de pesquisa. Os critérios de inclusão compreenderam ensaios clínicos controlados e metanálises focados em pacientes adultos sob ventilação mecânica prolongada (>48h), excluindo-se estudos pediátricos, neonatais ou de curto prazo. A seleção e a avaliação dos artigos foram realizadas por pares de forma independente, resolvendo divergências por consenso. De 45 produções identificadas, 12 integraram a amostra final. Como resultados, as evidências apontam que o SAF previne o ciclo de desrecrutamento-recrutamento alveolar ao manter a pressão positiva contínua. O SAF demonstrou superioridade na biossegurança por mitigar a aerolização de patógenos multirresistentes, protegendo a equipe e o ambiente. Adicionalmente, a integração do SAF a bundles de prevenção de PAV, unindo enfermagem e fisioterapia, otimizou o desmame ventilatório. Conclui-se que o SAF é uma tecnologia indispensável para a manutenção da estabilidade alveolar e garantia da biossegurança em cuidados críticos de longo prazo. A assistência interdisciplinar e a aplicação rigorosa de protocolos são essenciais para reduzir complicações e promover desfechos clínicos seguros.

Palavras-chave: Sistema De Aspiração Fechada PAV Segurança Do Paciente Proteção Pulmonar.

THE ILLUSION OF SAFETY: UNMASKING THE CARDIOVASCULAR RISKS OF ELETRONIC CIGARETTES

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RESUMO

E-cigarettes are popular alternatives to tobacco. Despite perceived safety, evidence indicates adverse cardiovascular effects, including endothelial dysfunction, arterial stiffness, oxidative stress, and increased myocardial infarction risk. Even nicotine-free versions demonstrate toxicity. This review synthesizes current evidence. Evaluate cardiovascular effects of e-cigarettes, including endothelial dysfunction and outcomes. This is a systematic literature review encompassing articles from 2022 to 2025 from the PubMed (MEDLINE) database. In total, from the 15 previously selected articles, 10 were chosen using the descriptors "E-Cigarettes", "Cardiovascular" and "Endothelial Dysfunction". Meta-analyses, systematic reviews and cross sectional studies in English were included, addressing cardiovascular manifestations under the use of electronic cigarettes. The use of electronic cigarettes is associated with increased oxidative stress and endothelial dysfunction, contributing to the development of vascular lesions and, consequently, to a higher risk of cardiovascular diseases. The underlying biological mechanisms include increased inflammation and the production of reactive oxygen species, leading to the formation of toxic compounds and the progression of atherosclerosis. Furthermore, studies have demonstrated a 2.6-fold increase in the likelihood of myocardial infarction among individuals who use electronic cigarettes compared to those who have never used conventional cigarettes. However, although some clinical trials suggest a transient improvement in endothelial function in individuals who switch from conventional to electronic cigarettes, the heating of e-liquids (propylene glycol, glycerin, flavorings, and sometimes nicotine) promotes the formation of toxic substances, maintaining deleterious effects on vascular function in the long term. Thus, evidence demonstrates that e-cigarette use causes harms such as arterial stiffness, oxidative stress, increased risk of acute myocardial infarction, and endothelial dysfunction. Hence, although trials indicate temporary improvement over conventional ones, other substances maintain long-term damage. Therefore, further studies, prevention, awareness, and lifestyle changes are necessary to mitigate such complications.

Palavras-chave: E-Cigarettes; Cardiovascular; Endothelial Dysfunction.

OBESITY AS A RISK FACTOR FOR COGNITIVE IMPAIRMENT: METABOLIC, INFLAMMATORY, AND NEUROBIOLOGICAL ASPECTS" ("OBESIDADE COMO FATOR DE RISCO PARA COMPROMETIMENTO COGNITIVO: ASPECTOS METABÓLICOS, INFLAMATÓRIOS E NEUROBIOLÓGICOS")

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RESUMO

To analyze the relationship between obesity and cognitive impairment, investigating its effects on brain structure and function, its association with cognitive decline, and the risk of dementia. The purpose is also to understand the biological mechanisms involved, including metabolic and inflammatory factors. (Analisar a relação entre obesidade e comprometimento cognitivo, investigando seus efeitos sobre a estrutura e função cerebral, sua associação com o declínio cognitivo e o risco de demência. Busca-se também compreender os mecanismos biológicos envolvidos, incluindo fatores metabólicos e inflamatórios.)

Palavras-chave: Obesity Cognitive Impairment Insulin Resistance Inflammation Dementia; (Obesidade Comprometimento Cognitivo Resistência à Insulina Inflamação Demência).

A GENÉTICA DA ANGIOGÊNESE NO PÓS-INFARTO DO MIOCÁRDIO: REVISÃO DE LITERATURA

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RESUMO

RESUMO Introdução: A angiogênese coronariana é uma resposta adaptativa do tecido cardíaco à hipóxia, ativando mecanismos genéticos que reduzem o consumo energético e estimulam a neovascularização. Objetivo: Compreender e direcionar a pesquisa genética sobre as adaptações cardíacas ao estresse oxidativo no período pós-infarto do miocárdio. Método: Revisão bibliográfica qualitativa nas bases SciELO, PubMed e Biblioteca Virtual da Sociedade Brasileira de Cardiologia (2011-2025), com os descritores "angiogênese", "artérias coronárias" e "genética cardíaca". Resultados: A neovascularização auxilia o reparo cardíaco na hipóxia mediada pelo eixo HIF-1 α /VEGF-A. A resposta angiogênica envolve múltiplos eixos moleculares: VEGF-A/PIGF/VEGFRs (angiogênese), VEGF-C/VEGF-D/Tie1-2 (linfangiogênese), HGF/cMET (morfogênese e neuroproteção), FGF1-22/FGFR1-4 (proliferação e sobrevivência) e Ang1-2/Tie1-2 (maturação vascular). Esses eixos atuam de forma coordenada para promover desde o brotamento capilar inicial até a estabilização dos novos vasos. Células endoteliais, fibroblastos, cardiomiócitos e macrófagos participam ativamente desse processo. Idade avançada e diabetes mellitus tipo 2 comprometem significativamente a resposta angiogênica por mecanismos como senescência endotelial, acúmulo de produtos de glicação avançada (AGEs) e estresse oxidativo exacerbado. A combinação desses fatores amplifica a disfunção vascular e inibe a formação de vasos colaterais funcionais. Macrófagos recrutados para o tecido infartado amplificam a angiogênese via estabilização do HIF-1 α pelo peptídeo PR39, potencializando a expressão de genes pró-angiogênicos. Estudo clínico pioneiro com FGF-1 demonstrou viabilidade de induzir neoangiogênese funcional em coração humano isquêmico, com aumento significativo da densidade capilar e do fluxo sanguíneo local. Conclusão: A formação de vasos colaterais coronarianos é uma adaptação cardíaca regulada por genes de proteção celular, com implicações terapêuticas promissoras, embora desafios como senescência vascular e risco de angiogênese patológica ainda persistam.

Palavras-chave: Angiogênese Infarto Genética Cardíaca; Coronárias.

ACINETOBACTER BAUMANNII IN A CALF, RELEVANCE TO ONE HEALTH: A CASE REPORT.

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RESUMO

Acinetobacter baumannii is a gram-negative coccobacillus of great clinical relevance in human and veterinary medicine. It is an opportunistic pathogen, mainly associated with hospital infections. Its importance is linked to its high capacity to survive adverse environmental conditions, remaining viable on contaminated surfaces and equipment. In addition, the species has a wide potential for resistance to different classes of antimicrobials, which makes treatment more difficult and favors its dissemination. The objective of this work was to describe the main epidemiological, etiological and pathophysiological characteristics of *A. baumannii*, as well as to report a clinical case in a veterinary hospital setting. Emphasis was also given to the antimicrobial resistance profile and the importance of an integrated approach in One Health. The material and methods were based on a review of scientific literature on the agent and a descriptive report of a clinical case involving a calf treated at a university veterinary hospital. Clinical and supportive therapeutic assessments were performed, in addition to collecting samples for microbiological analysis and conducting an antimicrobial susceptibility test (antibiogram). The objective was to identify the etiological agent and guide therapeutic management. The report indicates that the calf initially presented with omphalophlebitis associated with dehydration and respiratory signs consistent with aspiration pneumonia. During follow-up, therapeutic measures were adopted, such as empirical antibiotic therapy, fluid therapy, nebulization, and local umbilical care. Subsequently, microbiological culture confirmed the presence of *Acinetobacter baumannii*, with a multidrug-resistant profile and restricted sensitivity to amikacin. After therapeutic adjustment according to the antibiogram, favorable clinical evolution was observed, with improved appetite and reduction of systemic signs. With the necessary support and after a long period of hospitalization, the patient showed improvement and was discharged. It is concluded that *A. baumannii* represents a major therapeutic challenge in veterinary medicine due to its antimicrobial resistance, its persistence in the environment, and its ability to spread in hospital settings. The case of the calf reinforces the importance of accurate microbiological diagnosis, the rational use of antimicrobials, and the adoption of rigorous biosecurity measures for the control of this agent.

Palavras-chave: *Acinetobacter Baumannii*; Antimicrobial Resistance; Veterinary Medicine; One Health.

ALIMENTAÇÃO NATURAL EM ANIMAIS: ESCOLHA CONSCIENTE OU INFLUÊNCIA SOCIAL?

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RESUMO

The use of natural feeding in animals has gained prominence in recent years, driven by greater awareness among pet owners and by the influence of social media and market trends. Many owners seek to provide diets considered healthier, based on fresh and less processed foods, believing that this practice can improve quality of life, prevent diseases, and increase animal longevity. When properly formulated and supervised by veterinary professionals, natural diets can meet the nutritional needs of each species and contribute to animal health and welfare. However, the growing popularity of natural feeding is also associated with the spread of misinformation and

dietary trends that are not always supported by scientific evidence. Influenced by online content and personal opinions, some owners adopt homemade diets without professional guidance, which may result in nutritional imbalances harmful to animal health. Inadequate formulations can compromise growth, immune response, and metabolic functions, especially in young, elderly, or sick animals. In this context, natural feeding can be understood both as a conscious decision and as a practice influenced by social behavior. The increasing humanization of companion animals and the expansion of the pet market have contributed to the perception that the term “natural” automatically means something healthier, although this is not always true. Therefore, it is essential to reinforce the importance of scientific knowledge, nutritional balance, and veterinary supervision when choosing alternative feeding methods. In addition to the literature review, the present study will use questionnaires directed at companion animal owners, aiming to understand the reasons that lead to the adoption of natural feeding, the level of knowledge regarding its risks and benefits, and the influence of social media on this decision. The collected data will contribute to a broader analysis of owner behavior and animal nutritional management. This study aims to discuss the growing use of natural feeding in companion animals, analyzing its benefits, risks, and the influence of social media on owners’ decisions. The expected results include a broader understanding of the motivations behind this practice and the importance of nutritional management based on scientific evidence.

Palavras-chave: Alimentação Natural; Nutrição Animal; Tutores; Influência Social; Bem- Estar Animal.

ANTIMICROBIAL RESISTANCE AND ITS IMPORTANCE FOR ONE HEALTH - LITERATURE REVIEW

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RESUMO

Antimicrobial resistance (AMR) is a phenomenon that is causing several negative consequences for global public health, both animal and human, occurring due to the constant exposure of microorganisms (such as bacteria, viruses, fungi, and parasites) to antimicrobial drugs (such as antibiotics, antivirals, antifungals, and anthelmintics), resulting in resistance mechanisms that make treatments less effective and allow infections to persist in the organism. Nowadays, AMR is responsible for causing potentially severe infections, associated with increased mortality, morbidity, and hospitalization time due to the reduction or loss of therapeutic efficacy of antimicrobials, leaving few or no safe and effective alternatives for the treatment of diseases caused by microorganisms. The objective of this review was to analyze the main aspects related to AMR, addressing its development, dissemination factors, impacts on One Health, and the importance of microbiology laboratories in its epidemiological monitoring. The methodology was based on the development of a narrative literature review using research from the Google Scholar and SciELO databases. The search was limited to the period between 2014 and 2026, using the descriptors “Antimicrobial Resistance to Drugs” and “Antimicrobial Resistance and Hospital Infections,” encompassing studies published in both Portuguese and English. Original scientific articles, literature reviews, and technical books addressing the correlation between the One Health approach and antimicrobial resistance were analyzed. Studies outside the defined time frame or not directly

related to the central theme were excluded. The analysis strategy was based on exploratory, selective, and integrative reading of the collected data. According to the studies, AMR is a factor that naturally occurs in microorganisms through genetic alterations; however, it has been drastically accelerated due to the excessive and indiscriminate use of antibiotics in human medicine, veterinary medicine, agriculture, and animal production. In this way, the selection of resistant strains, combined with the high genetic versatility of microorganisms that allows mutations or the transfer of genetic material (through plasmids, transposons, or integrons), facilitates AMR. Among the bacteria most cited in the literature regarding the potential for antimicrobial drug resistance, *Pseudomonas aeruginosa*, *Escherichia coli*, *Klebsiella pneumoniae*, and *Acinetobacter baumannii* stand out. In addition, bacterial species that produce beta-lactamase and carbapenemase enzymes have been prioritized by the World Health Organization due to the greater resistance to therapeutics presented by infections caused by these agents. In this situation, the microbiology laboratory plays a fundamental role in the diagnosis, identification of microorganisms, and monitoring of the resistance they present, identifying the most effective treatments and assisting in the epidemiological control of infections. It is concluded that AMR constitutes a complex and growing problem, evidencing microorganisms resistant to multiple drugs and requiring integrated actions such as the rational use of antimicrobials, epidemiological surveillance, and improvements in disease prevention and control measures, aiming to minimize the spread of resistant microorganisms.

Palavras-chave: Antimicrobial Resistance; One Health; Multidrug-resistant Microorganisms.

ARTIFICIAL INTELLIGENCE IN MAGNETIC RESONANCE IMAGING FOR ACUTE ISCHEMIC STROKE TRIAGE: A NARRATIVE REVIEW

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RESUMO

The use of artificial intelligence (AI) has grown significantly across various fields of knowledge, particularly in healthcare, where it has been transforming professional practice and contributing to improved diagnostic accuracy. In radiology, its application stands out due to its ability to perform detailed image analysis, complementing medical evaluation and enabling greater diagnostic precision, as well as reducing errors in reporting. In this context, ischemic stroke is a highly prevalent condition in which rapid decision-making and early intervention are essential for a favorable prognosis. Thus, the use of AI in conjunction with magnetic resonance imaging (MRI) emerges as a promising tool to optimize triage and accelerate diagnosis, contributing to better clinical outcomes

Palavras-chave: Acute Ischemic Stroke Artificial Intelligence Magnetic Resonance Imaging.

ASPECTOS ETIOPATOGÊNICOS, DIAGNÓSTICOS E TERAPÊUTICOS DO COLAPSO TRAQUEAL CANINO: UMA REVISÃO NARRATIVA

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RESUMO

O colapso traqueal caracteriza-se por uma enfermidade respiratória progressiva e degenerativa, frequentemente observada em cães de pequeno porte e associada ao enfraquecimento das cartilagens traqueais. A doença ocorre devido à degeneração da matriz cartilaginosa, com substituição da cartilagem hialina por fibrocartilagem e fibras colágenas, resultando na perda da rigidez estrutural da traqueia e favorecendo seu colapso durante o ciclo respiratório. A etiologia da enfermidade ainda não é completamente elucidada, sendo considerada multifatorial, envolvendo fatores genéticos, congênitos, nutricionais, inflamatórios e alterações respiratórias secundárias. O objetivo deste trabalho foi realizar uma revisão de literatura acerca do colapso traqueal em cães, abordando aspectos anatômicos, etiopatogenia, sinais clínicos, métodos diagnósticos, classificação da doença, tratamentos disponíveis e prognóstico dos pacientes acometidos. O presente estudo caracteriza-se como uma revisão narrativa de literatura, desenvolvida a partir da análise de artigos científicos, livros e publicações acadêmicas nacionais e internacionais relacionados ao colapso traqueal canino. Foram utilizados artigos científicos, dissertações, teses e livros especializados em medicina veterinária. Os trabalhos entre 2009 e 2016 foram utilizados como base clássica para compreensão da etiopatogenia e alterações fisiopatológicas da enfermidade, enquanto os estudos de 2018 a 2024 contribuíram com informações atualizadas sobre métodos diagnósticos, uso de stents e abordagens terapêuticas modernas. Os sinais clínicos mais frequentemente observados incluem tosse seca paroxística, descrita como “grasnido de ganso”, intolerância ao exercício, dispneia, cianose e episódios de síncope, podendo variar conforme a gravidade da doença. O diagnóstico é realizado por meio da associação entre histórico clínico, exame físico e exames de imagem. A radiografia destaca-se como o método mais utilizado devido à sua acessibilidade e baixo custo, embora apresente limitações por se tratar de uma técnica estática diante de uma afecção dinâmica. A traqueoscopia é considerada o exame padrão-ouro, permitindo visualização direta do lúmen traqueal, avaliação da severidade do colapso e observação das alterações da mucosa respiratória. A fluoroscopia também pode ser utilizada, principalmente para avaliação dinâmica da traqueia durante o ciclo respiratório. O tratamento pode ser clínico ou cirúrgico, dependendo da gravidade do quadro. O manejo clínico é indicado principalmente para pacientes com sinais leves a moderados utilizando antitussígenos, corticosteroides, broncodilatadores e mudanças ambientais, como controle de peso e uso de coleiras peitorais. Já o tratamento cirúrgico é reservado para casos graves ou refratários à terapia medicamentosa, destacando-se o uso de próteses extraluminais e stents endoluminais autoexpansíveis. Apesar dos avanços terapêuticos, complicações podem ocorrer, como migração ou fratura de stents e paralisia laríngea. Portanto, o colapso traqueal é uma enfermidade de grande relevância na clínica de pequenos animais, sendo fundamental o diagnóstico precoce e a escolha adequada da abordagem terapêutica para proporcionar melhor qualidade de vida e prognóstico aos pacientes acometidos.

Palavras-chave: Traqueia; Colapso Traqueal; Diagnóstico; Tratamento Cirúrgico; Cães.

ASSOCIAÇÃO ENTRE PÉ DIABÉTICO E DEFORMIDADES ORTOPÉDICAS NOS PÉS EM PACIENTES COM DIABETES MELLITUS: REVISÃO SISTEMÁTICA RÁPIDA

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RESUMO

O pé diabético é uma complicação do diabetes mellitus frequentemente associada à neuropatia periférica e alterações biomecânicas, podendo favorecer o desenvolvimento de deformidades ortopédicas nos pés. Dessa forma, esta revisão sistemática rápida teve como objetivo avaliar se o pé diabético está associado ao desenvolvimento de deformidades ortopédicas nos pés em pacientes adultos com diabetes mellitus. Foi realizada uma revisão sistemática rápida conforme as recomendações do PRISMA 2020. A busca foi conduzida na base PubMed utilizando a estratégia: (“diabetic foot” OR “diabetic neuropathy”) AND (“foot deformities” OR “orthopedic deformities” OR “Charcot foot” OR “hallux valgus” OR “hammer toe”). Foram aplicados os filtros: últimos cinco anos, humanos, adultos ≥ 19 anos, clinical trial e observational study. Inicialmente, 12 estudos foram identificados. Foram incluídos estudos observacionais e ensaios clínicos que avaliaram associação entre pé diabético, neuropatia diabética e deformidades ortopédicas. Foram excluídos estudos focados exclusivamente em infecção, curativos, amputações, inteligência artificial, relatos de caso e revisões. A avaliação metodológica foi realizada pelos instrumentos ROBINS- I e GRADE. Dos 12 estudos identificados, 7 atenderam aos critérios de elegibilidade. Os estudos incluídos demonstraram associação relevante entre neuropatia diabética, pé diabético e desenvolvimento de deformidades ortopédicas, principalmente Charcot Foot, dedos em garra, alterações osteoarticulares e limitações articulares do tornozelo e hálux. Os principais achados mostraram que alterações neuropáticas favorecem redistribuição anormal da pressão plantar, instabilidade biomecânica e aumento do risco de ulcerações. A avaliação pelo ROBINS-I identificou predominância de risco moderado de viés, principalmente devido à presença de fatores de confusão e heterogeneidade metodológica. Pela análise GRADE, a qualidade geral da evidência foi considerada moderada. As evidências disponíveis sugerem associação entre pé diabético e desenvolvimento de deformidades ortopédicas nos pés em pacientes com diabetes mellitus. As alterações mais frequentemente descritas foram Charcot Foot, deformidades digitais e alterações biomecânicas associadas à neuropatia periférica. Entretanto, a predominância de estudos observacionais limita a força das conclusões, sendo necessários estudos prospectivos com maior padronização metodológica.

Palavras-chave: Pé Diabético Charcot Foot Diabetes Mellitus Deformidades Ortopédicas Revisão Sistemática Rápida.

ASSOCIATION BETWEEN SARCOPENIA, NUTRITIONAL STATUS, AND PROGNOSIS IN ELDERLY PATIENTS WITH CARDIOVASCULAR DISEASES.

Guilherme de Souza Garbelini

RESUMO

Cardiovascular diseases, especially in the elderly, are frequently associated with metabolic, inflammatory, and nutritional alterations that directly impact clinical prognosis. Conditions such

as sarcopenia, malnutrition, and body fat redistribution have emerged as relevant factors in the evolution of these patients. However, there are still gaps in understanding the impact of this influence and the best way to perform an integrated clinical assessment. Objective: To analyze the relationship between metabolic alterations, nutritional status, inflammatory markers, and body composition with clinical outcomes in patients with cardiovascular diseases, highlighting their impact on mortality risk, length of hospital stay, and functionality. The analyzed studies consistently demonstrate that metabolic and nutritional alterations play a significant role in the prognosis of patients with cardiovascular diseases

Palavras-chave: Cardiovascular Diseases; Nutritional Status; Sarcopeni; Heart Failure; Mortality.

AUTOCUIDADO NO DIABETES MELLITUS TIPO 1: DESAFIOS NA APLICAÇÃO DA RAZÃO CARBOIDRATO/INSULINA E DO FATOR DE SENSIBILIDADE EM AMBULATÓRIO INTERDISCIPLINAR

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RESUMO

Introduction: Type 1 Diabetes Mellitus (T1DM) is a chronic condition that requires intensive insulin therapy and active participation of patients and their caregivers in self-care to achieve adequate glycemic control. The carbohydrate-to-insulin ratio (ICR) and the correction factor (CF) are essential tools for adjusting prandial insulin and correcting glycemic fluctuations; however, their proper use remains challenging in clinical practice. **Objective:** To describe the experience of an interdisciplinary outpatient clinic in identifying barriers related to the use of ICR and CF in children and adolescents with T1DM. **Methods:** This is an experience report based on observations from routine clinical and educational activities at the Interdisciplinary Diabetes Center of the University of Marília (CENID/UNIMAR), a university-based specialized diabetes clinic. **Results:** A significant proportion of patients, even after receiving guidance from medical and nutrition teams, were unable to report their total daily insulin dose, demonstrated limitations in carbohydrate counting and insecurity in applying correction factors. Additional barriers included low educational level of caregivers-often parents or grandparents-disease denial, and difficulty understanding the need for glycemic adjustments outside main meals, such as snacks and physical activity. Continuous education, associated with interdisciplinary follow-up, proved essential for reinforcing guidance, along with the use of technological tools such as carbohydrate- counting mobile applications to support daily decision-making. Periodic educational actions enable the family to understand the dynamics of insulin therapy and reduce anxiety during treatment. These limitations reduce patient autonomy, increase insulin dosing errors, and hinder the achievement of individualized glycemic targets, directly impacting time in range, quality of life, and the risk of diabetes-related complications. **Conclusion:** Although ICR and CF are essential tools in T1DM management, their effectiveness depends on proper understanding, adherence, and continuous use

by patients and caregivers. Structured educational strategies, interdisciplinary approaches, and adaptation to patients' sociocultural context are fundamental to improving self-care and therapeutic outcomes.

Palavras-chave: Diabetes Mellitus Tipo 1 Autocuidado Insulinoterapia Educação Em Saúde Contagem De Carboidratos.

BOVINE ENDOMETRIAL dECM-BASED BIOMIMETIC SCAFFOLD FOR LPS-INDUCED INFLAMMATORY RESPONSE

Fabiola Stefani de Oliveira Ferreira / Roberta Mendes Ferreira Gonçalves; Rodrigo Paolo Flores Abuna

RESUMO

Introduction: Endometritis is a uterine disorder of major relevance in veterinary medicine, particularly in large female animals, because it directly compromises fertility and generates economic losses in animal production systems. Characterized by inflammation of the endometrium, this condition can impair embryo implantation and pregnancy maintenance. However, current experimental models still have limitations in reproducing the structural, cellular, and functional complexity of the endometrial microenvironment, restricting a deeper understanding of endometrial inflammatory responses. In this context, tissue bioengineering has emerged as a promising strategy for developing more representative in vitro models. The use of decellularized extracellular matrix (dECM) is particularly relevant because it may preserve key structural and biochemical components, such as collagens, glycoproteins, and proteoglycans, which regulate cell adhesion, proliferation, phenotype maintenance, and cell-matrix interactions. **Hypothesis:** A biomimetic three-dimensional scaffold incorporating decellularized bovine endometrial extracellular matrix will support the adhesion, viability, proliferation, and phenotype maintenance of bovine endometrial epithelial and stromal cells. Furthermore, after lipopolysaccharide stimulation, this model will reproduce selected molecular features of endometrial inflammation through the induction of pro-inflammatory cytokines. **Objective:** To develop a biomimetic three-dimensional endometrial model using decellularized extracellular matrix derived from bovine endometrium incorporated into a gel-based scaffold, and to evaluate its cellular behavior and inflammatory responsiveness after lipopolysaccharide stimulation. **Materials and Methods:** Bovine endometrial tissue will be decellularized to remove cellular and nuclear components while preserving the architecture and biochemical composition of the extracellular matrix. The resulting dECM will be characterized by histological analysis, genomic DNA quantification, scanning electron microscopy, and immunohistochemical evaluation of specific extracellular matrix proteins. Subsequently, the dECM will be processed and incorporated into a three-dimensional gel to generate a biomimetic scaffold suitable for endometrial cell culture. The dECM-based gel scaffold will be recellularized with bovine endometrial epithelial and stromal cells, allowing the construction of a model that better represents the endometrial microenvironment. Cell adhesion, viability, proliferation, phenotype maintenance, and cell-matrix interactions will be evaluated. Gene expression analysis by PCR will be used to assess endometrial phenotype and functional behavior. To evaluate inflammatory responsiveness, lipopolysaccharide will be used as an inducer of pro-inflammatory cytokine synthesis. This model will not aim to reproduce the complete inflammatory stage of endometritis, but rather to establish an in vitro platform capable of modeling selected molecular features of an LPS-induced endometrial inflammatory response. The production

of TNF- α , IL-1 β , and IL-6 will be analyzed by PCR and ELISA. Quantitative data will be analyzed according to the experimental design. Comparisons between two groups will be performed using Student's t-test, whereas comparisons among three or more groups will be analyzed by one-way ANOVA followed by Tukey's post hoc test, when applicable. Statistical significance will be set at $p < 0.05$. Expected Outcomes: The developed model is expected to reproduce key structural and cellular features of the bovine endometrial microenvironment and respond to LPS stimulation by inducing pro-inflammatory cytokines. Therefore, this biomimetic model may provide a relevant platform for studying epithelial-stromal interactions, cell-matrix responses, and inflammatory mechanisms associated with bovine endometrial inflammation.

Palavras-chave: Endometrium; Extracellular Matrix; Decellularization; Lipopolysaccharide; In Vitro Model.

CÂNCER DE MAMA EM PESSOAS TRANS: FATORES DE RISCO E DESAFIOS NO RASTREAMENTO

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RESUMO

O trabalho aborda os riscos de câncer de mama em pessoas transgênero, após determinado tempo de uso hormonal e/ou cirurgias, comparando com homens e mulheres cis gênero. Além de relatar os desafios de rastreamento dessa condição em pessoas transgênero.

Palavras-chave: Câncer De Mama; Riscos; Mulher Transgênero; Homem Transgênero.

CANINE AUTOIMMUNE HEMOLYTIC ANEMIA SECONDARY TO CHRONIC EHRLICHIOSIS: A CASE REPORT.

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RESUMO

Immune-mediated hemolytic anemia (IMHA) is a disease characterized by the lysis of erythrocytes by autoantibodies, which can occur primarily or secondarily, triggering significant systemic alterations and compromising tissue oxygenation. Canine ehrlichiosis is an infectious disease caused by the bacterium *Ehrlichia canis* and transmitted by the brown dog tick (*Rhipicephalus sanguineus*). Among the alterations developed by the disease are anemia and thrombocytopenia. Furthermore, ehrlichiosis can be classified as acute, with easy diagnosis and a good prognosis, and chronic, where diagnosis is difficult and the prognosis is guarded, potentially triggering autoimmune diseases. This paper aims to report the clinical case of a canine with hematological alterations compatible with immune-mediated hemolytic anemia and a confirmed diagnosis of

chronic ehrlichiosis, emphasizing the clinical and laboratory findings observed during veterinary care. The study followed ethical guidelines through a retrospective analysis of clinical records supported by a Free and Informed Consent Form (TCLE) signed by the owner. The patient was treated at the Veterinary Hospital of the University of Marília. She was a three-year-old mixed-breed female dog weighing 8 kg, presenting with anorexia for four days, in addition to episodes of yellowish vomiting and one episode of dark stools three days prior. On physical examination, the animal presented with elevated body temperature, tachycardia, tachypnea, and a capillary refill time of two seconds, estimated dehydration of 10%, pale mucous membranes, reactive submandibular lymph nodes, a body condition score of 5/9, and splenomegaly. Diagnostic methods included a complete blood count showing severe and progressive anemia, a strongly positive saline agglutination test, and a detectable IgG (Immunoglobulin G) Dot Blot serological test for *Ehrlichia* sp. The therapeutic protocol was instituted with Doxycycline 8mg/kg BID, Azathioprine 1mg/kg SID, Mycophenolate 10mg/kg BID, and Prednisolone 2mg/kg BID; however, due to intense hemolysis, the patient progressed to severe anemia, culminating in the animal's death. Therefore, it is concluded that the observed clinical and laboratory findings suggest a picture compatible with immune-mediated hemolytic anemia secondary to chronic ehrlichiosis, highlighting the importance of the association between physical examination and hematological evaluation for the diagnosis of the disease. Thus, early recognition of clinical signs and laboratory changes is fundamental for the rapid institution of therapy and improvement of the patient's prognosis.

Palavras-chave: Immune-mediated Hemolytic Anemia; Hemolysis; Splenomegaly; Blood Count; Dogs.

CARDIOVASCULAR RISK FACTORS OF HORMONE REPLACEMENT THERAPY IN POSTMENOPAUSAL WOMEN: A SYSTEMATIC REVIEW

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RESUMO

The menopausal transition increases cardiovascular disease (CDV) risk in women due to adverse metabolic changes. While estrogen hormone therapy (HT) may have favorable effects on glycemia and lipids, current evidence dictates that HT is not recommended for primary or secondary CVD prevention. Using HT for vasomotor symptom relief requires strict personalization, as cardiovascular risks vary significantly by formulation, dose and administration Route. Analyze the cardiovascular risk factors of hormone replacement therapy in women after the menopause. This is a systematic literature review encompassing articles from 2021 to 2026 from the PubMed (MEDLINE) database. In total, from the 15 previously selected articles, 10 were chosen using the descriptors "Menopause", "Hormone Therapy" and "Estrogen". Meta-analyses, systematic reviews and clinical trial in English were included, addressing cardiovascular manifestations in women under the use of estrogen HT. The results showed that oral estrogens contribute to improvements in metabolic parameters, such as lipids and glycemia. However, the association with progestogens may reduce the observed benefits. In addition, estrogens, when administered transdermally, are associated with a lower risk of thromboembolic events and stroke compared to oral estrogens. Clinical outcomes associated with hormonal use do not show a consistent relationship with dose. More specifically, although the use of oral estrogens is associated with a decrease in low-density lipoprotein cholesterol (LDL-C), with approximate reductions of 14.5 to 17.7 mg/dL, suggesting a

potential cardioprotective effect, an increase in triglyceride levels of 11.4 to 13.7 mg/dL was also observed, attributed to first-pass hepatic metabolism. Studies have shown that the use of estrogen plus medroxyprogesterone acetate led to an increased risk of heart disease, relative to estrogen alone. In addition, analyses have demonstrated that women who initiate hormone therapy with estrogen alone at a younger age are at lower risk of coronary artery disease compared to those who initiate later. Hormone therapy in postmenopausal women may improve glycemic and lipid parameters, but it should not be used for cardiovascular disease prevention. Cardiovascular effects vary according to formulation, route, timing, and progestogen use. Therefore, therapy must be individualized, prioritizing symptom relief and careful cardiovascular risk assessment

Palavras-chave: Menopause; Hormone Therapy; Estrogen.

CASE REPORT: CANINE EHRLICHIOSIS

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RESUMO

Canine ehrlichiosis is an infectious disease caused mainly by *Ehrlichia canis*, a gramnegative obligate intracellular bacterium transmitted primarily by the tick *Rhipicephalus sanguineus*. The disease is considered highly prevalent in small animal practice, especially in tropical and subtropical regions, and may present in acute, subclinical, or chronic phases. Clinical manifestations vary according to disease severity and may include fever, apathy, anorexia, weight loss, lymphadenomegaly, hemorrhagic disorders, anemia, thrombocytopenia, and ophthalmic or neurological alterations. Diagnosis is based on clinical findings associated with laboratory tests such as complete blood count, serological tests, and polymerase chain reaction (PCR), the latter being more effective in detecting the acute phase of the disease through identification of the agent's DNA. Treatment is primarily based on doxycycline associated with supportive therapy, and prognosis depends on the stage of the disease and the patient's clinical condition. This study aimed to present a literature review on canine ehrlichiosis and to report a clinical case monitored at the Veterinary Hospital of the University of Marília (UNIMAR). A six-month-old mixed-breed male dog weighing 8.4 kg was presented with anorexia and adipsia for five days, vomiting, respiratory distress, and bilateral ocular discharge. Clinical examination revealed hyperthermia, apathy, pustular skin lesions, corneal opacity in the left eye, and low body condition score. Complementary examinations were performed, including complete blood count, biochemical profile, rapid test for distemper, and PCR for ehrlichiosis. Hematological findings demonstrated normocytic normochromic anemia, eosinopenia, monocytopenia, and thrombocytosis. The rapid distemper test was negative, while PCR confirmed infection by *Ehrlichia canis*. The patient received supportive treatment with fluid therapy, antiemetics, gastric protectants, analgesics, probiotics, antibiotics, and nebulization, followed by a therapeutic protocol for hemoparasitosis. During clinical follow-up, improvement in the general condition was observed; however, progression of the corneal opacity suggested persistent uveitis, requiring ophthalmic therapy with a steroidal anti-inflammatory drug. The reported case reinforces the importance of early diagnosis, appropriate complementary testing,

and proper treatment of canine ehrlichiosis, while also highlighting the relevance of clinical follow-up in academic training and veterinary patient management.

Palavras-chave: Canine Ehrlichiosis; Ehrlichia Canis; Hemoparasitosis; Veterinary Medicine; Case Report.

CELIAC DISEASE IN PATIENTS WITH TYPE 1 DIABETES MELLITUS: IMPORTANCE OF EARLY SCREENING AND CLINICAL IMPACT

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RESUMO

Introduction: Type 1 Diabetes Mellitus (T1DM) is an autoimmune disease frequently associated with other immune-mediated disorders, especially Celiac Disease (CD). The prevalence of CD in pediatric patients with T1DM is significantly higher than in the general population, mainly due to shared genetic susceptibility related to HLA-DQ2 and HLA-DQ8 haplotypes. Most patients are asymptomatic or present nonspecific manifestations, making early screening essential to prevent long-term complications. **Objective:** To review the scientific literature regarding the association between Type 1 Diabetes Mellitus and Celiac Disease in pediatric patients, emphasizing the importance of early screening and its clinical impact. **Methods:** This is a narrative literature review conducted using articles indexed in PubMed, SciELO, and LILACS databases. The descriptors “Type 1 Diabetes Mellitus”, “Celiac Disease”, “Children”, “Pediatrics”, and “Autoimmune Diseases” were used. Clinical studies, review articles, and current guidelines addressing screening, diagnosis, and clinical management of CD in pediatric patients with T1DM were included. **Results:** The prevalence of CD in patients with T1DM ranges from 1.6% to 16.4%, which is considerably higher than in the general population. Most pediatric patients present silent or subclinical forms of the disease, reinforcing the importance of systematic screening. Current guidelines recommend screening at the diagnosis of T1DM and periodic reassessment, especially during the first years after diagnosis. Serological evaluation with anti-tissue transglutaminase IgA antibodies associated with total IgA measurement remains the preferred screening method. Early diagnosis and gluten-free diet adherence contribute to improved nutritional status, growth, and prevention of complications such as osteoporosis and delayed puberty. However, it doesn’t contribute to improved glycemic control. **Conclusion:** Early screening for Celiac Disease in pediatric patients with Type 1 Diabetes Mellitus is fundamental due to the high prevalence of asymptomatic cases and the potential clinical repercussions of delayed diagnosis. Multidisciplinary follow-up and continuous monitoring are essential to improve quality of life and clinical outcomes in this population.

Palavras-chave: Celiac Disease; Pediatrics; Diabetes Mellitus Type 1; Mass Screening; Autoimmune Diseases.

CEREBRAL VASCULAR COMPLICATIONS IN TUBERCULOUS MENINGITIS ON MRI AND MRA/MRV: NARRATIVE REVIEW.

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RESUMO

Introduction. Tuberculous meningitis (TBM) is the most severe form of extrapulmonary tuberculosis and may cause death or long-term neurological disability, especially when diagnosis and treatment are delayed. Basal meningeal inflammation and exudate can compromise cerebral vessels, leading mainly to arterial vasculitis with stenosis/occlusion and ischemic stroke, and less frequently to venous involvement such as cerebral venous sinus thrombosis (CVST). Brain magnetic resonance imaging (MRI) combined with magnetic resonance angiography/venography (MRA/MRV) enables integrated assessment of meningeal, parenchymal, and vascular manifestations; however, published protocols vary in sequence selection, contrast use, angiographic technique, and reporting of acquisition details, which can affect sensitivity and interpretation. **Objective.** To synthesize recent literature on the application of brain MRI and MRA/MRV in TBM, focusing on vascular complications and practical protocol aspects, including useful sequences, acquisition parameters (when reported), technical limitations, and clinical implications. **Methods.** Narrative literature review with structured searches in PubMed/MEDLINE and LILACS/BVS (January 2020 to April 2026) using terms related to TBM, MRI, MRA, MRV, post-contrast FLAIR, DWI/ADC, vasculitis/stenosis/stroke, and CVST; search strings and dates were recorded, and predefined eligibility criteria were applied. Reviews (narrative and systematic), observational studies, and case series describing MRI/MRA/MRV findings and/or acquisition details were included. **Results.** Across studies, contrast-enhanced MRI commonly demonstrates basal leptomeningeal enhancement and may show hydrocephalus and inflammatory lesions; conventional T1/T2 and FLAIR sequences support anatomical assessment, while pre-contrast FLAIR can help identify meningeal/exudative signal changes and CSF-related abnormalities. Diffusion-weighted imaging (DWI/ADC) is frequently highlighted for early detection of small ischemic infarcts associated with tuberculous vasculitis. Post-contrast FLAIR is frequently described as improving visualization of basal cisternal/leptomeningeal enhancement because vessels enhance less, increasing the contrast between meninges and vascular structures. Susceptibility-weighted imaging (SWI) or T2*-weighted sequences may assist in evaluating hemorrhagic components in selected cases. On vascular imaging, MRA (time-of-flight or contrast-enhanced) often shows arterial irregularity, multifocal narrowing, or occlusion associated with ischemic lesions; major pitfalls include flow-related signal loss and overestimation of stenosis in slow flow. MRV (time-of-flight or contrast-enhanced) can demonstrate venous sinus thrombosis but requires careful interpretation because common anatomical variants (e.g., hypoplasia or atresia, particularly of the left transverse sinus) and slow flow can mimic thrombosis; correlation with structural images (T2/FLAIR and SWI) and evaluation in multiple planes help reduce misclassification. **Conclusion.** MRI combined with MRA/MRV supports early recognition of both parenchymal and vascular complications in TBM and can inform clinical assessment. The evidence supports a practical “minimum” protocol (contrast MRI with DWI, adding targeted MRA/MRV when vascular complications are suspected) and an “extended” protocol with optimized angiography and advanced sequences when needed to improve characterization and reduce interpretative pitfalls.

Palavras-chave: Tuberculous Meningitis Magnetic Resonance Imaging MR Angiography MR Venography Stroke.

CHANGES IN ORAL HEALTH IN PATIENTS AFTER BARIATRIC SURGERY.

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RESUMO

Introduction: Obesity is considered a multifactorial chronic disease associated with several systemic comorbidities, with bariatric surgery being one of the main therapeutic alternatives for the treatment of morbid obesity and improvement of individuals' quality of life. Despite the metabolic benefits and the reduction of associated diseases, alterations resulting from bariatric surgery can negatively impact oral health due to physiological, dietary, and gastrointestinal changes observed in the postoperative period. Among the main repercussions described are periodontal disease, dental erosion, xerostomia, hyposalivation, gastroesophageal reflux, dental hypersensitivity, and alterations in the oral microbiota. Furthermore, nutritional deficiencies resulting from malabsorption of vitamins and minerals can compromise bone and dental structures, reinforcing the need for multidisciplinary follow-up for these patients. **Objective:** To analyze the main repercussions of bariatric surgery on oral health, highlighting the most frequent oral changes observed in the postoperative period. **Materials and Methods:** This is a narrative literature review based on scientific articles published in the PubMed, SciELO, LILACS, and Virtual Health Library databases. Observational studies, integrative reviews, and systematic reviews published between 2009 and 2025, in Portuguese and English, were included. The descriptors used were: "bariatric surgery," "oral health," "dentistry," "dental erosion," "periodontal disease," and "salivary flow." **Results:** The analyzed studies demonstrated that patients undergoing bariatric surgery have a greater predisposition to developing significant oral alterations. Gastroesophageal reflux and frequent episodes of vomiting were associated with increased erosion and tooth wear due to recurrent exposure of the teeth to gastric acid. Salivary alterations, such as hyposalivation and xerostomia, were also frequently observed, favoring the development of dental caries and oral discomfort. Studies have pointed to an increased prevalence of periodontal disease after bariatric surgery, associated with both systemic inflammatory conditions and metabolic and nutritional alterations resulting from the procedure. Furthermore, post-surgical dietary changes, such as increased meal frequency and higher consumption of soft and acidic foods, contribute to the worsening of oral conditions. Alterations in the salivary and oral microbiome have also been described, indicating a possible microbial imbalance related to post-bariatric surgery. Deficiencies in calcium, vitamin D, iron, and vitamin B12 can compromise bone metabolism and promote tooth loss and rehabilitation difficulties. Despite the systemic benefits of bariatric surgery, several studies show a significant negative impact on oral health and oral health-related quality of life in patients. **Conclusion:** Bariatric surgery has significant repercussions on oral health, including dental erosion, periodontal disease, hyposalivation, xerostomia, salivary changes, and an increased risk of dental caries. These changes are mainly related to gastroesophageal reflux, dietary changes, and

nutritional deficiencies resulting from the surgical procedure. Therefore, integrated dental follow-up with a multidisciplinary team is essential for the prevention, early diagnosis, and treatment of oral alterations in bariatric patients.

Palavras-chave: Bariatric Surgery Oral Health Dental Erosion Periodontal Disease Salivary Flow.

CHILDHOOD OBESITY: THE IMPACT OF ULTRA- PROCESSED FOODS ON METABOLIC ALTERATIONS AND INSULIN RESISTANCE

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RESUMO

Introduction: The increased consumption of ultra-processed foods during childhood has been associated with significant metabolic alterations, especially insulin resistance, due to the high intake of simple sugars and fats. **Objectives:** To analyze the relation between the continuous consumption of ultra-processed foods and the development of childhood obesity, with emphasis on metabolic alterations and insulin resistance. **Materials and Methods:** This is a narrative literature review conducted through searches in the PubMed and Google Scholar databases, using descriptors such as “childhood obesity,” “child metabolism,” “ultra-processed foods,” and “insulin resistance.” Studies published within the last 10 years in Portuguese, Spanish, and English were included. **Results:** Most of the analyzed studies indicate that diets high in ultra-processed foods promote a positive energy balance, contributing to adipose tissue accumulation. High sugar intake leads to frequent episodes of hyperglycemia, resulting in compensatory increases in insulin secretion. Chronic exposure to this condition may lead to hyperinsulinemia and reduced tissue sensitivity to insulin, characterizing insulin resistance—a condition associated with a higher risk of obesity and other metabolic dysfunctions in childhood. **Conclusion:** Frequent consumption of ultra-processed foods is associated with the development of childhood obesity and metabolic alterations, including insulin resistance. These findings reinforce the need for nutritional education strategies, as well as the implementation of preventive measures and early interventions aimed at promoting healthy habits during childhood.

Palavras-chave: Childhood Obesity Metabolism Ultra-processed Foods Insulin Resistance.

CONFIABILIDADE INTRA-AVALIADOR DAS MEDIDAS DE PICO DE FLUXO EXPIRATÓRIO EM PACIENTES HOSPITALIZADOS

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RESUMO

Introdução: O Pico de Fluxo Expiratório (PFE) é uma medida simples e amplamente utilizada para avaliar a função respiratória e monitorar alterações no fluxo aéreo. Em ambiente hospitalar, sua aplicação pode auxiliar na tomada de decisão clínica e no acompanhamento da evolução dos pacientes. No entanto, a confiabilidade intra-avaliador dessas medidas em pacientes hospitalizados ainda necessita maior investigação, considerando possíveis variações relacionadas ao estado

clínico. Objetivos: Verificar a confiabilidade intra-avaliador do PFE em pacientes hospitalizados. Métodos: Trata-se de um estudo transversal e analítico aprovado pelo Comitê de Ética em Pesquisa (CEP), sob o CAAE nº 53379021.4.0000.5504. Foram incluídos pacientes adultos hospitalizados de ambos os sexos. A avaliação do PFE foi realizada utilizando um Peak Flow, no qual cada participante executou três manobras expiratórias forçadas a partir da capacidade pulmonar total, com intervalo de cinco minutos de repouso entre elas. A confiabilidade intra-avaliador foi analisada por meio do Coeficiente de Correlação Intraclasse (CCI), utilizando modelo misto de dois fatores com concordância absoluta, considerando o intervalo de confiança de 95% (IC95%). A análise estatística foi realizada no software estatístico IBM SPSS Statistics versão 20. Resultados: A amostra foi composta por 40 pacientes, com idade média de 52 ± 17 anos. Houve predominância do gênero feminino ($n = 30$, 75,0%). A análise de confiabilidade revelou uma concordância excelente entre as três manobras realizadas. O valor obtido para o Coeficiente de Correlação Intraclasse (CCI) médio foi de 0,925 (IC95%: 0,867 - 0,959; $p < 0,001$). O CCI para medidas individuais também apresentou magnitude elevada (CCI = 0,804; $p < 0,001$). A consistência interna, verificada pelo Alfa de Cronbach, foi de 0,931, evidenciando alta estabilidade das medidas coletadas. Conclusões: As medidas de PFE apresentaram excelente confiabilidade intra-avaliador na população estudada. Os resultados demonstram que o instrumento e o protocolo de coleta utilizado são altamente reprodutíveis, garantindo a estabilidade dos dados para a avaliação da função respiratória e reforçando sua utilização como marcador clínico em pacientes hospitalizados.

Palavras-chave: Pico De Fluxo Expiratório; Confiabilidade; Intra-Avaliado; Alfa De Cronbac; Coeficiente De Correlação Intraclasse.

CONTAGIOUS OVINE PODODERMATITIS (FOOTTROT) WITH SEPTIC EVOLUTION AND SECONDARY PNEUMONIA: CASE REPORT.

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RESUMO

Contagious ovine pododermatitis, also known as footrot, is an infectious disease of great importance to sheep farming. It is mainly caused by the synergistic action between *Dichelobacter nodosus* and *Fusobacterium necrophorum*. While *F. necrophorum* initially causes inflammation and lesions in the interdigital region, *D. nodosus* plays a fundamental role in the disease's progression, as it produces enzymes that degrade the horny tissue of the hooves. The combination of these agents intensifies the inflammatory process, favoring tissue necrosis, intense pain, and difficulty in locomotion. Besides directly affecting animal welfare, the disease also causes sanitary, productive, and economic losses to flocks. Its occurrence is mainly linked to environments with high humidity, accumulation of organic matter, failures in the hygiene of facilities, and inadequate sanitary management. Ethical considerations were respected as this was a retrospective study of routine clinical records, authorized by the guardian through the signing of the Informed Consent Form (ICF). A male Texel sheep, approximately six years old, was monitored. It presented with

severe lameness, difficulty walking, and progressive deterioration of its general condition. During the clinical evaluation, laboratory tests were performed, including a complete blood count and serum biochemical profile. The first blood count revealed leukocytosis due to neutrophilia with a non-graded regenerative left shift, consistent with an active inflammatory and infectious process. After one week, the second blood count showed improvement in the leukogram, with leukocytosis due to neutrophilia without a left shift, but with evident thrombocytosis. The serum biochemical evaluation did not identify significant alterations. Despite therapeutic interventions and continuous clinical monitoring, the animal presented progressive worsening of its clinical condition, evolving into sepsis. Subsequently, respiratory compromise compatible with secondary pneumonia was observed, associated with the animal's debilitated state, which remained for long periods in lateral recumbency due to intense lameness and difficulty walking. The condition was accompanied by marked clinical deterioration and unfavorable evolution, culminating in the sheep's death. The observed findings demonstrate the high capacity for systemic progression of contagious pododermatitis when not adequately controlled, highlighting the importance of early diagnosis, immediate therapeutic intervention, and the adoption of efficient prophylactic measures in breeding systems. Furthermore, this report reinforces the relevance of clinical and laboratory monitoring in evaluating the evolution of the disease and its possible systemic complications in affected sheep.

Palavras-chave: Contagious Ovine Pododermatitis; Footrot; Lameness; Decubitus Pneumonia.

DECELLULARIZATION OF EQUINE AURICULAR CARTILAGE TO OBTAIN A CARTILAGINOUS BIOSCAFFOLD

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RESUMO

Introduction: Articular cartilage lesions represent a major challenge in medicine due to the low capacity for self-repair and progression to osteoarthritis, a chronic, progressive, and disabling disease. Data from the Brazilian Unified Health System (SUS) recorded 65,602 hospital admission authorizations for total knee arthroplasty, with a reported total expenditure of approximately R\$ 271,297,010.60 between 2012 and 2021. In the search for effective and accessible therapeutic alternatives, tissue engineering has explored the use of acellular scaffolds derived from the extracellular matrix (ECM). In this context, equine auricular cartilage stands out as an abundant and promising raw material. The decellularization process eliminates the risk of immune rejection while preserving essential structural components that mimic native cartilage and stimulate functional tissue regeneration. **Objectives:** To establish a decellularization protocol for equine auricular cartilage and to evaluate the structural integrity of the ECM. **Material and Methods:** This is an in vitro (ex vivo) experimental study focused on tissue engineering. Equine auricular cartilage, donated by a commercial abattoir, was subjected to two protocols. Protocol 1 (P1) used fragments (1×1 cm) treated with SDS (1%) and Triton X-100 (1%) combined with ultrasonic vibration for up to 20 days. Protocol 2 (P2) used smaller fragments (0.5×0.5 cm) with trypsin-EDTA pretreatment, followed by exposure to SDS, NaOH (0.2 N), and Triton X-100 for up to 10 days, subdivided into groups with (P2G2) and without (P2G1) ultrasonic vibration. Monitoring included histological evaluation, genomic DNA quantification, and scanning electron microscopy (SEM). **Results:** P1 demonstrated a discrete cellular reduction but failed to achieve complete decellularization within 20 days. In P2, the decellularization kinetics were evaluated at 3, 5, and 10 days. Analyses

demonstrated that complete cell removal was achieved in just 3 days (P2G1 and P2G2), maintaining the integrity of the tissue scaffold. Histology and SEM confirmed the absence of cell bodies and the presence of empty lacunae, with the cartilaginous surface remaining intact. Nevertheless, it was observed that prolonged exposure to chemical agents for 5 and 10 days resulted in progressive damage and degradation of the ECM architecture. Genomic DNA (gDNA) quantification confirmed the efficacy of P2 at 3 days, reducing the concentration from 198.6 ng/mg (native tissue) to 5.71 ng/mg (P2G1) and 14 ng/mg (P2G2), values significantly below the standard threshold of 50 ng/mg. Conclusion: P2G1 was established as a rapid, highly effective, and optimized method for the decellularization of equine auricular cartilage. It ensures the achievement of ideal standards for genomic DNA removal while preserving the main structural proteins of the ECM, rendering the tissue a promising scaffold for clinical applications in tissue engineering and regenerative medicine.

Palavras-chave: Cartilage; Ear Cartilage; Extracellular Matrix; Medicine Regenerative; Tissue Scaffolds.

DECELLULARIZATION OF THE BOVINE MAMMARY GLAND: STRUCTURAL AND BIOCHEMICAL CHARACTERIZATION OF THE EXTRACELLULAR MATRIX FOR TISSUE ENGINEERING APPLICATIONS

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RESUMO

Tissue engineering based on decellularized extracellular matrix (dECM) has emerged as a promising strategy for reconstructing biomimetic microenvironments capable of preserving the structural architecture and biochemical signs of native tissues. The bovine mammary gland represents a highly relevant experimental model due to its morphofunctional similarity to human mammary tissue, exhibiting substantial potential for the development of bioactive scaffolds applicable to three-dimensional culture systems and regenerative medicine. The present study aimed to standardize, optimize, and validate a decellularization protocol for the bovine mammary gland, as well as to perform an integrated structural and biochemical characterization of the resulting dECM. Bovine mammary gland fragments (1 × 0.5 cm) were subjected to three decellularization protocols employing different sodium dodecyl sulfate (SDS) concentrations (0.1%, 0.5%, and 1%), followed by treatment with 1% Triton X-100 under constant agitation for 12 days (80 rpm). Decellularization efficiency was assessed through macroscopic and histological analyses, DAPI immunofluorescence, genomic DNA quantification, scanning electron microscopy (SEM), and immunohistochemical (IHC) evaluation of key extracellular matrix proteins. dECM biocompatibility was investigated using an indirect cytotoxicity assay with extracts derived from wet and lyophilized dECM fragments previously sterilized through graded ethanol exposure (70%, 80%, 90%, and 100%) followed by ultraviolet irradiation. The protocol employing 1% SDS combined with 1% Triton X-100 demonstrated superior cellular removal efficiency, yielding translucent dECM fragments with extensive nuclear depletion confirmed by DAPI and

hematoxylin-eosin staining, as well as a marked reduction in genomic DNA content (4.14 ng/mg), below the established immunogenicity threshold of 50 ng/mg tissue. Simultaneously, preservation of extracellular matrix architecture was observed, including maintenance of collagen fibers (types I, III, and IV), fibronectin, and elastin, as demonstrated by IHC analyses, whereas Alcian Blue staining revealed a partial reduction in glycosaminoglycan content. SEM analysis confirmed preservation of the native three-dimensional ultrastructure, characterized by a porous fibrillar network potentially favorable for nutrient diffusion in three-dimensional cell culture applications. Biocompatibility assays demonstrated fibroblastic cell adhesion and proliferation, suggesting the absence of cytotoxic residuals and preservation of matrix associated bioactive properties supporting cell-matrix interactions. Collectively, these findings demonstrate that the optimized protocol employing 1% SDS and 1% Triton X-100 enabled the generation of an architecturally preserved and biologically functional dECM with high biomimetic potential for subsequent recellularization and hydrogel production, supporting future applications in 3D bioprinting models of the mammary gland and contributing to advances in lactation physiology research and translational regenerative medicine.

Palavras-chave: Decellularization; Bovine Mammary Gland; Decellularized Extracellular Matrix; Tissue Engineering 3D Model.

DESEQUILÍBRIO ENTRE ADIPOCINAS PROTETORAS E INFLAMATÓRIAS NA HOMEOSTASE METABÓLICA DO DIABETES TIPO 2

Maria Clara Sangueta / Emanueli Salvador Presa; Márcia Rocha Gabaldi

RESUMO

RESUMO INTRODUÇÃO: O tecido adiposo funciona como um órgão endócrino ativo na regulação da sensibilidade à insulina. Por meio da secreção de adipocinas, ele estabelece uma comunicação sistêmica complexa que molda a sinalização da insulina nos tecidos periféricos, como músculo e fígado. Há evidências crescentes de que a disfunção endócrina desse tecido, caracterizada por um estado inflamatório crônico de baixa intensidade, é fundamental para a falha da homeostase glicêmica na Diabetes Mellitus Tipo 2 (DM2). Assim, a transição de um perfil secretor protetor para um fenótipo pró-inflamatório contribui diretamente para um colapso metabólico sistêmico. **OBJETIVO:** Analisar as evidências sobre o impacto da desregulação das adipocinas na homeostase metabólica do DM2, explorando os mecanismos moleculares que ligam a disfunção adipocitária à resistência insulínica e à falha das células beta pancreáticas. **METODOLOGIA:** A presente investigação constitui uma revisão integrativa da literatura, com abordagem qualitativa e descritiva. A coleta de dados foi realizada por meio do levantamento de evidências científicas indexadas nas bases de dados PubMed e SciELO, abrangendo o período de 2024 a 2026. A estratégia de busca incluiu artigos nos idiomas português e inglês, utilizando descritores MeSH/DeCS como "Adipocinas", "Diabetes Tipo 2", "Asprosina" e "Homeostase". Foram aplicados critérios de inclusão focados em estudos que abordassem detalhadamente os mecanismos de sinalização celular e os biomarcadores de disfunção metabólica estritamente associados ao fenótipo do Diabetes Mellitus tipo 2, permitindo uma análise comparativa dos resultados encontrados. **RESULTADOS:** Os resultados demonstram que o DM2 deve ser compreendido como uma consequência da falha de sinalização endócrina do tecido adiposo. Nesse sentido a redução severa da adiponectina está diretamente ligada à falha na fosforilação do receptor

de insulina, enquanto o aumento de adipocinas pró-inflamatórias, como a resistina e RBP4, induz estresse do retículo endoplasmático nas células beta pancreáticas. Evidências recentes destacam que a modulação de novas adipocinas, como a asprosin, uma adipocina glicogênica que atua no fígado estimulando a liberação de glicose na circulação, em níveis elevados correlaciona-se com picos de hiperglicemia de jejum, tornando-se um alvo promissor para o desenvolvimento de novos fármacos antidiabéticos que visam restaurar a sensibilidade à insulina sem causar episódios de hipoglicemia. **CONCLUSÃO:** Conclui-se que o DM2 deve ser compreendido como uma consequência da falha na sinalização endócrina do tecido adiposo e não apenas uma doença do pâncreas ou do receptor de insulina. Restaurar o equilíbrio entre as adipocinas inflamatórias e protetoras é uma abordagem crucial para o controle glicêmico e a prevenção de complicações microvasculares a longo prazo. O entendimento desses mecanismos moleculares permite o desenvolvimento de estratégias terapêuticas personalizadas e eficazes para o manejo do tratamento da doença.

Palavras-chave: Adipocinas Diabetes Tipo 2 Asprosin Homeostase.

DETERIORAÇÃO CLÍNICA DA CRIANÇA ONCOLÓGICA: APLICAÇÃO DA FERRAMENTA BRIGHTON PAEDIATRIC EARLY WARNING SCORE (BPEWS-BR).

Luana Rodrigues da Silva

RESUMO

Trata-se de um recorte da dissertação de tese de mestrado cujo está em desenvolvimento. A pesquisa foi aprovada pelo Comitê de Ética e Pesquisa da Universidade Estadual de Londrina. Trata-se de um estudo retrospectivo, com abordagem quantitativa, realizado por meio de prontuários e banco de dados eletrônicos do Hospital no Norte do Paraná. A coleta de dados contemplou a análise dos registros de crianças que estiveram internadas na unidade de terapia intensiva pediátrica e a aplicação retrospectiva da escala Brighton Paediatric Early Warning Score adaptada para a oncopediatria, qual identifica a deterioração clínica precoce da criança oncológica.

Palavras-chave: Unidade De Terapia Intensiva Pediátrica Oncologia Pediátrica Brighton Paediatric Early Warning Score.

DEVELOPMENT OF A BIOMIMETIC TESTICULAR SCAFFOLD MODEL TO INVESTIGATE ADIPOCYTE DERIVED PARACRINE EFFECTS ON OBESITY-ASSOCIATED HYPOGONADISM.

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RESUMO

Introduction: Male hypogonadism is a condition characterized by insufficient testicular function, particularly reduced testosterone production, leading to hormonal, metabolic, and reproductive alterations. Obesity has emerged as a contributing factor to this condition, since excessive adipose tissue accumulation promotes the release of inflammatory mediators, adipokines, and metabolic

signals capable of impairing testicular function, mainly through reduced steroidogenesis and inflammatory dysregulation of the testicular microenvironment. However, the mechanisms by which adipose tissue negatively affects testicular cells remain incompletely understood, partly due to the limitations of conventional two-dimensional culture systems, which do not adequately reproduce the three-dimensional architecture, extracellular matrix composition, and cell-matrix interactions present in the native testicular niche. Hypothesis: A biomimetic three-dimensional scaffold derived from decellularized canine testicular extracellular matrix can support testicular somatic cells and partially reproduce key aspects of the native testicular microenvironment. Moreover, soluble factors released by differentiated adipocytes will induce a partial hypogonadal-like phenotype in this model, characterized by impaired steroidogenic activity, inflammatory activation, and altered cell-matrix interactions. Objective: This study aims to develop a biomimetic three-dimensional in vitro model of obesity-associated male hypogonadism using decellularized canine testicular extracellular matrix scaffolds recellularized with testicular somatic cells, and to evaluate the indirect paracrine effects of differentiated adipocytes on this biomimetic testicular microenvironment. Materials and Methods: Canine testicular extracellular matrix will be obtained under UNIMAR Ethics Committee protocol 15/2026 and decellularized to produce biomimetic three-dimensional scaffolds that preserve important structural and biochemical components of native testicular tissue. These scaffolds will be recellularized with testicular somatic cells, particularly Sertoli and Leydig cells, to partially reconstruct the functional somatic compartment of the testicular niche. To model obesity-associated hypogonadal dysfunction, differentiated adipocytes will be cultured in Transwell® inserts. This system will allow soluble factors released by adipocytes to act indirectly on the recellularized testicular scaffolds, without direct cell-to-cell contact. Therefore, the model will specifically evaluate the paracrine effects of adipocytes on the biomimetic testicular microenvironment. Functional validation will include testosterone quantification, gene expression analysis of steroidogenic, inflammatory, and testicular functional markers, as well as morphological and cell viability assessments. This model is not intended to reproduce complete spermatogenesis, but to mimic selected features of hypogonadal dysfunction, mainly impaired steroidogenesis, inflammatory activation, and altered cell-matrix interactions. Quantitative data will be analyzed according to the experimental design. Comparisons between two groups will be performed using Student's t-test, while comparisons among three or more groups will be analyzed by one-way analysis of variance, followed by Tukey's post hoc test when applicable. Statistical significance will be set at $p < 0.05$. Expected outcomes: The decellularized testicular matrix will provide a biomimetic scaffold capable of supporting the adhesion, viability, and organization of Sertoli and Leydig cells. Exposure to adipocyte-derived soluble factors is expected to induce a partial hypogonadal-like phenotype, characterized by reduced testosterone production, altered expression of steroidogenic and testicular functional markers, increased inflammatory signaling, and changes in cell viability or morphology. Therefore, this approach may provide a controlled 3D platform to investigate the indirect effects of adipocytes on testicular function under obesity-related conditions.

Palavras-chave: Hypogonadism Obesity Testicular Scaffold Decellularized Extracellular Matrix Tissue Engineering.

DEVELOPMENT OF A PROTEIN-ENRICHED ICE CREAM FOR PATIENTS UNDERGOING CANCER TREATMENT

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RESUMO

Cancer is one of the diseases with the greatest impact on public health worldwide. Despite advances in oncological therapies, the disease still represents a major challenge for healthcare systems. According to the International Agency for Research on Cancer, there were approximately 20 million new cancer cases worldwide. In Brazil, an estimated 704,000 new cases were reported (National Cancer Institute, 2023). In the country, cancer remains among the leading causes of illness and death, requiring attention from the Brazilian Unified Health System due to the challenges faced by oncology patients in maintaining quality of life during treatment. Among the main challenges of cancer treatment, sarcopenia and oral mucositis stand out. These conditions compromise food intake, quality of life, and therapeutic efficacy. In this context, nutritional strategies, such as the development of a protein-enriched ice cream associated with oral cryotherapy, may help preserve muscle mass and reduce discomfort caused by mucositis. Thus, a combined approach integrating nutritional support and cryotherapy could positively impact the quality of life of patients undergoing cancer treatment. Given the above, the present project aims to develop and characterize a high-protein ice cream formulation directed toward the nutritional needs of cancer patients undergoing chemotherapy. The hypothesis of this study is that the formulation will present adequate nutritional composition and microbiological safety, in addition to promoting increased protein intake, potentially contributing to the prevention of sarcopenia and the reduction of oral discomfort associated with mucositis in oncology patients undergoing chemotherapy. This is an experimental study with a quantitative approach. The ice cream formulation will be developed using a high-protein nutritional supplement providing 18 g of protein

per serving, enriched with omega-3, leucine, and minerals, in addition to conventional ingredients such as milk, coconut oil, stabilizers, emulsifiers, honey, and flavoring agents. Proximate composition analyses will be performed, including determination of protein, lipid, carbohydrate, and ash contents, as well as microbiological analyses to evaluate sample quality according to standardized methodologies established by the Adolfo Lutz Institute. It is expected that a high-protein ice cream suitable for the nutritional needs of patients undergoing cancer treatment will be developed. The product should present a balanced nutritional composition and microbiological safety. It is also expected that its consumption will contribute to increased protein intake, assisting in the prevention of sarcopenia. Furthermore, the low temperature and protein supplementation may help reduce the severity of mucositis. Therefore, the formulation has the potential to improve the quality of life of these patients.

Palavras-chave: Oncology Patients; Sarcopenia; Oral Mucositis; Frozen Dessert Technology.

DIAGNÓSTICO DE BARTONELOSE FELINA, DESAFIO NA ROTINA CLÍNICA - RELATO CLÍNICA

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RESUMO

A bartonelose é causada pela bactéria *Bartonella* spp., um bacilo gram negativo de grande importância na medicina veterinária devido ao seu alto potencial zoonótico, uma vez que é transmitida para humanos por mordedura e arranhaduras, e à variedade de manifestações clínicas no hospedeiro. Nos felinos a bactéria parasita eritrócitos e células endoteliais causando bacteremia prolongada e consequentemente acometimento sistêmico. O diagnóstico da bartonelose felina representa um desafio na rotina clínica devido aos sinais clínicos inespecíficos apresentados pelos animais acometidos. Métodos complementares avançados, como sorologia e reação em cadeia da polimerase (PCR), são ferramentas indispensáveis para confirmação diagnóstica e planejamento terapêutico. Ademais, a prevenção da doença está diretamente relacionada ao manejo sanitário adequado e ao controle de ectoparasitas no ambiente e nos animais. O presente estudo objetiva relatar um caso clínico de bartonelose em um felino sem raça definida (SRD), fêmea, de três anos de idade, atendido em um hospital veterinário no município de Marília com histórico de apatia, anorexia e episódios de emese. Os sinais clínicos inespecíficos apresentados pelo paciente dificultaram o diagnóstico inicial, uma vez que a enfermidade pode manifestar-se de forma subclínica ou associada a alterações multissistêmicas. Dessa forma, foram realizados exames laboratoriais de hemograma e bioquímicos apresentando-se dentro da normalidade, exames de imagem que indicaram alterações hepáticas sugestivas de lipidose, lama biliar, esplenomegalia e realizou-se PCR de: *Cryptococcus* sp., *Salmonella* sp., Panleucopenia Felina, Fiv (Vírus da Imunodeficiência Felina), *Mycoplasma* sp., Calicivírus felino, Coronavírus felino, *Anaplasma* spp., FeLV (Vírus de Leucemia Felina), *Cytauxzoon* spp. e *Bartonella* spp. sendo detectável somente para o último patógeno. A conduta terapêutica instituída incluiu tratamento de suporte como fluidoterapia com ringer com lactato, Mirtazapina, Ondansetrona, Dipirona, Doxiciclina e Promum defense pasta®, ocorrendo melhora do paciente e alta hospitalar. Sendo assim, conclui-se que a bartonelose deve ser considerada como diagnóstico diferencial em felinos que apresentem acometimento sistêmico e sinais clínicos inespecíficos, ressaltando a importância do diagnóstico

precoce, da terapia adequada e das medidas preventivas para melhor prognóstico e redução do risco zoonótico.

Palavras-chave: Bartonelose; Felinos; Zoonose; Epidemiologia; Saúde única.

DIARREIA NEONATAL EM BEZERRAS LEITEIRAS: REVISÃO DE LITERATURA ASSOCIADA À OBSERVAÇÃO TÉCNICA NA FAZENDA EXPERIMENTAL DA UNIVERSIDADE DE MARÍLIA

Rafaela Moreira Mendes / Luísa Fernandes Simões

RESUMO

A diarreia neonatal em bezerras leiteiras constitui uma das principais enfermidades que acometem animais nas primeiras semanas de vida, sendo responsável por elevados índices de morbidade e mortalidade, além de comprometer o bem-estar animal e a produtividade dos sistemas de produção leiteira. Trata-se de uma síndrome de etiologia multifatorial, associada à interação entre fatores imunológicos, nutricionais, ambientais e infecciosos, envolvendo agentes patogênicos como *Escherichia coli*, *Salmonella* spp., rotavírus, coronavírus bovino e protozoários do gênero *Eimeria*. Além dos prejuízos sanitários, a enfermidade ocasiona perdas econômicas significativas relacionadas aos custos com tratamentos, atraso no desenvolvimento e mortalidade dos animais. O presente trabalho teve como objetivo descrever, com base em revisão de literatura associada à observação técnica, as principais medidas profiláticas adotadas para prevenção e controle da diarreia neonatal em bezerras leiteiras na Fazenda Experimental da Universidade de Marília. O estudo foi desenvolvido por meio de levantamento bibliográfico em literatura científica e acompanhamento das rotinas de manejo sanitário realizadas no bezerreiro da instituição. Foram observados protocolos relacionados ao manejo pré e pós-parto, colostragem, biossegurança, higiene das instalações e condutas terapêuticas adotadas nos casos clínicos identificados. Observou-se que, no período pré-parto, as vacas recebem a vacina ScourGuard, indicada para imunização materna contra os principais agentes etiológicos envolvidos na diarreia neonatal, favorecendo a transferência de imunidade passiva às bezerras por meio da colostragem e contribuindo para elevada qualidade imunológica do colostro. Após o nascimento, as bezerras são submetidas à pesagem corporal para determinação do volume adequado de colostro, correspondente a aproximadamente 10% do peso vivo, associado à avaliação prévia da qualidade desse alimento. Também foi verificada a adoção sistemática de medidas de biossegurança, incluindo alojamento individual, uso de utensílios individualizados, higienização rigorosa de instalações e equipamentos, renovação diária da água e limpeza periódica das baias, reduzindo os riscos de contaminação cruzada. Nos casos clínicos observados, foram instituídas medidas terapêuticas de suporte às bezerras acometidas, incluindo reposição eletrolítica, administração de probióticos, analgesia e tratamentos específicos conforme a evolução clínica. Conclui-se que a associação entre colostragem eficiente, manejo sanitário criterioso, práticas de biossegurança e acompanhamento veterinário contínuo constitui estratégia fundamental para redução da incidência da diarreia neonatal e promoção do desenvolvimento saudável das bezerras leiteiras.

Palavras-chave: Diarreia Neonatal Bezerras Leiteiras Manejo Sanitário Colostragem Profilaxia.

EFEITOS SEDATIVOS DOS CANABINOIDES ADMINISTRADOS EM RATOS WISTAR (RATTUS NORVEGICUS): REVISÃO DE LITERATURA

Laura Mansolelli Moreno / Carlos Eduardo de Siqueira ²

RESUMO

Os canabinoides, especialmente o Δ^9 -tetraidrocanabinol (THC) e o canabidiol (CBD), têm sido amplamente estudados devido ao seu potencial terapêutico e à capacidade de interação com o sistema endocanabinoide, responsável pela regulação de funções como dor, ansiedade, memória, sono e controle autonômico. Nos últimos anos, o interesse pelo uso do CBD na medicina veterinária e na anestesiologia experimental aumentou significativamente, principalmente por seus possíveis efeitos sedativos, ansiolíticos e moduladores do sistema nervoso central. Nesse contexto, esta revisão de literatura teve como objetivo analisar os efeitos sedativos do canabidiol em ratos Wistar, abordando seus mecanismos de ação, alterações comportamentais, efeitos fisiológicos e possíveis aplicações como agente sedativo ou adjuvante anestésico. O estudo caracteriza-se como uma revisão de literatura de natureza descritiva e qualitativa, realizada a partir de pesquisas em bases de dados científicas nacionais e internacionais, incluindo SciELO, PubMed, Google Scholar e ScienceDirect. Foram selecionados artigos científicos e publicações acadêmicas relacionados ao uso do CBD, sistema endocanabinoide, sedação e anestesiologia experimental em modelos animais, publicados preferencialmente entre 2000 e 2025. A literatura analisada demonstra que o sistema endocanabinoide participa ativamente da modulação de funções neurológicas e comportamentais, sendo os receptores CB1 e CB2 fundamentais para os efeitos promovidos pelos canabinoides. Estudos experimentais apontam que o CBD pode reduzir a necessidade de anestésicos convencionais, promover sedação e modular respostas relacionadas ao estresse e à ansiedade. Entretanto, os efeitos observados variam conforme a dose administrada e a associação com outros compostos, como o THC. Em doses elevadas, alguns estudos relatam efeitos adversos, incluindo bradicardia, depressão respiratória e diminuição excessiva da atividade motora. Conclui-se que o canabidiol apresenta potencial promissor como agente sedativo e adjuvante anestésico em modelos experimentais, podendo contribuir para protocolos anestésicos mais seguros e eficazes na medicina veterinária. Contudo, ainda são necessários estudos adicionais que permitam padronizar doses, esclarecer mecanismos de ação e avaliar a segurança farmacológica do CBD em diferentes espécies animais.

Palavras-chave: Fitocannabinoides; Medicação Pré-anestésica; Medicina Veterinária; Roedores; Cannabis.

EFFICACY OF THE PAINAD SCALE FOR PAIN ASSESSMENT IN ELDERLY PATIENTS WITH ADVANCED DEMENTIA: A NARRATIVE REVIEW

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RESUMO

INTRODUCTION The rise of the elderly population increases the prevalence of dementia syndromes, which are characterized by cognitive, behavioral and functional deterioration. This scenario challenges healthcare services, especially regarding pain management, as approximately

50% to 80% of residents in long-term care facilities experience recurrent pain. Due to the patient's progressive communication decline, pain often remains underdetected and undertreated. The Pain Assessment in Advanced Dementia (PAINAD) scale is a nonverbal pain assessment tool developed to address this problem. **OBJECTIVE** This narrative review aims to evaluate the efficacy of the Pain Assessment in Advanced Dementia (PAINAD) scale for pain assessment in elderly patients with advanced dementia unable to self-report, comparing it to standard clinical observation. **MATERIALS AND METHODS** This narrative literature review was based on a qualitative and descriptive analysis of scientific publications retrieved from PubMed and Google Scholar. A foundational 2006 source was included to assess the historical baseline and the early clinical demand for observational instruments. Furthermore, studies from 2011 to 2016 were required to analyze the development of the PAINAD scale in comparison with recent literature (2018-2024). This timeline was expanded due to the scarcity of specific clinical data within the last five years. The final selection criteria included clinical trials, systematic reviews, validation studies, and international guidelines addressing the use of the PAINAD scale in elderly patients with advanced dementia and impaired communication. **RESULTS AND DISCUSSION** Early studies indicated that PAINAD presented significant limitations, such as small sample sizes and inconsistent findings, in addition to low specificity for pain and high false-positive rates. Nevertheless, this tool has recently demonstrated high clinical applicability due to its didactic and brief nature, as well as its high sensitivity for pain. PAINAD also shows high rates of inter-rater reliability, construct validity and reproducibility, including its adaptation to Brazilian Portuguese. Evidence from clinical trials shows that systematic pain management guided by such tools can lead to a 17% reduction in agitation levels, proving that many behavioral symptoms are manifestations of physical distress. In comparison to non-standardized clinical observation, the systematic use of the scale provided better detection of pain-related behavior, such as restlessness. Consequently, addressing this situation with proper pain management contributes to more accurate intervention and reduction in agitation and negative vocalizations. While international guidelines recommend the use of standardized observational tools in advanced dementia patients unable to self-report, the PAINAD scale is frequently highlighted by studies as a promising instrument. **CONCLUSION** The analyzed studies emphasize the importance of pain assessment, especially in patients unable to self-report their suffering. Stigmas associated with advanced dementia also interfere with the treatment process, as agitation and restlessness - which may stem from pain - are often misinterpreted as inherent symptoms of their condition. This leads to the inappropriate prioritization of antipsychotics for such manifestations. Therefore, the PAINAD scale is essential for pain management for non-verbal elderly patients. Without the standardization provided by this tool, healthcare professionals may underestimate pain, confusing it with dementia symptoms and, consequently, adopting inadequate clinical interventions.

Palavras-chave: Dementia; Pain Assessment; Aged; PAINAD; Palliative Care.

EFICÁCIA DO EXERCÍCIO RESISTIDO EM PACIENTES COM OSTEOARTROSE E OBESIDADE: REVISÃO SISTEMÁTICA

Giovanna Jafrone de Sousa / João Victor Cardoso Casarin; Sophia Evaristo Coércio; João Pedro Moura Ladeira; João Pedro Motta Lara Seabra

RESUMO

A osteoartrose é considerada um fator de risco para obesidade que influencia diretamente na eficácia do exercício resistido, e os estudos mostram que as condições clínicas devem ser consideradas para orientar práticas clínicas personalizadas. Este trabalho teve como objetivo sintetizar os achados sobre o efeito do exercício resistido nos desfechos de dor, mobilidade e qualidade de vida em pacientes com osteoartrose e obesidade. A pergunta de pesquisa foi estruturada pelo acrônimo PICO, considerando como população pacientes adultos com diagnóstico de osteoartrose de joelho ou quadril e obesidade ($\text{IMC} \geq 30 \text{ kg/m}^2$). A intervenção consistiu em exercícios resistidos supervisionados, com treinamento de força progressivo. Como comparadores, foram considerados cuidados usuais, como educação em saúde e acompanhamento clínico, outras modalidades de exercício, como aeróbico, alongamento e multimodal, além de protocolos alternativos de exercício resistido. Os desfechos avaliados incluíram redução da dor, melhora da função física abrangendo mobilidade, força muscular e desempenho em atividades de vida diária e qualidade de vida. Foi realizada uma revisão sistemática conforme as diretrizes PRISMA 2020, com busca exclusivamente na base PubMed entre janeiro de 2021 e março de 2026, incluindo ensaios clínicos randomizados que avaliaram a eficácia do exercício resistido em pacientes com diagnóstico de osteoartrose e obesidade. Dos 670 estudos inicialmente identificados, 5 preencheram os critérios de inclusão, sendo todos ensaios clínicos randomizados envolvendo adultos com osteoartrose de joelho e obesidade. Os estudos apresentam baixo risco no processo de randomização, embora com limitações na descrição da ocultação da alocação, e alguma preocupação quanto a desvios da intervenção devido à dificuldade de cegamento. O risco é baixo a moderado para dados de desfecho por conta de perdas amostrais, moderado na mensuração por uso de desfechos autorreferidos e também com alguma preocupação na seleção dos resultados devido à possível ausência de registro prévio dos protocolos. Em síntese, o exercício resistido demonstrou eficácia para manejo da dor e melhora funcional, e em alguns estudos observou-se também redução de peso corporal. A qualidade de vida apresentou tendência positiva, embora avaliada em menor número de trabalhos. Os resultados indicam que intervenções com exercício, isoladas ou combinadas com outras estratégias, promovem redução significativa da dor, melhora da função física e da qualidade de vida em pacientes com osteoartrose e obesidade, além de favorecerem a redução do peso corporal e melhorias na composição corporal, com maior eficácia em protocolos combinados; também foi observada maior adesão e satisfação nos grupos de intervenção, enquanto diferentes formas de execução do exercício podem influenciar desfechos físicos e mentais, e os eventos adversos relatados foram pouco frequentes e, em sua maioria, não relacionados diretamente às intervenções. A evidência é de qualidade moderada, com redução devido a limitações metodológicas, apesar de resultados consistentes e positivos, indicando confiança razoável, mas passível de mudança com novos estudos. Os estudos indicam que o exercício resistido reduz a dor e melhora a função em pacientes obesos com osteoartrose, podendo também contribuir para perda de peso e melhor qualidade de vida, sendo uma opção relevante não medicamentosa.

Palavras-chave: Revisão Sistemática; Osteoartrite; Obesidade; Exercício Resistido; Função Física.

EFICÁCIA DO EXERCÍCIO RESISTIDO EM PACIENTES COM OSTEOARTROSE E OBESIDADE: REVISÃO SISTEMÁTICA

Giovanna Jafrone de Sousa / João Victor Cardoso Casarin; Sophia Evaristo Coércio; João Pedro Moura Ladeira; João Pedro Motta Lara Seabra

RESUMO

A associação entre osteoartrose e obesidade pode influenciar a resposta ao exercício resistido, tornando necessária a consideração das condições clínicas para a elaboração de práticas terapêuticas individualizadas. Este estudo teve como objetivo sintetizar evidências sobre os efeitos do exercício resistido nos desfechos de dor, mobilidade e qualidade de vida em pacientes com osteoartrose e obesidade. A pergunta de pesquisa foi estruturada pelo acrônimo PICO, considerando adultos com diagnóstico de osteoartrose de joelho ou quadril e obesidade ($\text{IMC} \geq 30 \text{ kg/m}^2$). A intervenção analisada consistiu em exercícios resistidos supervisionados com treinamento de força progressivo, comparados a cuidados usuais, outras modalidades de exercício físico ou diferentes protocolos de treinamento resistido. Os desfechos avaliados incluíram dor, função física, mobilidade, força muscular, desempenho nas atividades de vida diária e qualidade de vida. Foi realizada uma revisão sistemática conforme as diretrizes PRISMA 2020, com busca exclusivamente na base PubMed entre janeiro de 2021 e março de 2026. Ressalta-se que a utilização de apenas uma base de dados constitui limitação metodológica relevante, podendo restringir a abrangência das evidências identificadas. Foram incluídos ensaios clínicos randomizados que investigaram a eficácia do exercício resistido em pacientes com osteoartrose e obesidade. Dos 670 estudos inicialmente encontrados, 5 atenderam aos critérios de inclusão. Os estudos apresentaram, em sua maioria, baixo a moderado risco de viés, com limitações principalmente relacionadas ao cegamento das intervenções, à mensuração de desfechos autorreferidos e à ausência de registro prévio de protocolos em alguns estudos. De modo geral, o exercício resistido demonstrou eficácia na redução da dor e na melhora funcional. Alguns estudos também evidenciaram redução do peso corporal e melhora da composição corporal, especialmente em protocolos combinados com outras estratégias terapêuticas. A qualidade de vida apresentou tendência positiva, embora avaliada em menor número de estudos. Além disso, os grupos de intervenção apresentaram maior adesão e satisfação, enquanto os eventos adversos foram pouco frequentes e, na maioria dos casos, não relacionados diretamente às intervenções. A evidência disponível foi classificada como de qualidade moderada, devido às limitações metodológicas identificadas, embora os resultados tenham se mostrado consistentes. Conclui-se que o exercício resistido é uma estratégia não medicamentosa eficaz para redução da dor e melhora funcional em pacientes com osteoartrose e obesidade, com possíveis benefícios adicionais relacionados ao peso corporal e percepção de saúde.

Palavras-chave: Revisão Sistemática; Osteoartrite; Obesidade; Exercício Resistido; Função Física.

ERLIQUIOSE CANINA: RELATO DE CASO

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RESUMO

A erliquiose canina é uma doença infecciosa causada principalmente por *Ehrlichia canis*, uma bactéria gram-negativa intracelular obrigatória transmitida principalmente pelo carrapato

Rhipicephalus sanguineus. A doença é considerada altamente prevalente na clínica de pequenos animais, especialmente em regiões tropicais e subtropicais, podendo apresentar fases aguda, subclínica ou crônica. As manifestações clínicas variam de acordo com a gravidade da doença e podem incluir febre, apatia, anorexia, perda de peso, linfadenomegalia, distúrbios hemorrágicos, anemia, trombocitopenia e alterações oftálmicas ou neurológicas. O diagnóstico é baseado nos achados clínicos associados a exames laboratoriais, como hemograma, testes sorológicos e reação em cadeia da polimerase (PCR), sendo que este último detecta o DNA do agente, detectando melhor a fase aguda da doença. O tratamento é realizado principalmente com doxiciclina associada à terapia de suporte, e o prognóstico depende do estágio da doença e da condição clínica do paciente. Este estudo teve como objetivo apresentar uma revisão de literatura sobre a erliquiose canina e relatar um caso clínico acompanhado no Hospital Veterinário da Universidade de Marília (UNIMAR). Um cão macho, sem raça definida, de seis meses de idade e pesando 8,4 kg, foi atendido apresentando anorexia e adipsia há 5 dias, vômitos, dificuldade respiratória e secreção ocular bilateral. Ao exame clínico, observou-se hipertermia, apatia, lesões pustulares cutâneas, opacidade corneana no olho esquerdo e escore corporal baixo. Foram realizados exames complementares, incluindo hemograma completo, perfil bioquímico, teste rápido para cinomose e PCR para erliquiose. Os achados hematológicos demonstraram anemia normocítica normocrômica, eosinopenia, monocitopenia e trombocitose. O teste rápido para cinomose apresentou resultado negativo, enquanto o PCR confirmou infecção por *Ehrlichia canis*. O paciente recebeu tratamento de suporte com fluidoterapia, antieméticos, protetores gástricos, analgésicos, probióticos, antibióticos e nebulização, seguido do protocolo terapêutico para hemoparasitose. Durante o acompanhamento clínico, observou-se melhora do quadro geral; entretanto, houve progressão da opacidade corneana, sugerindo uveíte persistente, sendo necessária terapia oftálmica com anti-inflamatório esteroide. O caso relatado reforça a importância do diagnóstico precoce, da realização adequada de exames complementares e do tratamento apropriado da erliquiose canina, destacando também a relevância do acompanhamento clínico na formação acadêmica e no manejo dos pacientes veterinários.

Palavras-chave: Erliquiose Canina; *Ehrlichia canis*; Hemoparasitose; Medicina Veterinária; Relato De Caso.

FIBROPAPILLOMATOSIS IN CHELONIA MYDAS: IMPLICATIONS FOR THE CONSERVATION OF MARINE POPULATIONS.

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RESUMO

Fibropapillomatosis in sea turtles is a neoplastic disease of major sanitary and conservation importance, widely associated with Chelonid alphaherpesvirus 5. The disease has been reported in several regions worldwide, especially in coastal areas affected by environmental degradation, and is considered one of the main diseases affecting sea turtle populations. This study aims to gather and analyze scientific evidence related to the etiological, epidemiological, clinical, diagnostic, and therapeutic aspects of the disease, as well as its relationship with environmental factors. This is a narrative literature review conducted through research in scientific databases such as SciELO and PubMed. Scientific articles published within the last 10 years and books related to the health and conservation of sea turtles were used. The search was performed using keywords such as “sea

turtles,” “fibropapillomatosis,” and “Chelonid alphaherpesvirus 5.” The results indicate that fibropapillomatosis has a multifactorial etiology involving the interaction between the viral agent, the host immune response, and adverse environmental conditions. Factors such as marine pollution, chemical contamination, eutrophication, and physicochemical changes in aquatic ecosystems may contribute to the development and spread of the disease. In this context, a higher prevalence is observed in juvenile green sea turtles, considered the most affected group. The disease may cause external and internal tumors, leading to significant impairments in vision, locomotion, feeding, and other vital functions, ultimately compromising the animals’ survival. Diagnosis is based on clinical evaluation, histopathological examination, and molecular methods. Surgical treatment, especially using laser therapy, stands out as the main therapeutic approach currently available, although recurrence rates may vary. It is concluded that fibropapillomatosis represents an important indicator of marine ecosystem health, highlighting the need for integrated strategies involving environmental monitoring, clinical management, and conservation efforts to ensure greater protection for sea turtle populations.

Palavras-chave: Fibropapillomatosis Sea Turtles Chelonia Mydas Herpesvirus Marine Conservation.

GENE EDITING USING CRISPR-CAS9 IN THE FIGHT AGAINST HIV: A LITERATURE REVIEW ON THERAPEUTIC ADVANCES AND LIMITATIONS

Paulo Roberto Giardulli Grespan / Israel Abraão Nascimento; Paulo Cesar Novais

RESUMO

Human immunodeficiency virus (HIV) remains a major global health challenge due to its ability to establish latent reservoirs and promote chronic immunosuppression, even in the context of advances in antiretroviral therapies, which are unable to completely eradicate the virus from the body. In this context, the gene-editing technology CRISPR-Cas9 emerges as an innovative tool with high therapeutic potential, enabling precise and targeted genomic modifications. This study consists of a literature review aiming to analyze current scientific evidence published between 2021 and 2025 regarding the application of CRISPR-Cas9 in HIV treatment, addressing its mechanisms of action, therapeutic strategies, limitations, and future perspectives. This is a descriptive and exploratory review conducted through the analysis of scientific articles indexed in databases such as PubMed, ScienceDirect, and the National Library of Medicine, prioritizing experimental, preclinical, and systematic review studies. Study selection considered criteria such as recency, scientific relevance, and therapeutic applicability, allowing a critical and integrated analysis of the main approaches described in the literature. Among the most promising strategies are the direct excision of proviral DNA integrated into the host genome, the editing of the CCR5 co-receptor to prevent viral entry, and the “shock and kill” approach, aimed at reactivating and subsequently eliminating latent viral reservoirs. The analyzed results indicate that CRISPR-Cas9 demonstrates a strong ability to reduce viral reservoirs, interrupt viral replication, and confer resistance to infection in genetically modified cells, with consistent evidence in *in vitro* and *in vivo* models. However, significant challenges still limit its clinical application, including off-target effects, toxicity associated with double-strand breaks, undesirable immune responses, and limitations in gene repair mechanisms, particularly in homology-directed repair pathways. Recent advances, such as the development of high-fidelity Cas9 variants, base editors, prime editing technologies, and the

use of other nucleases such as Cas12 and Cas13, show significant potential to overcome these limitations. In conclusion, CRISPR- Cas9 represents a promising platform for the development of innovative and potentially curative therapies for HIV, although further studies are required to ensure its safety and clinical applicability, reinforcing its role in precision medicine.

Palavras-chave: HIV; CCR5; Gene Therapy; Immunosuppression; Precision Medicine.

GIANT GASTRIC LIPOMA: EXPERIENCE WITH A RARE BENIGN TUMOR AT HOSPITAL BENEFICENTE UNIMAR

Carlos Horacio Vargas urzagaste / Daniela Vieira Buchaim; Rogério Leone Buchaim; Felipe Augusto Alves Cardoso; Sandra Maria Barbalho; Marcos Alberto Pagani Junior

RESUMO

Introduction: Gastrointestinal lipomas are rare lesions, accounting for only 2-3% of benign tumors of the digestive tract. Larger lipomas, particularly those measuring more than 5-7 cm or those associated with complications such as bleeding, obstruction, or intussusception, may require surgical management. Published data mainly consist of isolated reports, especially regarding giant lesions larger than 5 cm, which are observed in approximately 4% of cases. Therefore, important gaps remain in the literature. **Objectives:** To present the clinical experience in the management of this rare benign gastric tumor and to describe the multimodal findings, including endoscopic evaluation, surgical resection, histopathological confirmation, and relevant aspects of the current literature. **Methods:** This is an experience report based on the analysis of clinical presentation, endoscopic findings, surgical management, postoperative evolution, and histopathological evaluation of a patient with a gastric submucosal tumor treated at Hospital Beneficente Unimar. **Results:** The patient presented with postprandial gastric fullness and recurrent epigastric pain. Abdominal ultrasound and upper gastrointestinal endoscopy revealed a large submucosal mass measuring more than 6 cm within the stomach. Considering the lesion size and clinical presentation, a multidisciplinary team recommended surgical treatment. A wedge resection of the stomach was performed without intraoperative complications, and postoperative recovery was favorable. Histopathological analysis confirmed a submucosal lipoma. Macroscopic examination described a nodular segment of brownish- yellow tissue, partially covered by brownish and granular mucosa. **Conclusion:** This experience report highlights the relevance of upper gastrointestinal endoscopy in the investigation and the early diagnosis of gastrointestinal tract pathologies. It also reinforces the importance of reviewing and updating the literature regarding the diagnosis and management of giant gastric lipomas. Histopathological analysis remains essential for diagnostic confirmation.

Palavras-chave: Gastric Lipoma Digestive Endoscopy Gastroenterology Wedge Resection Histopathology.

IMPACTO DA DIETA NA MODULAÇÃO DO DIABETES: UMA REVISÃO SISTEMÁTICA

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RESUMO

O diabetes mellitus é uma doença metabólica crônica caracterizada por disfunções na homeostase glicêmica, com elevada relevância epidemiológica. Evidências científicas demonstram que a modulação da dieta exerce papel central na fisiopatologia e no controle da doença, influenciando a sensibilidade à insulina, o metabolismo da glicose e processos inflamatórios. Diferentes padrões alimentares e a qualidade da dieta impactam diretamente o controle glicêmico e o risco de complicações, destacando a intervenção nutricional como estratégia fundamental no manejo da diabetes. O objetivo deste estudo é avaliar o impacto de diferentes padrões alimentares na modulação do Diabetes Mellitus, considerando seus efeitos no controle glicêmico, na resistência à insulina e nos principais parâmetros metabólicos e cardiovasculares. Foi realizada uma revisão sistemática conforme as recomendações PRISMA, na base de dados PubMed, utilizando os descritores combinados: 'Diabetes Mellitus', 'Type 2 Diabetes Mellitus', 'Diet Therapy', 'Nutrition Therapy', 'Glycemic Control' e 'Blood Glucose'. Foram aplicados filtros para estudos publicados nos últimos cinco anos, em humanos, idioma inglês, com texto completo disponível, incluindo revisões sistemáticas e meta-análises. A seleção dos estudos foi realizada por meio da leitura de títulos e resumos, seguida da análise do texto completo, conforme critérios de inclusão e exclusão previamente definidos. Ao final, 13 estudos foram incluídos na análise. Os estudos analisados demonstraram que modificações nos padrões alimentares desempenham papel fundamental no manejo do diabetes quando comparadas à ausência de intervenção dietética. Dietas de baixo índice glicêmico, reduzidas em carboidratos, ricas em fibras e proteínas, além da dieta mediterrânea, mostraram-se eficazes na redução da hemoglobina glicada (HbA1c) e da glicemia de jejum, no aumento da sensibilidade à insulina e na melhora do perfil lipídico, com redução do LDL, da pressão arterial, do índice de massa corporal (IMC) e dos riscos cardiometabólicos. Quando associadas à prática de exercício físico, essas intervenções demonstraram resultados ainda mais eficazes. Entre os padrões alimentares avaliados, nenhum demonstrou superioridade consistente em relação aos desfechos analisados. Conclui-se que a dieta exerce impacto significativo na modulação do diabetes. Mudanças alimentares com foco na redução do índice glicêmico mostraram-se associadas a melhorias clínicas no controle da glicemia, nos parâmetros antropométricos, na pressão arterial, no perfil lipídico e nos marcadores de risco cardiovascular em pacientes diabéticos. Ademais, quando associada a outras mudanças de estilo de vida, como a prática de atividade física, demonstram maior eficácia no manejo da doença. Nesse sentido, a modificação do padrão alimentar deve ser considerada uma estratégia central na prevenção, manejo e controle do Diabetes Mellitus.

Palavras-chave: Diabetes Mellitus; Diabetes Mellitus Tipo 2; Dietoterapia; Terapia Nutricional; Controle Glicêmico.

IMPACTO DO DIABETES MELLITUS TIPO 1 NO PÓS- OPERATÓRIO DE CIRURGIAS PEDIÁTRICAS: UMA REVISÃO DE LITERATURA SOBRE COMPLICAÇÕES E MANEJO PERIOPERATÓRIO

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RESUMO

INTRODUÇÃO: O Diabetes Mellitus Tipo 1 (DM1), caracterizado pela deficiência absoluta de insulina, é uma das doenças crônicas mais comuns na infância, exigindo atenção redobrada em cirurgias pediátricas. O estresse do procedimento libera hormônios que desequilibram a glicemia, aumentando o risco de complicações graves (cetoacidose e infecções). Atualmente, o uso de tecnologias tem mudado esse cenário, trazendo muito mais segurança e precisão ao controle glicêmico. Ainda assim, a fragilidade metabólica do paciente pediátrico torna indispensável um acompanhamento multidisciplinar rigoroso para garantir uma recuperação segura. **OBJETIVOS:** Este trabalho tem como objetivo analisar o impacto do DM1 no pós-operatório pediátrico, identificando as principais complicações associadas e analisando as estratégias atuais de manejo perioperatório, com foco na integração de novas tecnologias de monitoramento e controle glicêmico. **MATERIAL E MÉTODOS:** Trata-se de uma revisão de literatura realizada na base de dados MEDLINE-PubMed (National Library of Medicine, National Institutes of Health), utilizando os descritores em saúde (MeSH Terms) "Type 1 Diabetes", "Perioperative", "Surgery", "Child", "Pediatric" e "Management", combinados pelos descritores booleanos AND ou OR. Foram selecionados 5 (cinco) artigos entre 2022 e 2025, incluindo revisões de escopo e relatos de casos clínicos. A análise focou na síntese de evidências sobre complicações pós-operatórias e na evolução das estratégias de manejo, comparando protocolos convencionais ao uso de tecnologias avançadas de controle glicêmico. **RESULTADOS:** Estudos evidenciaram que, pacientes pediátricos com DM1, submetidos a procedimentos cirúrgicos, são mais vulneráveis a hiperglicemia e/ou hipoglicemia no período perioperatório. Entre os fatores envolvidos, destacam-se o estresse cirúrgico e anestésico, que elevam hormônios contrarreguladores, aumentando a glicemia e favorecendo complicações metabólicas, como cetose e cetoacidose diabética, e microvasculares, como retinopatia, nefropatia e neuropatia. Além disso, o jejum prolongado, as doses inadequadas de insulina e a monitorização insuficiente são fatores que aumentam o risco de hipoglicemia, especialmente no intra e pós-operatório imediato. A implementação de protocolos individualizados, com manutenção da insulino terapia basal e monitorização glicêmica frequente, reduz eventos adversos e contribui para melhor recuperação. Tecnologias recentes, como Bombas de Insulina, Monitoramento Contínuo de Glicose (CGM) e sistemas automatizados (Closed-Loop), foram utilizadas como recomendações para controle glicêmico na avaliação pré-operatória e no manejo pós-operatório, demonstrando grande eficácia. **CONCLUSÃO:** É evidente que, DM1 exerce impacto significativo no processo pré e pós-cirúrgico de pacientes crianças e adolescentes, principalmente pelo aumento do risco de descompensações glicêmicas e metabólicas. Entretanto, tais riscos podem ser minimizados por meio das tecnologias como CGM, Bomba de Insulina e Closed-Loop, que otimizam o controle glicêmico. Dessa forma, conclui-se que o planejamento integrado entre cirurgia, anestesia, endocrinologia e enfermagem é fundamental para a segurança do paciente.

Palavras-chave: Diabetes Mellitus Tipo 1; Cirurgia Pediátrica; Pós-operatório; Manejo.

IMPACTO DO EXERCÍCIO FÍSICO NO CONTROLE GLICÊMICO EM PACIENTES COM DIABETES MELLITUS TIPO 2

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RESUMO

O trabalho aborda o impacto do exercício físico no controle glicêmico em pacientes com Diabetes Mellitus Tipo 2. Trata-se de uma revisão baseada em artigos publicados entre 2024 e 2026, que analisou os efeitos da atividade física sobre os níveis de glicemia e hemoglobina glicada (HbA1c).

Palavras-chave: Diabetes Mellitus Tipo 2; Controle Glicêmico; Exercícios; Atividade Física; Metabolismo.

IMPACTS OF ULTRA-PROCESSED FOOD CONSUMPTION ON THE DEVELOPMENT OF ORAL INFLAMMATORY DISEASES: A LITERATURE REVIEW

Laís Pires dos Santos / Giulia Coqueiro Rossi; Rafaella Fontana Zampieri; Letícia Zanoni Moreira; Jéssica Gimenes de Araújo Lopes; Eliana de Souza Bastos Mazuqueli Pereira

RESUMO

Introduction: Nutrition can be a prognostic factor or a possible risk indicator for gingival inflammation. Oral inflammatory diseases include plaque-induced gingivitis, the most prevalent form of periodontal disease, and can progress to periodontitis, a chronic condition associated with tooth loss and systemic repercussions. In this context, nutritional factors have been recognized as modulators of the inflammatory response, particularly ultra-processed foods, especially those rich in free sugars, refined carbohydrates, and pro-inflammatory fats, associating them with increased systemic inflammation and the progression of periodontal diseases. **Objectives:** To analyze the relationship between the consumption of ultra-processed foods and the development of oral inflammation, highlighting its pathophysiological mechanisms and impacts on periodontal health. **Materials and Methods:** This is a narrative literature review based on studies published in the PubMed database in the last 5 years. The descriptors used were: "ultra-processed foods" and "oral health". Original articles, systematic reviews, and meta-analyses were included. **Results:** Recent evidence demonstrates that diets rich in ultra-processed foods, characterized by high levels of free sugars, saturated fats, and low nutritional density, promote hyperglycemia, hyperinsulinemia, oxidative stress, insulin resistance, and increased inflammatory mediators. These factors alter the immune response, favor oral dysbiosis, and intensify the gingival inflammatory response to the presence of bacterial biofilm with a predominance of pathogenic microorganisms. As a consequence, there is a greater production of acids and bacterial toxins, contributing to the demineralization of tooth enamel and inflammation of gingival tissues. Frequent consumption of sugary drinks and processed foods is associated with an increased prevalence of gingivitis, periodontitis, and dental caries, including in children. Furthermore, excessive sugar consumption is related to a reduction in salivary pH, increased oxidative stress, and activation of pro-inflammatory mediators, such as interleukins and TNF- α (tumor necrosis factor alpha). Systemic alterations, such as hyperglycemia and insulin resistance, also potentiate the periodontal inflammatory response. On the other hand, dietary patterns based on unprocessed or minimally processed foods demonstrate a protective effect, being associated with less gingival inflammation

and better oral health indicators. Conclusion: Excessive consumption of ultra-processed foods is directly associated with increased oral inflammation, representing a significant risk factor for the development and progression of diseases such as gingivitis, periodontitis, and dental caries. This impact occurs through systemic and local mechanisms related to chronic inflammation, metabolic alterations, oxidative stress, hyperglycemia, insulin resistance, activation of pro-inflammatory mediators, and oral dysbiosis. Preventive and therapeutic strategies that integrate nutritional guidance, reduction of free sugar consumption, and promotion of anti-inflammatory diets can significantly contribute to periodontal and systemic health.

Palavras-chave: Ultra-processed Foods; Oral Inflammation; Oral Microbiota; Dysbiosis.

IMPACTS OF ULTRA-PROCESSED FOOD CONSUMPTION ON THE DEVELOPMENT OF ORAL INFLAMMATORY DISEASES: A LITERATURE REVIEW

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impact occurs through systemic and local mechanisms related to chronic inflammation, metabolic alterations, oxidative stress, hyperglycemia, insulin resistance, activation of pro-inflammatory mediators, and oral dysbiosis. Preventive and therapeutic strategies that integrate nutritional guidance, reduction of free sugar consumption, and promotion of anti-inflammatory diets can significantly contribute to periodontal and systemic health.

Palavras-chave: Ultra-processed Foods; Oral Inflammation; Oral Microbiota; Dysbiosis.

IMPORTANCE OF CLINICAL AND HEMATOLOGICAL EVALUATION IN THE PRESUMPTIVE DIAGNOSIS OF CANINE DISTEMPER: A CASE REPORT

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RESUMO

Canine distemper is a highly contagious viral disease caused by the Canine Distemper Virus (CDV), affecting mainly unvaccinated dogs and presenting multisystemic clinical manifestations. The disease remains an important challenge in veterinary medicine due to its high morbidity and mortality rates, especially in cases involving neurological impairment. This study aimed to report the clinical evolution, laboratory findings, and therapeutic management of a canine patient with suspected distemper treated at the Veterinary Hospital of UNIMAR. A two-year-old male Pit Bull dog weighing 18 kg was admitted presenting hyporexia, vomiting, apathy, inability to remain standing, and progressive neurological alterations. During physical examination, the patient showed hyperthermia (40.1°C), mild dehydration, mucopurulent ocular discharge, diffuse alopecia, hyperkeratosis of the footpads, pulmonary crackles, abdominal pain, nystagmus, ataxia, vocalization, and circling behavior. The owner reported an incomplete vaccination protocol consisting only of rabies vaccination. Hematological evaluation demonstrated normocytic normochromic anemia, thrombocytopenia, and severe lymphopenia, as well as leukocytic alterations compatible with immunosuppression. Blood smear cytology revealed structures suggestive of Lentz inclusion bodies, reinforcing the clinical suspicion of canine distemper. Biochemical parameters remained within reference values. Due to the owner's refusal to perform complementary and confirmatory diagnostic tests, a therapeutic approach based on clinical suspicion and supportive treatment was established. During hospitalization, the patient showed improvement in appetite and cessation of vomiting; however, neurological signs persisted, including vocalization and circling gait. The animal was discharged with recommendations for continuation of home treatment and veterinary clinical follow-up. This case highlights the importance of clinical examination and hematological evaluation in the presumptive diagnosis of canine distemper, especially when confirmatory tests are not feasible. Furthermore, it emphasizes the importance of vaccination as a preventive measure and of confirmatory testing for definitive diagnosis, enabling early therapeutic intervention and improvement of prognosis.

Palavras-chave: Canine Distemper; Neurology; Preventive Veterinary Medicine; Infectious Disease; Dogs.

INCLUSION OF PEOPLE WITH AUTISM IN HEALTH UNDERGRADUATE PROGRAMS FROM THE FACULTY MEMBERS PERSPECTIVE

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RESUMO

INCLUSÃO DE PESSOAS COM AUTISMO EM CURSOS DE GRADUAÇÃO DA SAÚDE NA PERSPECTIVA DO DOCENTE Rita de Cássia Garcia Martinez¹; Luana Pereira da Silva¹; Fabiana Veronez M. Gimenez² 1. Faculdade de Medicina de Marília - FAMEMA, Marília, SP, Brasil. 2. Faculdade de Medicina de Marília - FAMEMA, Marília, SP, Brasil. **RESUMO** A inclusão de pessoas com Transtorno do Espectro Autista (TEA) no ensino superior brasileiro tem avançado e é amparada por marcos legais como a Lei Brasileira de Inclusão, nº13.146/2015. No entanto, pressupõe-se que a presença desses estudantes nos cursos de graduação da saúde ainda é marcada por desafios significativos. Por isso, as instituições de ensino superior (IES) enfrentam a necessidade urgente de preparar seus profissionais e adaptar metodologias para garantir que o rigor acadêmico não se torne uma barreira à permanência, inclusive nos cursos da saúde. O objetivo deste estudo será analisar o conhecimento, a percepção e as práticas de docentes de cursos de graduação da saúde (medicina, enfermagem) sobre a inclusão de estudantes com autismo em duas IES públicas do interior do estado de São Paulo, buscando identificar o nível de conhecimento deles sobre o TEA, desafios e implicações pedagógicos, bem como investigar as estratégias e recursos didáticos utilizados para promover a inclusão e políticas institucionais que apoiem docentes e estudantes no processo ensino e aprendizagem. Será realizado um estudo com abordagem mista, de caráter exploratório e descritivo. A coleta de dados ocorrerá via formulário online (Google Forms), contendo questões fechadas para caracterização sociodemográfica e análise do conhecimento sobre TEA e estratégias pedagógicas utilizadas no processo ensino aprendizagem, além de questões abertas sobre a percepção da inclusão desses estudantes na graduação em saúde. A amostra será composta por docentes de cursos de saúde de duas IES públicas do interior paulista. Após aprovação pelo Comitê de Ética em Pesquisa (CEP), o convite será enviado via e-mail institucional. Os dados quantitativos serão tratados por estatística descritiva, enquanto os qualitativos passarão por Análise Temática. Espera-se que os resultados forneçam um diagnóstico das competências e dificuldades docentes, subsidiando programas de capacitação. Acredita-se que a identificação de boas práticas pedagógicas possa fortalecer a inclusão e a equidade na formação de futuros profissionais de saúde com TEA. **Palavras-chave:** Transtorno do Espectro Autista (TEA); Universidades; Práticas Profissionais Inclusivas **FONTES DE FINANCIAMENTO:** O presente trabalho foi realizado com apoio da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) - Código de Financiamento 001.

Palavras-chave: Transtorno Do Espectro Autista (TEA); Universidades; Práticas Profissionais Inclusivas.

INDISCRIMINATE USE OF ANTIBIOTICS IN PEDIATRICS AND ITS IMPACT ON BACTERIAL RESISTANCE: A NARRATIVE REVIEW

Isadora Parra de Souza / Leticia Carvalho de Souza Barbosa; Marina Carbone; Luiza Netto de Carvalho Medeiros

RESUMO

Introduction: Antibiotics are among the most significant advances in modern medicine; however, their indiscriminate use has driven a global increase in antimicrobial resistance (AMR). In pediatrics, this issue is particularly critical in children with chronic diseases, such as cancer, diabetes, and obesity, who require frequent antimicrobial therapy due to immunosuppression, recurrent infections, and prolonged hospitalizations, making them especially vulnerable to multidrug-resistant organisms. **Objective:** To review the scientific literature on inappropriate antibiotic use in pediatrics, with emphasis on patients with chronic diseases, its relationship with bacterial resistance, and available prevention strategies. **Methods:** Narrative literature review conducted in PubMed, SciELO, and LILACS databases (2013-2025), using DeCS/MeSH descriptors: Anti- Bacterial Agents, Pediatrics, Drug Resistance, Bacterial, Chronic Disease, Neoplasms, Diabetes Mellitus, Obesity, and Antimicrobial Stewardship, combined with Boolean operators (AND/OR). **Inclusion criteria:** original articles, reviews, and guidelines in Portuguese, English, or Spanish addressing antibiotic use in pediatric populations with chronic diseases, with full text available. **Exclusion criteria:** studies restricted to adults, duplicates, unavailable full texts, and non-empirical opinion pieces. Of 38 studies identified, 24 met inclusion criteria. **Limitation:** as a narrative review, results depend on the methodological quality and availability of included studies. **Results:** Between 20% and 50% of antibiotic prescriptions in pediatrics are inappropriate, predominantly in viral respiratory infections. Among children with cancer, type 1 diabetes, or obesity-related comorbidities, antibiotic exposure is significantly more frequent and prolonged, amplifying selective bacterial pressure. This contributes to the emergence of MRSA, MDR Gram-negative bacteria, and ESKAPE pathogens, increasing morbidity, mortality, hospital length of stay, and healthcare costs. Antimicrobial Stewardship Programs (ASP), AWARe classification, and 48-hour therapeutic reassessment have demonstrated positive outcomes in this population. **Conclusion:** Inappropriate antibiotic use in children with chronic diseases accelerates resistance and worsens clinical outcomes. Evidence-based protocols and multidisciplinary education are essential to promote rational antimicrobial use and protect this vulnerable population. **REFERENCES:** 1. BROOM, Alex et al. Antimicrobial stewardship in pediatric care: a systematic review. *Pediatrics*, Elk Grove Village, v. 135, n. 5, p. 826-833, 2015. 2. DELLIT, Timothy H. et al. Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America guidelines for developing an institutional program to enhance antimicrobial stewardship. *Clinical Infectious Diseases*, Oxford, v. 44, n. 2, p. 159-177, 2007. 3. GERBER, Jeffrey S. et al. Antibiotic exposure during the first 6 months of life and weight gain during childhood. *JAMA*, Chicago, v. 315, n. 12, p. 1258-1265, 2016. 4. HERSH, Adam L. et al. Frequency of first-line antibiotic selection among US ambulatory care visits for otitis media, sinusitis, and pharyngitis. *JAMA Internal Medicine*, Chicago, v. 176, n. 12, p. 1870-1872, 2016. 5. LAXMINARAYAN, Ramanan et al. Antibiotic resistance-the need for global solutions. *The Lancet Infectious Diseases*, London, v. 13, n. 12, p. 1057-1098, 2013. 6. O'NEILL, Jim. Tackling drug-resistant infections globally: final report and recommendations. London: Review on Antimicrobial Resistance, 2016. 7. SOCIEDADE BRASILEIRA DE PEDIATRIA (SBP). Uso racional de antimicrobianos em pediatria. Rio de Janeiro: SBP, 2022. 8. TAMMA, Pranita D.; COSGROVE, Sara E. Antimicrobial stewardship. *Infectious Disease Clinics of North America*, Philadelphia, v. 25, n. 1, p. 245-260, 2011. 9. VENTOLA, C. Lee. The antibiotic resistance crisis: part 1: causes and threats. *Pharmacy and Therapeutics*, Philadelphia, v. 40, n. 4, p. 277-283, 2015. 10. WORLD HEALTH ORGANIZATION (WHO). WHO AWARe (Access, Watch, Reserve) classification of antibiotics for evaluation and monitoring of use. Geneva: WHO, 2023. Available at: WHO AWARe

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Palavras-chave: Anti-Bacterial Agents; Pediatrics; Drug Resistance; Antimicrobial Stewardship; Public Health.

INFLAMMATION AND CELLULAR SENESENCE IN SKELETAL MUSCLE INSULIN RESISTANCE: A LITERATURE REVIEW ON THE EFFECTS OF PHYSICAL EXERCISE

Vitória Caroline Fernandes Da Silva / Bianca Vitória Rocha De Alcântara; Catarina Grassia Blefari; Gabriela Miranda Lupato Coutinho Luz; Julia Amadeu Frigerio; Caio Sergio Galina Spilla

RESUMO

Obesity generates chronic low-grade inflammation which, combined with cellular senescence, impairs skeletal muscle tissue. This scenario activates inflammatory pathways, such as TLR-4 and NF- κ B, that block insulin signaling, hindering glucose uptake and promoting Type 2 Diabetes. In contrast, physical exercise acts as a fundamental intervention to break this cycle by reducing inflammation, improving metabolism, and restoring metabolic balance; thus, it serves as an effective non-pharmacological strategy. Therefore, the interaction between inflammation and senescence is the central axis of insulin resistance in the muscle. Physical exercise is capable of attenuating these mechanisms, making it essential in the prevention and control of metabolic diseases.

Palavras-chave: Insulin Resistance; Inflammation; Skeletal Muscle; Physical Exercise; Cellular Senescence.

INFLUENZA AVIÁRIA NO BRASIL: A RELAÇÃO ENTRE AVES SELVAGENS, DISSEMINAÇÃO VIRAL E SAÚDE ÚNICA

Laura Mansolelli Moreno / Luísa Fernandes Simões ¹; Gabriela Fiorucci Stievano Messias ²; Júlia dos Santos Lanini ³; Claudia Sampaio Fonseca Repetti ²

RESUMO

A influenza aviária é uma enfermidade viral altamente contagiosa causada pelo vírus Influenza A, pertencente à família Orthomyxoviridae, acometendo principalmente aves domésticas e silvestres, além de apresentar potencial zoonótico. Nas últimas décadas, o subtipo H5N1 ganhou destaque devido à elevada capacidade de disseminação, alta patogenicidade e impactos na saúde animal, saúde pública e economia mundial. Nesse contexto, as aves selvagens migratórias exercem papel fundamental na manutenção e propagação do vírus, especialmente por atuarem como reservatórios naturais assintomáticos e disseminarem partículas virais ao longo das rotas migratórias. O presente trabalho teve como objetivo analisar a relação entre aves selvagens, disseminação viral da influenza aviária e o conceito de Saúde Única no Brasil, abordando os principais aspectos epidemiológicos, sanitários e ambientais da doença. Buscou-se compreender os mecanismos de transmissão viral, os impactos na avicultura e a importância das estratégias de vigilância epidemiológica e

biossegurança. A revisão de literatura foi desenvolvida a partir de artigos científicos e teses acadêmicas relacionadas à influenza aviária. Os estudos analisados demonstraram que aves aquáticas migratórias pertencentes principalmente às ordens Anseriformes e Charadriiformes são importantes reservatórios do vírus influenza A, favorecendo sua disseminação entre diferentes regiões geográficas. A transmissão ocorre principalmente pelo contato com secreções respiratórias, fezes contaminadas, água e superfícies infectadas. Além disso, fatores como globalização, alterações ambientais e mudanças climáticas contribuem para a expansão da circulação viral e aumento do contato entre espécies. No Brasil, os primeiros casos de influenza aviária de alta patogenicidade pelo subtipo H5N1 foram registrados em 2023 em aves marinhas silvestres no estado do Espírito Santo, demonstrando a influência das rotas migratórias sul-americanas na introdução do vírus no país. Os estudos também evidenciam que a influenza aviária está diretamente relacionada ao conceito de Saúde Única, devido à interação entre saúde animal, saúde humana e meio ambiente, além dos riscos econômicos associados à avicultura brasileira. Conclui-se que as aves selvagens possuem papel central na epidemiologia da influenza aviária, sendo essenciais na manutenção e disseminação do vírus em escala global. Dessa forma, o fortalecimento das medidas de biossegurança, da vigilância epidemiológica e da cooperação científica internacional torna-se indispensável para prevenção e controle da doença, reduzindo os impactos sanitários, econômicos e epidemiológicos associados à influenza aviária.

Palavras-chave: Influenza Aviária; Aves Selvagens; Disseminação Viral; Saúde única; Vigilância Epidemiológica.

INFLUENZA AVIÁRIA NO BRASIL: A RELAÇÃO ENTRE AVES SELVAGENS, DISSEMINAÇÃO VIRAL E SAÚDE ÚNICA - REVISÃO DE LITERATURA

Laura Mansolelli Moreno / Luísa Fernandes Simões 1¹; Gabriela Fiorucci Stievano Messias 2¹; Júlia dos Santos Lanini 3¹; Claudia Sampaio Fonseca Repetti 2².

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priorizando trabalhos publicados nos últimos 10 anos e relacionados à epidemiologia, transmissão viral, vigilância sanitária e impactos da influenza aviária. Foram excluídos estudos duplicados, trabalhos sem relevância temática e publicações sem respaldo científico. A análise dos dados foi realizada de forma descritiva, visando sintetizar as principais informações acerca da participação das aves selvagens na disseminação viral e sua relação com a Saúde Única. Os estudos analisados demonstraram que aves aquáticas migratórias pertencentes principalmente às ordens Anseriformes e Charadriiformes são importantes reservatórios do vírus influenza A, favorecendo sua disseminação entre diferentes regiões geográficas. A transmissão ocorre principalmente pelo contato com secreções respiratórias, fezes contaminadas, água e superfícies infectadas. Além disso, fatores como globalização, alterações ambientais e mudanças climáticas contribuem para a expansão da circulação viral e aumento do contato entre espécies. No Brasil, os primeiros casos de influenza aviária de alta patogenicidade pelo subtipo H5N1 foram registrados em 2023 em aves marinhas silvestres no estado do Espírito Santo, demonstrando a influência das rotas migratórias sul-americanas na introdução do vírus no país. Os estudos também evidenciam que a influenza aviária está diretamente relacionada ao conceito de Saúde Única, devido à interação entre saúde animal, saúde humana e meio ambiente, além dos riscos econômicos associados à avicultura brasileira. Conclui-se que as aves selvagens possuem papel central na epidemiologia da influenza aviária, sendo essenciais na manutenção e disseminação do vírus em escala global. Dessa forma, o fortalecimento das medidas de biossegurança, da vigilância epidemiológica e da cooperação científica internacional torna-se indispensável para prevenção e controle da doença, reduzindo os impactos sanitários, econômicos e epidemiológicos associados à influenza aviária.

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INSTITUTIONAL VIOLENCE AGAINST THE ELDERLY: A CRITICAL ANALYSIS IN THE CONTEXT OF PUBLIC HEALTH SERVICES

Luana pereira da silva / Fabiana Veronez M. Gimenez-FAMEMA-Marília/SP; Rita de Cássia G. Martinez-FAMEMA-Marília/SP

RESUMO

INSTITUTIONAL VIOLENCE AGAINST THE ELDERLY: A CRITICAL ANALYSIS IN THE CONTEXT OF PUBLIC HEALTH SERVICES Luana Pereira da Silva¹; Rita de Cássia Martinez¹; Fabiana Veronez M. Gimenez² Marília Medical School - FAMEMA, Marília, SP, Brazil. Marília Medical School - FAMEMA, Marília, SP, Brazil. **ABSTRACT** In Brazil, institutional violence against the elderly represents a sad reality that contrasts sharply with legal advancements such as the Statute of the Elderly (Law No. 10.741/2003) and the National Policy for the Elderly (Law No. 8.842/1994), which aim to guarantee their rights and dignity. This phenomenon, often veiled, manifests itself through the omission or inadequate action of the State and its agents, characterized by structural and organizational barriers and the passivity of professionals in the face of the needs of the elderly. Within the Brazilian Unified Health System (called SUS), institutional violence reflects the disarticulation of care networks and the lack of specific training for long-term care, directly impacting quality of life and access to essential services. It is assumed that the perception

of elderly people, as well as their caregivers, is important to identify gaps, guarantee rights, and propose effective interventions that promote comprehensive and respectful care. This study aims to analyze the perception of elderly people and their caregivers regarding institutional violence in public health care services, identifying the barriers that impede comprehensive care and quality of assistance. A qualitative, exploratory, and descriptive study will be conducted in primary, secondary, and tertiary level of public health units in a city in the interior of São Paulo state. The target population will consist of elderly people (60 years or older) who use public health care services and their respective caregivers (formal or informal). The sample will be selected by convenience, seeking for diversity in profiles and experiences. After approval by the Research Ethics Committee (REC), participants will be interviewed using a semi-structured interview guide developed by the researchers themselves. The data will be analyzed using Thematic Analysis, aiming to deepen the understanding of their experiences, feelings, and suggestions. It is expected that the results highlight the magnitude and forms of manifestation of institutional violence in public health care services, as well as its consequences for the health and well-being of elderly people and their caregivers. The study aims to provide input for the reformulation of care protocols, the training of SUS (Brazilian Public Health System) professionals, and the implementation of more effective public policies, promoting a culture of respect, acceptance, and comprehensive care tailored to the specific needs of older adults. Keywords: Institutional violence; Elderly; Public health; Brazilian Unified Health System.,

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INTERRELATIONSHIP BETWEEN PERIODONTAL AND CARDIOVASCULAR DISEASES: A MULTIDISCIPLINARY APPROACH

Giulia Coqueiro Rossi / Laís Pires dos Santos; Rafaella Fontana Zampieri; Letícia Zanoní Moreira; Jessica Gimenes de Araujo Lopes; Eliana de Souza Bastos Mazuqueli Pereira

RESUMO

ABSTRACT Introduction: Periodontal disease (PD) is a non-transmissible infectious and inflammatory condition resulting from an imbalance between the commensal oral microbiome and the host's immune response. This dysfunction leads to the destruction of dental support tissues and compromises the effective elimination of bacteria. The oral cavity, which harbors the second largest microbiota in the human body, plays a fundamental role in maintaining overall health and is related to the onset of several systemic diseases. In this context, the growing scientific evidence pointing to a connection between periodontal disease (PD) and cardiovascular diseases (CVD), such as atherosclerosis, myocardial infarction, and stroke, stands out. Objective: This study aims to analyze the association between Parkinson's disease (PD) and cardiovascular disease (CVD), highlighting the importance of an integrated approach in the prevention and treatment of these pathologies. Materials and Methods: A narrative literature review was conducted based on studies published in the PubMed database in the last 3 years. The search was performed using the descriptors "cardiovascular diseases" and "periodontal diseases". Original articles, systematic reviews, and meta-analyses that presented evidence of a possible connection between these diseases were included. Results: The analyzed studies indicate that periodontal disease (PD) may contribute to the development of cardiovascular disease (CVD) through the systemic dissemination of periodontal bacteria and the induction of chronic inflammatory responses, with the release of cytokines. The association was stronger in men and the elderly, due to factors such as age-related vascular degeneration and lower hormonal protection, especially estrogenic, in men. There is also an influence of behavioral factors, such as inadequate diet, smoking, and sedentary lifestyle, favored by globalized lifestyles. Although the correlation between PD and CVD is consistent, the data are still heterogeneous and do not allow for a definitive causal relationship to be established. Conclusion: The potential connection between periodontal disease (PD) and cardiovascular disease (CVD) reinforces the need for interdisciplinary strategies that integrate oral health with general

medical care. Dental professionals should be aware of the importance of preventing and controlling periodontal disease as part of promoting cardiovascular health. Well-designed studies are recommended to deepen the understanding of the pathophysiology involved. Integrating periodontal examinations into routine assessments can contribute to more holistic and effective care.

Palavras-chave: Periodontal Diseases; Cardiovascular Diseases; Interdisciplinary Health Team.

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Palavras-chave: Periodontal Diseases; Cardiovascular Diseases; Patient Care Team.

ISCHEMIC PENUMBRA IN STROKE: EVOLUTION, VIABILITY AND THERAPY.

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RESUMO

Introduction: Ischemic stroke occurs due to the interruption of cerebral blood flow, leading to the formation of a central area of irreversible necrosis and a potentially recoverable peripheral region called the ischemic penumbra. This area represents functionally compromised, but still viable, brain tissue, constituting the main target of reperfusion therapies. Under the hypothesis that the evolution of the penumbra depends on ischemia time, collateral circulation, and rapid therapeutic intervention, it becomes relevant to question how these factors determine tissue viability, prognosis, and therapeutic possibilities in ischemic stroke. **Objective:** To analyze, through a narrative literature review, the evolution, tissue viability, neuroimaging identification, and therapies currently used in the penumbra presentation in ischemic stroke. **Materials and methods:** A narrative review was conducted in PubMed, considering: the period 2016-2026; The search terms used were: “Ischemic Stroke”, “Penumbra”, and “Stroke” in Health Sciences, combined with the Boolean operators AND and OR; studies in humans available in English; systematic reviews, narratives, meta-analyses, and observational studies. Articles outside this period, duplicates, and those without a direct correlation to ischemic penumbra were excluded. The analysis, of an interpretative and descriptive nature, of the data comprised the thematic axes: Conceptual and evolutionary aspects of ischemic penumbra in stroke; Diagnostic aspects by neuroimaging; and Therapeutic approaches. **Results:** Based on the 12 studies analyzed, it was evidenced that ischemic penumbra constitutes hypoperfused and metabolically compromised brain tissue, still viable, characterizing itself as the main therapeutic target in acute ischemic stroke. It has been observed that its evolution is dynamic and time-dependent, especially on the efficiency of collateral circulation, and can persist for more than 24 hours in selected cases, with a progressive transition from the penumbra to the ischemic core in the absence of adequate reperfusion. Furthermore, the use of advanced neuroimaging methods, such as magnetic resonance imaging with diffusion-perfusion mismatch and perfusion computed tomography, has proven fundamental for identifying the penumbra and stratifying patients, reinforcing an approach focused on tissue viability. From a therapeutic perspective, recent studies show that patients with a significant area of penumbra benefit from reperfusion therapies, such as intravenous thrombolysis and mechanical thrombectomy, even in late windows. Finally, important limitations were also identified, such as the variability in the criteria for defining the penumbra and the methodological heterogeneity among studies. **Conclusion:** It was possible to conclude that the assessment of tissue viability associated with the time window is essential for proposing therapeutic interventions that favor the rescue of brain tissue, in order to minimize severe neurological sequelae and enable a better prognosis for ischemic stroke patients.

Palavras-chave: Ischemic Stroke; Ischemic Penumbra; Reperfusion Therapy; Mechanical Thrombectomy; Thrombolysis.

KIDNEY RECONSTRUCTION BASED ON BIOPRINTING

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RESUMO

Chronic Kidney Disease (CKD) is one of the major global public health challenges, ranking among the top ten causes of mortality, with projections of continued growth in the coming decades. Given this scenario, the present study proposes the development of a bioink based on porcine renal extracellular matrix (BioMEC), intended for the three-dimensional bioprinting of biofunctional renal constructs. To this end, healthy porcine kidneys were obtained from an accredited slaughterhouse and fragmented into standardized samples ($1 \times 1 \times 0.5$ cm), with an emphasis on the cortical region. Next, a diffusion decellularization protocol was applied, using a solution containing 0.1% Sodium Dodecyl Sulfate (SDS) and 1% Triton X-100 in distilled water, at a ratio of 5 mL of solution per cm^3 of tissue. The process was conducted under constant agitation at 100 rpm, with the solutions renewed every 4 hours, for 16 hours and overnight for 8 hours; this was repeated for 3 days. On the fourth day, the solutions were replaced every 6 hours for 10 hours and overnight for 14 hours; this was repeated for 2 days. Subsequently, the material underwent a washing step in distilled water, with agitation at 180 rpm and solution changes every 8 hours, for a total of 96 hours. The results of histological analysis using hematoxylin-eosin (H&E) staining demonstrated the efficient removal of cellular components, with the absence of nuclei, associated with the preservation of renal tissue architecture. Scanning electron microscopy revealed the preservation of structural integrity and cellular removal from the native matrix. These findings confirm the efficacy of the decellularization protocol and the integrity of the extracellular matrix obtained. Thus, the results indicate a promising advance for subsequent stages, including hydrogel formulation, stem cell incorporation, and 3D bioprinting. In summary, this study establishes a robust foundation for the development of biofunctional renal constructs, with potential for application in regenerative therapies aimed at restoring renal function.

Palavras-chave: Kidney; Tissue Engineering; Decellularization; Extracellular Matrices; Biofunctional Renal Constructs.

LAMA BILIAR EM FELINOS: RELAÇÃO ENTRE ACHADOS ULTRASSONOGRÁFICOS E TESTES BIOQUÍMICOS

Helen Regina Alves Netto / Maria Julia Tebet Boccaletti; Carlos Eduardo de Siqueira

RESUMO

A lama biliar caracteriza-se pelo acúmulo de material sedimentado na vesícula biliar, composto principalmente por cristais de colesterol, mucina, detritos celulares e sais biliares precipitados. Ultrassonograficamente, apresenta-se como conteúdo intraluminal hiperecoico sem sombra acústica. Em felinos, a lama biliar pode estar associada a distúrbios hepatobiliares, condições

inflamatórias, doenças colestáticas e triadite felina; contudo, também pode ocorrer como achado incidental em animais clinicamente assintomáticos, o que torna sua interpretação clínica desafiadora na prática veterinária. Apesar do uso crescente da ultrassonografia abdominal na medicina de pequenos animais, a relevância clínica da lama biliar em gatos permanece pouco compreendida. Este estudo tem como objetivo avaliar retrospectivamente a ocorrência de lama biliar em exames ultrassonográficos abdominais de felinos e investigar possíveis associações entre os achados ultrassonográficos e os parâmetros bioquímicos hepatobiliares. Será realizado um estudo retrospectivo, observacional e descritivo utilizando prontuários médicos, exames ultrassonográficos abdominais e dados laboratoriais de felinos atendidos na Clínica Veterinária Casa do Criador e no Hospital Veterinário da Universidade de Marília (UNIMAR). Imagens ultrassonográficas e registros laboratoriais previamente armazenados serão analisados sem manipulação direta dos animais. A avaliação ultrassonográfica incluirá a caracterização da lama biliar de acordo com o grau de preenchimento da vesícula biliar, padrão de distribuição, ecogenicidade, sedimentação e anormalidades hepatobiliares associadas, incluindo espessamento da parede da vesícula biliar, dilatação do ducto biliar e alterações hepáticas concomitantes. A avaliação bioquímica incluirá fosfatase alcalina (ALP) e gama-glutamil transferase (GGT). Os dados serão organizados em planilhas eletrônicas e analisados utilizando métodos estatísticos descritivos para identificar possíveis associações entre os achados ultrassonográficos e bioquímicos. Espera-se que os resultados contribuam para uma melhor compreensão da ocorrência e da importância clínica da lama biliar em felinos, auxiliando na interpretação diagnóstica e na tomada de decisões clínicas relativas a achados ultrassonográficos hepatobiliares incidentais na medicina veterinária.

Palavras-chave: Colestase Diagnóstico Por Imagem Distúrbios Da Vesícula Biliar Doenças Hepatobiliares Medicina Interna Veterinária.

LINFOMA MULTICÊNTRICO DE ALTO GRAU - RELATO DE CASO

Leonardo Martins / Beatriz Lopes; Gabriel Castro de oliveira; Pedro Henrique Amorim; Beatriz Dos Santos Bueno

RESUMO

O linfoma está entre as neoplasias hematopoéticas mais frequentes em cães, sendo caracterizado pela proliferação maligna de linfócitos que acometem tecidos e órgãos linfoides. A enfermidade pode manifestar-se em diferentes formas anatômicas, incluindo multicêntrica, cutânea, alimentar e mediastínica, variando conforme os órgãos afetados e as manifestações clínicas observadas, sendo a forma multicêntrica a apresentação mais comum na espécie canina. O presente estudo teve como objetivo descrever os achados clínicos, laboratoriais, imaginológicos e terapêuticos de um cão diagnosticado com linfoma multicêntrico de alto grau. Foi atendido no Hospital Veterinário da Universidade de Marília um cão macho, não castrado, da raça Bulldog inglês, com três anos de idade, apresentando linfadenomegalia periférica, lesões cutâneas alopecias multifocais secundárias à imunossupressão associada ao linfoma, hiporexia e apatia progressiva. Foram realizados exame físico, hemograma completo, perfil bioquímico sérico, cultura bacteriana com antibiograma, radiografia torácica, ultrassonografia abdominal e citopatologia aspirativa de linfonodos. Os exames hematológicos evidenciaram leucocitose por linfocitose persistente e evolução para anemia normocítica normocrômica. A bioquímica sérica revelou aumento das atividades de alanina aminotransferase e fosfatase alcalina. A cultura bacteriana identificou

Staphylococcus spp. com perfil de multirresistência antimicrobiana. O estadiamento por imagem evidenciou hepatomegalia, esplenomegalia com aspecto rendilhado sugestivo de infiltração neoplásica, aumento de linfonodos abdominais e alterações torácicas compatíveis com acometimento metastático. Foi instituído tratamento quimioterápico por meio do protocolo CHOP, composto por ciclofosfamida, doxorubicina, vincristina e prednisona, associado à terapia de suporte, observando-se redução parcial da leucocitose após o início do protocolo. A rápida condução diagnóstica após o atendimento hospitalar permitiu a instituição terapêutica e o acompanhamento clínico do paciente; entretanto, o prognóstico permaneceu reservado devido ao comportamento biológico agressivo da neoplasia e ao avançado comprometimento sistêmico e metastático identificado durante o estadiamento oncológico.

Palavras-chave: Linfoma Canino; Oncologia Veterinária; Citopatologia; Quimioterapia; Linfadenomegalia.

LIPOTOXICITY AND CELLULAR DAMAGE: CONTRIBUTION OF LIPOGENESIS ASSOCIATED WITH THE CONSUMPTION OF ULTRA-PROCESSED FOODS AND SEDENTARY BEHAVIOR

Leticia Miranda Alarcon / Rebecca Santarossa Nicolau Mussi; Luisa Yumi Umeki; Laura Yumi Coelho Sakuno; Manuela Dos Santos Bueno

RESUMO

The increasing consumption of ultra-processed foods, combined with the increase in sedentary behavior, has become a significant public health issue, contributing substantially to the development of chronic non-communicable diseases, such as obesity, type 2 diabetes mellitus and metabolic syndrome. These factors promote imbalances between synthesis and lipid oxidation, favoring fat deposition in non-adipose tissues, triggering lipotoxicity, mitochondrial dysfunction and progressive cell damage. This process triggers mitochondrial dysfunction, oxidative stress, chronic inflammation and progressive cell damage, consolidating itself as a central mechanism in metabolic pathophysiology. The present study aimed to analyze how the consumption of ultra-processed foods and sedentary behavior contribute to lipotoxicity and cell damage. This is a narrative literature review carried out through searches in the PubMed and SciELO databases. The following descriptors were used: "ultra-processed foods", "sedentary behavior", "lipogenesis", "lipotoxicity" and "cellular damage", combined through Boolean operators (AND). Articles published between 2020 and 2026 were included, in English and Portuguese, with free access to the full text. The inclusion criteria included systematic reviews and meta-analyses that addressed the relationship between lifestyle, lipid metabolism and cell damage. Duplicate studies were excluded, as well as those that were not directly related to the investigated theme. Initially, 10 studies were identified, of which 8 met the eligibility criteria and were selected for the final analysis. The results show that dietary patterns rich in sodium, sugars, saturated fats and chemical additives, combined with physical inactivity, favor excessive lipid synthesis, reduce the use of lipids as an energy source and facilitate lipotoxicity. This metabolic scenario increases mitochondrial overload, increases the generation of reactive oxygen species, induces inflammatory pathways and mitochondrial-mediated cellular apoptosis. Therefore, lipotoxicity emerges as a central pathophysiological link between bad lifestyle habits and cellular changes that are correlated to the onset of chronic diseases. However, the methodological diversity in the studies

makes it difficult to standardize the findings. The findings reinforce that ultra-processed foods and sedentary behavior act as central metabolic determinants of lipotoxicity and cell damage, highlighting the need for an integrated approach to prevent such effects by promoting healthy eating patterns and physical activity to minimize metabolic risks.

Palavras-chave: Sedentary Behavior Lipogenesis Lipotoxicity Cellular Damage Ultra-processed.

LIPOTOXICITY AND CELLULAR DAMAGE: CONTRIBUTION OF LIPOGENESIS ASSOCIATED WITH THE CONSUMPTION OF ULTRA-PROCESSED FOODS AND SEDENTARY BEHAVIOR

Leticia Miranda Alarcon / Rebecca Santarossa Nicolau Mussi; Luisa Yumi Umeki; Laura Yumi Coelho Sakuno; Manuela Dos Santos Bueno

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Palavras-chave: Sedentary Behavior Lipogenesis Lipotoxicity Cellular Damage Ultra-processed.

LONG-TERM THERAPEUTIC MANAGEMENT AND PROLONGED SURVIVAL IN A DOG WITH VISCERAL LEISHMANIASIS: CASE REPORT

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RESUMO

Canine visceral leishmaniasis (CVL) is a parasitic zoonosis of high clinical severity and major impact on One Health. The disease is caused by protozoans of the genus *Leishmania*, transmitted by infected sandflies. Clinical manifestations can vary from subclinical infections to severe systemic alterations, including dermatological, hematological, and renal disorders. One of the main determining factors for the reserved prognosis of the disease in most dogs is Chronic Kidney Disease (CKD), which is one of the leading causes of death in patients with Leishmaniasis. CKD in these patients is frequently a consequence of the continuous deposition of circulating immune complexes, characterizing an intense type III hypersensitivity reaction, triggering proliferative glomerulonephritis, tubulointerstitial nephritis, and progressive loss of the glomerular filtration rate. The objective of this study was to describe the long-term clinical evolution and therapeutic management of a canine with CVL and progression to end-stage CKD (IRIS Stage 4). The study followed the guidelines of the CARE (Case Reports Guideline) guide and meets ethical principles through the retrospective analysis of clinical records safeguarded by the Informed Consent Form (ICF) signed by the owner. A female, canine, Pinscher, one year and two months old, weighing 2 kg, was treated in the municipality of Garça-SP in 2017, presenting non-pruritic alopecic skin lesions in the periocular region. In the initial hematological evaluation, the patient presented microcytic hypochromic anemia and thrombocytopenia, with the infection being confirmed by ELISA (Enzyme-Linked Immunosorbent Assay) and IFAT (Indirect Fluorescent Antibody Test) serological tests. However, in 2022, the animal developed severe renal impairment, characterized by elevated creatinine levels, metabolic acidosis, and systemic deterioration, evolving to end-stage chronic kidney disease and death. The scientific highlight of this case lies in the prolonged survival of five years with excellent quality of life under continuous veterinary clinical monitoring, demonstrating a positive impact in cases where prolonged clinical monitoring occurs. It is concluded that, although chronic kidney disease is an expected consequence of canine visceral leishmaniasis, this report demonstrates that early diagnosis combined with the appropriate institution of the therapeutic protocol can contribute to improving the prognosis and increasing patient survival. Furthermore, the relevance of continuous monitoring of renal function in animals affected by the disease is highlighted, aiming to mitigate tissue damage resulting from the immunological overload of the disease.

Palavras-chave: Visceral Leishmaniasis; One Health; Severe Renal Impairment.

MEDICINAL PLANTS AS MODULATORS OF THE GUT-BRAIN AXIS: A NARRATIVE REVIEW ON THEIR THERAPEUTIC IMPLICATIONS IN ANXIETY

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RESUMO

Anxiety significantly impacts quality of life and represents one of the leading causes of global disability. According to the World Health Organization, Brazil has one of the highest prevalences of anxiety disorders worldwide. Recent evidence highlights the role of chronic inflammation and dysregulation of the gut-brain axis in the pathophysiology of this condition. The bidirectional communication between the central nervous system (CNS), enteric nervous system (ENS), and endocrine system, known as the “microbiota-gut-brain axis,” proposes the interaction of the intestinal microbiota with the nervous system, influencing physiological processes, cognition, and emotions through neural, immunological, and chemical signals. Herbal medicines, used since ancient times, contain active compounds with preventive and therapeutic potential, obtained from different parts of plants. In this context, the present study aims to develop a bibliographic review on the action of medicinal plants in modulating the gut-brain axis and their influence on anxiety. A narrative review was conducted, structured according to SANRA guidelines, using the PubMed database. The search was performed using the descriptors: “gut-brain axis,” “microbiota,” “phytotherapy,” “anxiety,” and “chronic inflammation,” combined with Boolean operators (AND/OR). Randomized clinical trials and systematic reviews published between 2021 and 2026 in English were included. Experimental animal studies, case reports, and articles without full-text availability were excluded. Study selection was carried out through the screening of titles and abstracts, followed by full-text analysis of eligible articles. The findings indicate that medicinal plants may modulate the microbiota-gut-brain axis through neurobiological and immunomodulatory effects. As an example, *Crocus sativus* L. (saffron) stands out, as it contains compounds with anti-inflammatory and antioxidant activity, including inhibition of the NLRP3 inflammasome and neutralization of superoxide anions. Its anxiolytic effects are associated with the inhibition of monoamine reuptake, agonist activity at GABAergic receptors, and antagonism of NMDA receptors. *Withania somnifera* (ashwagandha) has also been described, containing withanolides, alkaloids, and flavonoids associated with anxiolytic and immunomodulatory effects. Withaferin A acts mainly through the selective modulation of glucocorticoid receptors (GR), in addition to its anti-inflammatory activity. The potential anxiolytic effect involving the GABAergic system is more strongly attributed to the whole plant extract than to the isolated compound. Finally, *Melissa officinalis* contains triterpenes, phenolic acids, and flavonoids with anxiolytic, sedative, and neuroprotective effects, acting through the inhibition of GABA transaminase and monoamine oxidase-A (MAO-A), as well as by increasing serotonergic neurotransmission. Evidence suggests that the use of *Crocus sativus* L., *Melissa officinalis* L., and *Withania somnifera* exerts anxiolytic effects through the integrated modulation of neuroinflammatory pathways, neurotransmitter systems, and the microbiota-gut-brain axis. Additionally, evidence suggests that these species may

influence the composition and metabolic activity of the intestinal microbiota, contributing to the regulation of inflammatory pathways and neurochemical signaling involved in anxiety; however, studies are predominantly focused on experimental models, with a scarcity of clinical data in humans. Furthermore, there is no consensus regarding the associated risks and benefits, highlighting the need for more robust and standardized clinical investigations to support the consolidation of their therapeutic use.

Palavras-chave: Gut-brain Axis; Gastrointestinal Microbiome; Phytotherapy; Anxiety; Inflammation.

MEDIDAS PROFILÁTICAS ADOTADAS NA LEITERIA DA UNIVERSIDADE DE MARÍLIA - UNIMAR PARA O CONTROLE DA DIARREIA EM BEZERRAS REVISÃO DE LITERATURA: DIARREIA EM BEZERRAS LEITEIRAS: CAUSAS, CONSEQUÊNCIAS E ESTRATÉGIAS DE PREVENÇÃO

Rafaela Moreira Mendes / Luísa Fernandes Simões

RESUMO

A diarreia neonatal em bezerras leiteiras constitui uma das principais enfermidades que acometem animais nas primeiras semanas de vida, sendo responsável por elevados índices de morbidade e mortalidade, além de impactar diretamente o bem-estar animal e a produtividade dos sistemas de produção leiteira. Trata-se de uma síndrome de etiologia multifatorial, resultante da interação entre fatores imunológicos, nutricionais, ambientais e infecciosos, envolvendo agentes patogênicos como *Escherichia coli*, *Salmonella* spp., Rotavírus, Coronavírus bovino e protozoários do gênero *Eimeria*. Além dos prejuízos sanitários, a enfermidade ocasiona perdas econômicas expressivas relacionadas aos custos com tratamentos, maior susceptibilidade a infecções secundárias, atraso no desenvolvimento e, em casos graves, mortalidade dos animais. O presente trabalho teve como objetivo descrever as principais medidas profiláticas adotadas na leiteria da Fazenda Experimental da Universidade de Marília (UNIMAR) para o controle e a prevenção da diarreia em bezerras leiteiras. Como material e método, realizou-se um estudo de caráter descritivo, baseado em revisão de literatura científica acerca da diarreia neonatal em bezerros leiteiros, associada à observação prática e ao acompanhamento das rotinas de manejo sanitário desenvolvidas no bezerreiro da Fazenda Experimental da UNIMAR. Foram analisados protocolos relacionados ao manejo pré e pós-parto, colostragem, biossegurança, higiene das instalações e condutas terapêuticas empregadas nos casos clínicos observados. Por meio da análise realizada, verificou-se que, ainda no período pré-parto, as vacas recebem vacinação específica contra os principais agentes envolvidos na diarreia neonatal, contribuindo para a produção de colostro com elevada qualidade imunológica. Após o nascimento, os bezerros são pesados para o cálculo correto do volume de colostro a ser administrado, correspondente a aproximadamente 10% do peso vivo, além da avaliação prévia da qualidade desse alimento. Também foram identificadas medidas complementares de biossegurança, como alojamento individual das bezerras, uso de comedouros, bebedouros e baldes individualizados, higienização rigorosa de instalações e utensílios, troca diária da água e limpeza periódica das baias, reduzindo os riscos de contaminação cruzada. Nos casos de ocorrência da enfermidade, são instituídas medidas terapêuticas de suporte, incluindo reposição eletrolítica, administração de probióticos, controle da dor e tratamentos específicos conforme a evolução clínica. Conclui-se que a associação entre colostragem eficiente, manejo sanitário

criteroso, práticas de biossegurança e acompanhamento veterinário contínuo constitui estratégia fundamental para reduzir a incidência da diarreia neonatal e promover o desenvolvimento saudável das bezerras leiteiras.

Palavras-chave: Diarreia Neonatal Bezerras Leiteiras Manejo Sanitário Colostragem Profilaxia.

MODULAÇÃO DA MICROBIOTA INTESTINAL PARA MELHORA DA RESPOSTA À IMUNOTERAPIA

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RESUMO

Introdução: A microbiota intestinal, composta por trilhões de microrganismos, desempenha papel essencial na manutenção da homeostase e na modulação do sistema imunológico. Alterações em sua composição estão associadas ao desenvolvimento e à progressão de diversos tipos de câncer. Evidências recentes indicam que a microbiota pode influenciar a eficácia e a toxicidade da imunoterapia, tornando-se um potencial alvo para estratégias terapêuticas personalizadas. **Objetivo:** Avaliar como a modulação da microbiota intestinal influencia a resposta à imunoterapia no câncer, com foco nos mecanismos subjacentes, estratégias terapêuticas e desfechos clínicos. **Métodos:** Foi realizada uma revisão abrangente da literatura em importantes bases de dados científicas, incluindo PubMed e Semantic Scholar. A estratégia de busca abordou domínios centrais relacionados à microbiota intestinal e à imunoterapia oncológica, incluindo vias mecanísticas, estratégias de intervenção (como transplante de microbiota fecal, probióticos e modulação dietética), evidências clínicas e biomarcadores de resposta. Aplicou-se um processo de seleção em múltiplas etapas, baseado na relevância e na qualidade metodológica dos estudos. Cinquenta estudos foram incluídos na análise final. **Resultados:** A microbiota intestinal emergiu como um fator crítico na influência dos desfechos da imunoterapia contra o câncer. Evidências atuais indicam forte associação entre a composição da microbiota intestinal e a eficácia dos inibidores de checkpoint imunológico. Estudos demonstraram que a microbiota intestinal modula respostas antitumorais por meio da regulação tanto da imunidade inata quanto da adaptativa, influenciando diretamente o microambiente tumoral. Metabólitos microbianos, como ácidos graxos de cadeia curta, derivados do triptofano, ácidos biliares e inosina, potencializam a ativação de células T efectoras, estimulam a produção de citocinas pró-inflamatórias e reduzem a atividade de células T reguladoras, promovendo respostas imunes antitumorais mais robustas. Clinicamente, pacientes respondedores apresentaram consistentemente maior diversidade microbiana e enriquecimento de táxons específicos, incluindo *Akkermansia muciniphila*, *Faecalibacterium prausnitzii*, espécies de *Bifidobacterium*, espécies de *Lactobacillus* e membros da família *Ruminococcaceae*. Em contraste, a disbiose induzida por antibióticos esteve associada à redução significativa da eficácia terapêutica. Entre as intervenções avaliadas, o transplante de microbiota fecal destacou-se como a estratégia mais promissora, com meta-análises relatando taxas de resposta objetiva de até 43% quando combinado à imunoterapia. Intervenções dietéticas baseadas em fibras e prebióticos também demonstraram aumento da diversidade microbiana e correlação positiva com melhores desfechos clínicos. Além disso, probióticos e microrganismos geneticamente modificados apresentaram efeitos imunomoduladores favoráveis em modelos experimentais, embora ainda sejam necessárias validações clínicas adicionais. Apesar desses avanços, persiste considerável heterogeneidade

metodológica entre os estudos devido a variações nas populações de pacientes, padrões alimentares, fatores geográficos, genética do hospedeiro e tipos tumorais, reforçando a necessidade de protocolos padronizados e de investigações adicionais sobre segurança e aplicabilidade clínica. Conclusão: A modulação da microbiota intestinal vem se tornando um elemento importante na resposta à imunoterapia oncológica, influenciando tanto a eficácia terapêutica quanto os desfechos clínicos por meio de mecanismos imunológicos complexos. Estratégias como transplante de microbiota fecal, intervenções dietéticas e uso de probióticos demonstram potencial promissor na otimização das respostas terapêuticas, embora ainda careçam de padronização e validação em larga escala. Dessa forma, a integração da microbiota como biomarcador e alvo terapêutico representa uma abordagem inovadora e personalizada, com potencial para melhorar significativamente os resultados da imunoterapia contra o câncer.

Palavras-chave: Microbiota Intestinal; Imunoterapia Oncológica; Modulação Do Microbioma; Resposta Ao Tratamento.

NATURAL FEEDING IN ANIMALS: CONSCIOUS CHOICE OR SOCIAL INFLUENCE?

Celina Vasconcelos De Lima / Glória Januário Pettinati - Universidade de Marília (Unimar); Hellen Beatriz Neles Domingues - Universidade de Marília (Unimar); Maria Júlia Alves Moura - Universidade de Marília (Unimar); Beatriz dos Santos Bueno - Universidade de Marília (Unimar)

RESUMO

The use of natural feeding in animals has gained prominence in recent years, driven by greater awareness among pet owners and the influence of social media and market trends. Many owners seek to provide diets considered healthier, based on fresh and less processed foods, believing that this practice can improve quality of life, prevent diseases, and increase animal longevity. When properly formulated and supervised by veterinary professionals, natural diets can meet the nutritional needs of each species and contribute to animal health and well-being. However, the growing popularity of natural feeding is also associated with the spread of misinformation and dietary trends that are not always supported by scientific evidence. Influenced by online content and personal opinions, some owners adopt homemade diets without professional guidance, which may result in nutritional imbalances harmful to animal health. Inadequate formulations can impair growth, immune response, and metabolic functions, especially in young, elderly, or sick animals. In this context, natural feeding can be understood both as a conscious decision and as a practice influenced by social behavior. The increase in the humanization of companion animals and the expansion of the pet market have contributed to the perception that the term “natural” automatically means something healthier, although this is not always true. Therefore, the present study aims to analyze the content of videos published on the digital platforms TikTok and YouTube about natural feeding in animals. Fifty videos from each platform will be analyzed, totaling 100 videos, selected through searches using the terms “natural pet feeding.” Videos in Portuguese related to natural feeding for dogs and cats, publicly available and containing informative or educational content, will be included. Duplicate videos, exclusively advertising content without informative purpose, videos without understandable audio or text, and content unrelated to the proposed topic will be excluded. The videos will be evaluated regarding content authorship, the professional background of the content creator, citations of reference sources, type of nutritional recommendation presented, and the presence of possible incorrect information or information without scientific support. The level of reach of the publications will also be evaluated through metrics such as likes, comments,

and shares. It is expected that this study will contribute to understanding the profile of information available to the public, evaluating its quality and reliability, and reinforcing the importance of professional guidance and the use of scientific evidence.

Palavras-chave: Natural Feeding; Animal Nutrition; Social Influence; Animal Welfare.

NATURAL FEEDING IN ANIMALS: CONSCIOUS CHOICE OR SOCIAL INFLUENCE?

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RESUMO

The use of natural feeding in animals has gained prominence in recent years, driven by greater awareness among pet owners and the influence of social media and market trends. Many owners seek to provide diets considered healthier, based on fresh and less processed foods, believing that this practice can improve quality of life, prevent diseases, and increase animal longevity. When properly formulated and supervised by veterinary professionals, natural diets can meet the nutritional needs of each species and contribute to animal health and well-being. However, the growing popularity of natural feeding is also associated with the spread of misinformation and dietary trends that are not always supported by scientific evidence. Influenced by online content and personal opinions, some owners adopt homemade diets without professional guidance, which may result in nutritional imbalances harmful to animal health. Inadequate formulations can impair growth, immune response, and metabolic functions, especially in young, elderly, or sick animals. In this context, natural feeding can be understood both as a conscious decision and as a practice influenced by social behavior. The increase in the humanization of companion animals and the expansion of the pet market have contributed to the perception that the term “natural” automatically means something healthier, although this is not always true. Therefore, the present study aims to analyze the content of videos published on the digital platforms TikTok and YouTube about natural feeding in animals. Fifty videos from each platform will be analyzed, totaling 100 videos, selected through searches using the terms “natural pet feeding.” Videos in Portuguese related to natural feeding for dogs and cats, publicly available and containing informative or educational content, will be included. Duplicate videos, exclusively advertising content without informative purpose, videos without understandable audio or text, and content unrelated to the proposed topic will be excluded. The videos will be evaluated regarding content authorship, the professional background of the content creator, citations of reference sources, type of nutritional recommendation presented, and the presence of possible incorrect information or information without scientific support. The level of reach of the publications will also be evaluated through metrics such as likes, comments, and shares. It is expected that this study will contribute to understanding the profile of information available to the public, evaluating its quality and reliability, and reinforcing the importance of professional guidance and the use of scientific evidence.

Palavras-chave: Natural Feeding; Animal Nutrition; Social Influence; Animal Welfare.

NETS AND ENDOTHELIAL ACTIVATION IN IMMUNOTHROMBOSIS: A REVIEW ON THE NEUTROPHIL- PLATELET-THROMBIN AXIS

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RESUMO

ABSTRACT Introduction: Immunothrombosis corresponds to the interaction between inflammation, innate immunity, and coagulation, playing a significant role in the pathophysiology and outcomes of many clinical scenarios. In this context, neutrophil extracellular traps (NETs) have been recognized as central mediators of thromboinflammation, promoting endothelial activation, platelet aggregation, and amplification of the coagulation cascade. Objective: The present study aimed to analyze the role of NETs in immunothrombosis and endothelial activation associated with cardiovascular, pulmonary, inflammatory, and degenerative diseases. Materials and methods: This is a narrative literature review, conducted through a search in the PubMed database, using a strategy formulated with the DeCS/MeSH descriptors "Thromboinflammation" and "Extracellular traps", combined by the Boolean operator AND. Original articles published in the last three years, related to the role of NETs in immunothrombosis, were selected, focusing on the pathophysiological mechanisms involving endothelium, platelets, and coagulation. Results: The studies analyzed demonstrated that NETs play a vital role in the interface between inflammation and coagulation, acting as pro-thrombotic platforms capable of amplifying immunothrombosis. It has been observed that components of NETs, such as extracellular DNA, histones, myeloperoxidase (MPO), and neutrophil elastase, promote endothelial activation, increased vascular permeability, expression of adhesion molecules, and platelet activation. Furthermore, NETs were found to be directly involved in thrombin generation, tissue factor activation, and propagation of the coagulation cascade, contributing to the formation of microthrombi and microvascular injury. Significant interaction was also evidenced between NETs, complement, and platelets, establishing inflammatory feedback loops capable of perpetuating vascular damage and systemic thromboinflammation. Some studies have indicated that extracellular histones derived from NETs function as damage-associated molecular patterns (DAMPs), promoting endothelial cytotoxicity, activation of Toll-like receptors, and intensification of the inflammatory response. In cardiovascular diseases, studies have shown an association between NETs and endothelial dysfunction, atherosclerotic progression, plaque instability, and atherothrombotic events. In pulmonary and systemic inflammatory settings, a relationship was observed between thromboinflammation, endothelial damage, and organ dysfunction, mediated by the interaction between neutrophils, platelets, complement, and endothelium. Furthermore, biomarkers related to NETs, such as circulating cell-free DNA, citrullinated histone H3, and MPO-DNA complexes, have shown potential application in severity stratification and clinical prognosis. Conclusion: It is concluded that NETs play a fundamental role in the pathophysiology of immunothrombosis, acting as a link between inflammation, endothelial activation, and coagulation. Its role in microvascular dysfunction and the amplification of thromboinflammation demonstrates relevance in various clinical settings, particularly in cardiovascular and systemic inflammatory diseases. Furthermore, biomarkers related to NETs

show potential diagnostic and prognostic utility, while NETosis modulation emerges as a promising therapeutic target for reducing vascular damage and thrombotic complications.

Palavras-chave: Thromboinflammation; Extracellular Traps; Neutrophils; Endothelial Dysfunction; Coagulation.

NUTRITIONAL RISK SCREENING IN ONCOLOGY: A COMPARATIVE STUDY OF TWO INSTRUMENTS

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RESUMO

Malnutrition in cancer patients often remains underdiagnosed, especially in outpatient settings, where much of the clinical follow-up takes place. In this context, the use of validated nutritional screening tools is essential for the early identification of individuals at risk. Among the available instruments, the Nutrition Risk Screening 2002 (NRS-2002) and the Patient-Generated Subjective Global Assessment Short Form (PG-SGA SF) stand out. However, evidence remains divergent regarding the most appropriate instrument for nutritional identification in these patients. In light of the above, this study aimed to compare the performance of the NRS-2002 and PG-SGA SF instruments in identifying nutritional risk among cancer patients undergoing outpatient follow-up. This study is part of a broader investigation previously approved by a Research Ethics Committee, protocol no. 7.873.565. This is an observational, analytical, cross-sectional study conducted with patients admitted to the oncology center of a hospital located in the midwestern region of the state of São Paulo, Brazil. Individuals aged 18 years or older, of both sexes, with a confirmed cancer diagnosis were included. Nutritional screening was performed by an experienced professional using the NRS- 2002 and PG-SGA SF instruments. For data analysis, the classifications of moderate nutritional risk and high nutritional risk obtained through the PG- SGA SF were grouped into a single category, named nutritional risk, in order to enable comparison with the NRS-2002 classification. Functional performance was assessed using the Eastern Cooperative Oncology Group Performance Status scale (ECOG-PS). Sociodemographic and clinical variables, such as age, sex, type of neoplasm, and clinical staging, were also collected. Statistical analysis included descriptive measures and the chi- square test using Jamovi software, version 2.6.44, considering a 5% significance level. The sample consisted of 52 patients, with a predominance of females (63.5%) and a mean age of 59 ± 14.8 years. Heterogeneity was observed regarding tumor types, with breast cancer being the most frequent (40.4%), in addition to a high proportion of patients in advanced stages of the disease (57.7% in stages III and IV). Regarding functional performance, 96.1% presented good general status, classified as ECOG-PS 0-1. Based on the NRS-2002, 38.5% of patients were classified as being at nutritional risk, whereas according to the PG-SGA SF, 46%

were at nutritional risk. Among the evaluated patients, 31.3% of those classified as not being at nutritional risk by the NRS-2002 were considered at risk by the PG-SGA SF. This difference in nutritional risk classification according to the instruments used was significant ($p = 0.006$). These findings allow us to conclude that, in the studied sample, the PG-SGA SF was able to identify a higher proportion of patients at risk when compared with the NRS-2002, proving to be more appropriate for the early detection of nutritional impairment. Its use in clinical practice may support more timely and effective interventions. Future studies should evaluate the impact of these instruments on clinical outcomes.

Palavras-chave: Malnutrition; Triage; Neoplasms; Nutritional Status; Medical Oncology.

OBESIDADE COMO FATOR DE RISCO PARA O CÂNCER: MECANISMOS MOLECULARES.

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RESUMO

INTRODUÇÃO: A obesidade é reconhecida atualmente como uma das principais causas evitáveis de diversos tipos de câncer atingindo proporções epidêmicas que sobrecarregam os sistemas de saúde. Estima-se que até 8% de todos os tipos de câncer sejam atribuídos diretamente ao excesso de adiposidade. O excesso de peso corporal está associado a um maior risco de pelo menos 13 tipos diferentes de câncer, incluindo câncer de mama (pós- menopausa), colorretal, endometrial, renal, esofágico, pancreático, hepático e de vesícula biliar. **OBJETIVO:** Este estudo teve como objetivo investigar os mecanismos moleculares que relacionam a obesidade como fator de risco para o câncer, incluindo alterações metabólicas, inflamatórias e hormonais envolvidos. **MÉTODO:** Trata-se de uma revisão narrativa de literatura baseada em busca nas bases de dados PubMed, com os descritores relacionados à "obesidade", "câncer" e "mecanismo molecular". Foram incluídos estudos experimentais e clínicos que abordaram a relevância do tema na atualidade, aplicando filtros para estudos clínicos e meta-análise publicados nos últimos 5 anos. **RESULTADOS:** Os estudos apontam que o sobrepeso age por meio de diversos mecanismos moleculares. Em mulheres na pós-menopausa, a desregulação de leptina, PCR, insulina e estradiol explicam cerca de 20 a 24% do risco de desenvolvimento de câncer de mama, colorretal e endométrio. A elevação nos níveis de leptina, identificada como uma molécula com propriedades pró-tumorais, concomitante a uma redução nos níveis de adiponectina. Esta última, em condições normais, atua como um agente antitumoral, e sua supressão remove uma importante barreira metabólica contra o crescimento de massas celulares anômalas. A hiperglicemia crônica, resultante da resistência à insulina, aumenta a biodisponibilidade do fator de crescimento semelhante à insulina (IGF-1), que atua como um potente mitógeno celular. O emagrecimento revelou-se vantajoso ao diminuir os níveis de micro- RNAs como miR-200b-3b, e atenuar a atividade da via de sinalização da insulina/IGF-1. A inflamação crônica sistêmica de baixo grau, fomentada pelo excesso de tecido adiposo, emergiu como um modulador do microambiente tumoral. O aumento de citocinas pró-inflamatórias correlacionou-se positivamente com o favorecimento da angiogênese e da capacidade de invasão celular. Adicionalmente, alterações genéticas induzidas pela toxicidade causa alterações em proteínas pró- oncogênicas, além de aumentar os níveis de ceramidas e esfingolipídios no sangue de pacientes com câncer renal. Por outro lado, o câncer de próstata não apresenta associação com leptina e adiponectina, propondo que os mecanismos podem ser distintos. **CONCLUSÃO:** A

evidência científica confirma que a obesidade é um fator crítico na etiologia e no prognóstico do câncer através de mecanismos moleculares complexos que envolvem vias endócrinas e inflamatórias. Compreender esses mecanismos é fundamental para o desenvolvimento de estratégias preventivas e terapêuticas, reforçando que intervenções no estilo de vida, como dieta e exercícios, são pilares essenciais no controle da progressão neoplásica e na redução da carga global da doença.

Palavras-chave: Obesidade Câncer Mecanismo Molecular Relação Resistência à Insulina.

OBESITY AND OBSTRUCTIVE SLEEP APNEA: A BIDIRECTIONAL RELATIONSHIP - LITERATURE REVIEW

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RESUMO

ABSTRACT Introduction: Obstructive sleep apnea (OSA) and obesity are highly prevalent comorbidities with profound implications for public health. OSA is a sleep-related breathing disorder characterized by episodes of complete (apnea) or partial (hypopnea) collapse of the upper airways, leading to decreased oxygen desaturation or awakening during sleep. Obesity is a major epidemic of the 21st century, contributing to dyslipidemia, hypertension, and type 2 diabetes. It affects almost a quarter of adults worldwide and is strongly linked to cardiometabolic diseases. OSA and obesity are highly prevalent comorbidities, associated with a significant social burden and a strain on the healthcare system. Objectives: This study aims to analyze current evidence of the bidirectional relationship between obesity and OSA (Obstructive Sleep Apnea). Materials and Methods: A narrative literature review was conducted based on studies published in the PubMed database in the last two years. The search was performed using the descriptors "obesity" and "obstructive sleep apnea." Original articles, clinical trials, systematic reviews, meta-analyses, and randomized controlled trials with a direct approach to the topic were included. Results: Obesity and overweight in the adult population are associated with the severity of OSA. OSA can be asymptomatic, but most patients develop a variety of symptoms, including night awakenings, nocturia, non-restorative sleep, daytime sleepiness and fatigue, difficulty concentrating, and chronic morning headaches. Sleep deprivation exacerbates components of metabolic syndrome, including insulin resistance and dyslipidemia, further perpetuating weight gain. Similarly, obesity-induced sleep disturbances lead to pro-inflammatory states, vascular dysfunction, and sympathetic hyperactivation, exacerbating cardiometabolic risks. Weight loss improves the apnea-hypopnea index, symptoms, and cardiometabolic markers. Conclusion: The bidirectional relationship between obesity and OSA highlights the importance of integrating the assessment and management of this sleep disorder into obesity treatment strategies, using personalized and interdisciplinary approaches.

Palavras-chave: Obesity; Obstructive Sleep Apnea; Sleep Deprivation; Sleep Apnea Syndromes; Metabolic Syndrome.

OBESITY, WEIGHT LOSS, AND BONE FRAGILITY: MUSCULOSKELETAL EFFECTS AND THERAPEUTIC INTERVENTIONS

Miguel Antonio de Souza / Sandra M. Barbalho

RESUMO

Introduction: The rise in obesity among adults and the elderly has increased concern about its musculoskeletal repercussions, especially due to the risk of bone fragility associated with aging, type 2 diabetes mellitus (T2DM), and sarcopenia. Although obese individuals often have higher bone mineral density (BMD), recent evidence indicates compromised trabecular microarchitecture and poorer bone quality, demonstrated by lower trabecular bone score (TBS) values and greater muscle fat infiltration. In addition, chronic systemic inflammation associated with obesity contributes to an increased risk of fractures even in individuals with preserved BMD. **Objectives:** This review investigated the relationship between obesity and bone fragility, evaluating the effects of weight loss, physical exercise, and pharmacological therapies on bone density, bone quality, and biomechanical strength. **Methods:** This narrative review was based on a literature search conducted in the PubMed database using the MeSH terms “Obesity,” “Bone Density,” “Bone Quality,” “Weight Loss,” and “Fracture Risk,” combined with Boolean operators. Randomized clinical trials and observational studies published between 2025 and 2026 were reviewed, emphasizing the relationship between obesity, weight loss, and skeletal health in overweight or obese adults. Studies involving animals, pediatric populations, duplicated articles, and papers not directly related to skeletal health in obesity were excluded. **Results and Discussion:** The studies analyzed demonstrated that intentional weight loss of approximately 10% was associated with a 1% to 2% reduction in hip BMD, even when combined with resistance training strategies. However, intensive interventions combining a hypocaloric diet, aerobic exercise, and strength training were able to preserve bone quality parameters and biomechanical competence, despite reductions in BMD. In individuals with type 2 diabetes, an increased risk of clinical fractures associated with the use of insulin and thiazolidinediones was observed, suggesting that BMD alone does not adequately reflect bone strength in this population. Additionally, anti-obesity therapies involving GLP-1 receptor agonists, such as liraglutide, promoted reductions in body weight and BMI, although accompanied by absolute lean mass loss, potentially increasing the risk of osteosarcopenia. **Conclusion:** Although obesity is associated with higher BMD, it can coexist with poorer bone quality and increased skeletal fragility. Weight loss, especially when rapid or associated with a reduction in lean mass, may further intensify this process. Conversely, interventions that combine aerobic and resistance exercises appear to preserve skeletal biomechanical integrity. Therefore, the assessment of bone health in obese individuals should include parameters of bone quality and body composition, in addition to bone mineral density alone.

Palavras-chave: Obesity; Bone Density; Bone Quality; Weight Loss; Fracture Risk.

ORAL ALTERATIONS ASSOCIATED WITH AUTISM SPECTRUM DISORDER: INTERACTION BETWEEN BEHAVIORAL AND METABOLIC FACTORS

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RESUMO

Introduction: Individuals with Autism Spectrum Disorder (ASD) show a greater predisposition to oral health problems due to factors such as limitations in self-care, food selectivity, and sensory alterations that hinder oral hygiene. Furthermore, recent studies have demonstrated an association between alterations in the oral and intestinal microbiota and the clinical manifestations of ASD, suggesting the involvement of the gut-brain and oral- brain axes in neuroinflammatory and behavioral processes. **Objective:** To analyze the relationship between ASD, oral microbiota, and oral health, highlighting the main risk factors. **Materials and Methods:** This is a narrative literature review based on studies published in the PubMed database in the last two years. The descriptors used were: "autism spectrum disorder" and "oral health". Original articles, systematic reviews, and meta-analyses were included. **Results:** The findings indicate that individuals with ASD frequently exhibit food selectivity, as well as cariogenic eating habits, such as a preference for sugary and soft foods. Difficulties with oral hygiene are also common, involving both self-performance and supervision or performance by a caregiver, often associated with sensory hypersensitivity and behavioral resistance. The oral microbiota of these individuals shows significant alterations compared to neurotypical individuals, with evidence of dysbiosis associated with inflammatory processes and possible impacts on the central nervous system. Metabolites such as acetate, propionate, and indoles are increased, while butyrate is reduced, indicating relevant metabolic alterations. Individuals with ASD have a higher incidence of self-harming behaviors, which contributes to an increased risk of oral pathologies, including traumatic lesions. The frequent use of medications, such as antipsychotics and anticonvulsants, contributes to a reduction in salivary flow, increasing the risk of caries. Behaviors such as bruxism and deleterious oral habits are also frequent, increasing the risk of trauma and periodontal diseases. Despite this, evidence suggests that ASD, in isolation, is not a determining factor for oral diseases, with the main risk factors related to inadequate hygiene, diet, and caregiver support. Studies also highlight that the knowledge and attitudes of caregivers directly influence the oral health of children. **Conclusion:** Oral health in individuals with ASD is mainly influenced by hygiene, diet, medication use, and caregiver actions. Oral dysbiosis may be associated with systemic alterations, but there is no evidence that ASD, in isolation, is a determining factor for oral diseases, reinforcing the importance of preventive and educational strategies.

Palavras-chave: Autism Spectrum Disorder; Oral Health; Oral Microbiota; Microbial Dysbiosis.

PACIENTE PORTADORA DE MÚLTIPLAS DOENÇAS DO TECIDO CONJUNTIVO PARA REALIZAÇÃO DE PROCEDIMENTO ORTOPÉDICO: A IMPORTÂNCIA DA PROFUNDIDADE DA AVALIAÇÃO PRÉ-ANESTÉSICA - RELATO DE CASO

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RESUMO

Introdução: Doenças reumáticas podem acometer indivíduos de diferentes idades e gêneros. Segundo o Ministério da Saúde, cerca de 70% dos idosos apresentam alguma condição crônica, sendo a Artrite Reumatoide (AR) uma das mais prevalentes, frequentemente coexistente com outras doenças reumatológicas. Artrite Reumatoide, enfermidade inflamatória crônica e sistêmica, compromete principalmente a membrana sinovial das articulações, especialmente occipito-C1 e C1-C2. Essa localização limita a mobilidade e pode evoluir para subluxação atlanto-axial, instabilidade vertebral e manifestações neurológicas - aspectos cruciais na avaliação pré-anestésica. A Esclerodermia Sistêmica (ES), na forma cutânea difusa, caracteriza-se por espessamento dérmico e complicações intersticiais pulmonares. Ademais, vasculopatias como a Síndrome de Raynaud, marcada por vasoespasma periférico, podem mascarar a perfusão, contribuindo para instabilidades hemodinâmicas. A Síndrome de Sjögren (SJ), compromete glândulas exócrinas, inclusive das mucosas do trato respiratório. Aqui relataremos paciente portadora de AR, ES e SJ, com repercussões sistêmicas e manifestações localizadas relevantes. **Objetivos:** Relatar o caso de paciente portadora de múltiplas doenças sistêmicas submetida a procedimento cirúrgico ortopédico, destacando os pontos-chave da avaliação pré-anestésica. Busca-se discutir estratégias para antever possíveis complicações no perioperatório, reforçando a relevância da anestesiologia e do manejo pré-operatório individualizado em pacientes complexos. **Material e Métodos:** Mulher, 63 anos, fratura de fêmur direito, com indicação cirúrgica. Portadora de AR, ES, SJ e Hipertensão Arterial Sistêmica. Uso regular de ramipril, diurético, diosmina/hesperidina, ácido acetilsalicílico e prednisolona. Antecedente cirúrgico de artrodese lombar. Na avaliação pré-operatória, observou-se venoclise de difícil acesso, deformidades anatômicas significativas em extremidades digitais, impossibilitando uso de oxímetro digital. Apresentava insuficiência pulmonar moderada, abertura bucal reduzida, retrognatismo importante, dentição em péssimo estado e limitação funcional da coluna cervical, sem capacidade de flexão, hiperextensão e rotação lateral. Exames laboratoriais estavam dentro da normalidade. Negava história de alergias. Ao chegar ao centro cirúrgico, encontrava-se consciente, orientada e hemodinamicamente estável. **Resultados:** Chegou consciente, orientada e hemodinamicamente estável. Monitorada com cardioscópio, pressão arterial não invasiva e oxímetro posicionado em lóbulo auricular. Indução anestésica realizada com propofol (3 mg/kg), fentanil (100 mcg), lidocaína sem vasoconstritor (100 mg) e máscara laríngea nº 4. Manutenção anestésica ocorreu com sevoflurano (F exp 2,5), dexametasona (10 mg), dipirona (2 g), morfina (2 mg) e ondansetrona (8 mg). Perioperatório sem intercorrências. Encaminhada lúcida, orientada e estável à recuperação, onde permaneceu por 2 horas, posteriormente transferida ao quarto. Uso do corticoide neste caso objetivou proteção renal, considerando que procedimentos de grande porte podem acarretar insuficiência adrenocortical, condição que implicaria em piora significativa do prognóstico, além da redução dos níveis de citocinas pró-inflamatórias contribuindo para a manutenção da homeostasia cardiovascular, respiratória, hepática e renal. Também fundamental foi a escolha da máscara laríngea como primeira opção de via aérea, diante das alterações anatômicas decorrentes da AR, que caracterizavam via aérea difícil. **Conclusão:** Este caso evidencia a relevância da

avaliação pré-anestésica individualizada, frequentemente subestimada, sobretudo em pacientes com múltiplas comorbidades. Reconhecimento precoce das particularidades clínicas modifica o prognóstico e previne complicações perioperatórias. Objetivamos ressaltar a importância do planejamento anestésico personalizado e contribuir para disseminação de práticas que visam reduzir riscos e melhorar desfechos em pacientes complexos.

Palavras-chave: Anestesiologia; Comorbidades; Preoperatório.

PANCREATITE COMO FATOR ASSOCIADO AO DESENVOLVIMENTO DE DIABETES MELLITUS TIPO 3C: REVISÃO SISTEMÁTICA

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RESUMO

A pancreatite crônica é uma síndrome fibroinflamatória progressiva que resulta em danos permanentes ao parênquima pancreático, comprometendo suas funções exócrina e endócrina. Nesse contexto, o pâncreas desempenha um papel crucial na regulação metabólica por meio da produção de insulina pelas células beta das ilhotas pancreáticas; no entanto, a inflamação persistente e a fibrose reduzem progressivamente a massa funcional dessas células, prejudicando a secreção hormonal. Consequentemente, essa disfunção endócrina culmina no diabetes mellitus tipo 3c (DM3c), também denominado diabetes pancreatogênico, que se caracteriza por ser secundário a patologias do pâncreas exócrino e apresenta desafios clínicos específicos, como uma acentuada variabilidade glicêmica. Portanto, o objetivo deste estudo é analisar a pancreatite como fator predisponente ao desenvolvimento do diabetes mellitus tipo 3c. Para isso, foi realizada uma revisão sistemática conforme o protocolo PRISMA. A busca foi efetuada na base de dados PubMed utilizando os descritores "Pancreatitis" AND ("Type 3c Diabetes" OR "Pancreatogenic Diabetes"). Além disso, foram aplicados filtros de estudos publicados nos últimos 5 anos, texto completo gratuito e em inglês. Os critérios de inclusão foram ensaios clínicos, estudos de coorte e observacionais. Foram excluídos artigos de revisão sistemática, meta-análise e editoriais. Como resultado, a busca identificou 54 estudos, dos quais 35 foram incluídos na análise final. De modo geral, os estudos analisados demonstraram que a pancreatite é importante fator predisponente ao desenvolvimento do diabetes mellitus tipo 3c. O risco está relacionado à pancreatite aguda, à pancreatite aguda recorrente e à pancreatite crônica, sendo esta última responsável pela maioria dos casos. Os principais mecanismos envolvidos incluem inflamação pancreática, fibrose e redução da massa e/ou função das células alfa e beta, comprometendo a secreção de glucagon e insulina. Além disso, alterações do polipeptídeo pancreático podem favorecer resistência insulínica hepática. Em conjunto, essas alterações contribuem para pior controle glicêmico e maior risco de complicações agudas, como hipoglicemia e cetoacidose diabética, além de complicações crônicas, como retinopatia e nefropatia. Além disso, observou-se, ainda, frequente subdiagnóstico ou classificação incorreta do DM tipo 3c como diabetes mellitus tipo 2. Em suma, a pancreatite configura-se como um fator de risco determinante e clinicamente relevante para o desenvolvimento do diabetes mellitus tipo 3c, uma vez que a progressão da lesão tecidual e da fibrose compromete diretamente a massa funcional das ilhotas pancreáticas. Assim, a identificação de fatores de risco específicos e o estabelecimento de um diagnóstico precoce e preciso são fundamentais para diferenciar o DM3c de outras formas de diabetes, possibilitando, assim, intervenções terapêuticas

personalizadas. Em última análise, essa detecção oportuna é essencial para otimizar o manejo clínico, reduzir a variabilidade glicêmica e mitigar complicações a longo prazo, resultando em uma melhora significativa na qualidade de vida dos pacientes acometidos por patologias pancreáticas.

Palavras-chave: Pancreatite; Diabetes Tipo 3c; Diabetes Pancreatogênico.

PERSPECTIVES ON THE USE OF CRISPR-CAS9 GENE EDITING IN HIV TREATMENT

Paulo Roberto Giardulli Grespan / Israel Abraão Nascimento; Paulo Cesar Novais

RESUMO

Human immunodeficiency virus (HIV) remains a major global health challenge due to its ability to establish latent reservoirs and promote chronic immunosuppression, even in the context of advances in antiretroviral therapies, which are unable to completely eradicate the virus from the body. In this context, the gene-editing technology CRISPR-Cas9 emerges as an innovative tool with high therapeutic potential, enabling precise and targeted genomic modifications. This study consists of a literature review aiming to analyze current scientific evidence published between 2021 and 2025 regarding the application of CRISPR-Cas9 in HIV treatment, addressing its mechanisms of action, therapeutic strategies, limitations, and future perspectives. This is a descriptive and exploratory review conducted through the analysis of scientific articles indexed in databases such as PubMed, ScienceDirect, and the National Library of Medicine, prioritizing experimental, preclinical, and systematic review studies. Study selection considered criteria such as recency, scientific relevance, and therapeutic applicability, allowing a critical and integrated analysis of the main approaches described in the literature. Among the most promising strategies are the direct excision of proviral DNA integrated into the host genome, the editing of the CCR5 co-receptor to prevent viral entry, and the “shock and kill” approach, aimed at reactivating and subsequently eliminating latent viral reservoirs. The analyzed results indicate that CRISPR-Cas9 demonstrates a strong ability to reduce viral reservoirs, interrupt viral replication, and confer resistance to infection in genetically modified cells, with consistent evidence in in vitro and in vivo models. However, significant challenges still limit its clinical application, including off-target effects, toxicity associated with double-strand breaks, undesirable immune responses, and limitations in gene repair mechanisms, particularly in homology-directed repair pathways. Recent advances, such as the development of high-fidelity Cas9 variants, base editors, prime editing technologies, and the use of other nucleases such as Cas12 and Cas13, show significant potential to overcome these limitations. In conclusion, CRISPR-Cas9 represents a promising platform for the development of innovative and potentially curative therapies for HIV, although further studies are required to ensure its safety and clinical applicability, reinforcing its role in precision medicine.

Palavras-chave: HIV; CCR5; Gene Therapy; Immunosuppression; Precision Medicine.

PILATES AND LIPID METABOLISM: EVIDENCE FROM A SYSTEMATIC REVIEW AND META-ANALYSIS

Caroline Santos Ferrari

RESUMO

RESUMO INTRODUÇÃO: Diversos estudos têm demonstrado que o sedentarismo constitui um dos principais fatores de risco associados ao desenvolvimento de distúrbios metabólicos, como a dislipidemia, que consiste em um distúrbio metabólico diretamente associados às alterações nas concentrações plasmáticas de lipoproteínas de baixa densidade e alta densidade, predominando as partículas pequenas e densas de LDL-c, redução das concentrações de HDL-c e pelo aumento dos níveis séricos de triglicerídeos. Em contrapartida, a prática regular de exercícios físicos, como o método Pilates, desponta como uma intervenção segura, acessível e eficaz para a prevenção e tratamento de doenças cardiovasculares, apresenta potencial positivo em relação aos fatores de risco cardiometabólicos, por promover o fortalecimento muscular, a melhora postural e o aumento da consciência corporal. **OBJETIVO:** Verificar os efeitos do Pilates sobre o perfil lipídico. **MATERIAIS E METODOS:** A revisão foi relatada de acordo com as recomendações do Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) e está registrada no banco de dados PROSPERO database (CRD420251126068) As buscas foram realizadas nas bases de dados EMBASE, Lilacs, CINAHL, MEDLINE/PubMed (via National Library of Medicine), Cochrane, Scopus e Web of Science. Os estudos foram provenientes de periódicos revisados por pares, publicados desde o início das bases de dados até abril de 2026. Os critérios de inclusão e exclusão seguiram os elementos do modelo PICOS (População, Intervenção, Comparação, Desfechos e Desenho do Estudo). **RESULTADOS:** Os resultados parciais do projeto em andamento incluíram 11 artigos selecionados conforme critérios definidos. O viés foi avaliado por algoritmos em cinco domínios: randomização, desvios das intervenções, dados ausentes, medição do desfecho e seleção dos resultados relatados. Nove estudos apresentaram algumas preocupações, enquanto dois foram classificados como alto risco de viés. Todos os dados serão processados utilizando o programa Review Manager (RevMan 5.4.1). **CONCLUSÃO:** Os resultados parciais indicam a necessidade de cautela na interpretação dos dados, ressaltando a importância de dar continuidade às análises para consolidar as evidências sobre os efeitos do método Pilates no perfil lipídico. Embora os achados iniciais apontem perspectivas positivas, a conclusão definitiva dependerá da finalização do processamento e da síntese completa dos estudos incluídos.

Palavras-chave: Pilates Técnica De Movimento De Exercício Triglicerídeo HDL LDL.

POSTOPERATIVE ANALGESIC EFFICACY OF ACUPUNCTURE COMPARED WITH TRAMADOL AND METAMIZOLE IN BITCHES UNDERGOING OVARIOHYSTERECTOMY.

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RESUMO

Postoperative pain in small animals constitutes a significant challenge in veterinary medicine, and its proper management is essential to ensure clinical recovery, patient well-being, and quality of life, since uncontrolled pain may trigger adverse physiological responses such as increased inflammation, impaired healing, metabolic alterations, and delayed recovery. Integrative therapies,

such as acupuncture, have been studied as alternative or complementary approaches to traditional pharmacological protocols, showing potential to reduce side effects associated with medications and improve animal comfort. The present prospective, clinical, and experimental study, approved by the CEUA under protocol no. 16/2026, aims to evaluate the analgesic efficacy of acupuncture in the postoperative period of bitches undergoing elective ovariohysterectomy, comparing its effects with the association of tramadol and dipyrone. Twenty-four female dogs of different breeds, aged between 1 and 5 years and weighing between 5 and 15 kg, previously evaluated as healthy and classified as ASA category I after normal clinical and laboratory examinations, will be included. The animals will be randomized into two groups of 12: control group (CG), receiving tramadol (5 mg/kg) and dipyrone (25 mg/kg), both IV, and acupuncture group (AG), receiving the same pharmacological protocol associated with acupuncture applied at specific points (ST36, SP6, LI4, LR3, and GB34). Before surgery, the animals will be weighed, subjected to preoperative fasting, and acclimated to the clinical environment for 24 hours to reduce stress-related interference. Anesthesia will be standardized with preanesthetic medication using acepromazine (0.03 mg/kg, IM), induction with propofol, maintenance with isoflurane, and a bolus of fentanyl (3 µg/kg, IV) before the beginning of the surgical procedure. Rigorous transoperative monitoring of heart rate, respiratory rate, blood pressure, capnometry, temperature, and oxygen saturation will be performed. At the end of the procedure, the animals will be distributed and treated according to the protocol previously established for each group. Pain will be assessed using the short form of the Glasgow Composite Measure Pain Scale (CMPS-SF) and the unidimensional numerical scale (NS), while the level of sedation will be evaluated using the abbreviated Grint sedation scale. Physiological variables and scale scores will be collected at multiple time points (baseline, post-extubation, and 1, 2, 4, 6, and 8 hours after surgery) by two independent blinded evaluators, and rescue analgesia with methadone 0.2 mg/kg IM will be administered if the score reaches $\geq 6/24$ on the CMPS-SF. Data will be statistically analyzed using parametric and nonparametric tests, including Kaplan-Meier curves to compare analgesia duration between groups, and differences will be considered significant when $p < 0.05$. It is hypothesized that acupuncture enhances postoperative analgesia, promoting better recovery, comfort, and well-being, indicating that integrative approaches may reduce the exclusive use of drugs and significantly improve the clinical management and quality of life of dogs undergoing routine surgical procedures.

Palavras-chave: Acupuncture; Analgesia; Ovariohysterectomy; Pain; Veterinary Medicine.

PRINCIPAIS MECANISMOS ENVOLVIDOS NA ASSOCIAÇÃO ENTRE OBESIDADE E CÂNCER

Samara Zumba Flores / Karina Torres Pomini (UNIMAR); Maricelma da Silva Souza Soares (UNIMAR); Sandra Maria Barbalho (UNIMAR); Marcelo Dib Bechara (UNIMAR)

RESUMO

A obesidade é reconhecida como uma importante preocupação de saúde pública e tem sido consistentemente associada ao aumento do risco de diversas malignidades por meio de alterações metabólicas, inflamatórias e hormonais. A disfunção do tecido adiposo branco (TAB) em indivíduos obesos contribui para a secreção de fatores que promovem processos locais e sistêmicos envolvidos na carcinogênese. Este estudo teve como objetivo analisar os principais mecanismos moleculares e fisiológicos envolvidos na relação entre obesidade e desenvolvimento do câncer. Foi realizada uma revisão narrativa da literatura utilizando as bases de dados PubMed/MEDLINE e

ScienceDirect. Foram incluídos artigos publicados entre 2020 e 2025, em inglês. A estratégia de busca utilizou os descritores (“obesity” OR “adipose tissue”) AND (“cancer” OR “neoplasms”). Foram selecionados para análise estudos que abordavam mecanismos inflamatórios, hormonais e metabólicos associados à carcinogênese relacionada à obesidade. Em indivíduos obesos, a disfunção do TAB altera a produção de adipocinas e promove um microambiente pró-tumorigênico. Níveis circulantes elevados de leptina estimulam o desenvolvimento e a progressão tumoral por meio de múltiplas vias de sinalização, enquanto níveis reduzidos de adiponectina estão associados ao aumento do risco de câncer devido à menor inibição da proliferação celular tumoral. A insulina também exerce efeitos antiapoptóticos e mitogênicos, especialmente em células neoplásicas com regulação prejudicada de receptores. Além disso, a hiperinsulinemia secundária à resistência à insulina aumenta os níveis circulantes dos fatores de crescimento semelhantes à insulina (IGF-1 e IGF-2), intensificando a proliferação e a sobrevivência celular. O aumento do volume do tecido adiposo contribui para uma maior produção de estrogênio, o que está associado ao desenvolvimento de cânceres hormônio-dependentes, particularmente o câncer de endométrio. O excesso de adiposidade também promove hipóxia local, angiogênese, necrose de adipócitos e inflamação crônica caracterizada por infiltração de macrófagos e aumento da secreção de citocinas pró-inflamatórias, como TNF- α , IL-1 β e IL-6. Esses mediadores inflamatórios contribuem para a desregulação hormonal e para o aumento da atividade proliferativa em tecidos específicos. Além disso, a obesidade está associada ao estresse oxidativo, que pode contribuir ainda mais para a carcinogênese. Em conclusão, a disfunção do tecido adiposo associada à obesidade promove alterações inflamatórias, hormonais e metabólicas que favorecem a iniciação e a progressão tumoral. A compreensão desses mecanismos pode contribuir para o desenvolvimento de estratégias preventivas e terapêuticas direcionadas aos cânceres relacionados à obesidade.

Palavras-chave: Obesidade; Câncer; Tecido Adiposo; Resistência Insulínica; Adipocinas.

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associados ao aumento do risco de câncer devido à menor inibição da proliferação celular tumoral. A insulina também exerce efeitos antiapoptóticos e mitogênicos, especialmente em células neoplásicas com regulação prejudicada de receptores. Além disso, a hiperinsulinemia secundária à resistência à insulina aumenta os níveis circulantes dos fatores de crescimento semelhantes à insulina (IGF-1 e IGF-2), intensificando a proliferação e a sobrevivência celular. O aumento do volume do tecido adiposo contribui para uma maior produção de estrogênio, o que está associado ao desenvolvimento de cânceres hormônio-dependentes, particularmente o câncer de endométrio. O excesso de adiposidade também promove hipóxia local, angiogênese, necrose de adipócitos e inflamação crônica caracterizada por infiltração de macrófagos e aumento da secreção de citocinas pró-inflamatórias, como TNF- α , IL-1 β e IL-6. Esses mediadores inflamatórios contribuem para a desregulação hormonal e para o aumento da atividade proliferativa em tecidos específicos. Além disso, a obesidade está associada ao estresse oxidativo, que pode contribuir ainda mais para a carcinogênese. Em conclusão, a disfunção do tecido adiposo associada à obesidade promove alterações inflamatórias, hormonais e metabólicas que favorecem a iniciação e a progressão tumoral. A compreensão desses mecanismos pode contribuir para o desenvolvimento de estratégias preventivas e terapêuticas direcionadas aos cânceres relacionados à obesidade.

Palavras-chave: Obesidade; Câncer; Tecido Adiposo; Resistência Insulínica; Adipocinas.

PROPOLIS-BASED BIOMATERIALS IN TISSUE REGENERATION: A LITERATURE REVIEW ON MOLECULAR MECHANISMS AND THERAPEUTIC APPLICATIONS

Paulo Roberto Giardulli Grespan / Israel Abraão Nascimento; Isabela Bazzo da Costa

RESUMO

Propolis is a bee-derived biomaterial widely recognized for its therapeutic properties, particularly its antimicrobial, anti-inflammatory, antioxidant, and wound-healing activities, which confer significant potential in the treatment of wounds and burns under different physiological conditions. This study consists of a literature review covering publications from 2015 to 2025, aiming to evaluate the wound-healing potential of propolis and its applicability in modern medicine. The methodology involved a descriptive and exploratory analysis of scientific articles indexed in databases such as PubMed, ScienceDirect, and Google Scholar, including in vitro studies, preclinical models, and clinical trials. The selected studies investigated different pharmaceutical formulations containing propolis, such as nanofiber dressings, hydrogels, ointments, creams, and sprays. The results demonstrate that propolis is capable of modulating inflammatory pathways, particularly through inhibition of NF- κ B activation and regulation of cytokines such as TNF- α , IL-1 β , and IL-6, as well as reducing oxidative stress and promoting extracellular matrix deposition. Additionally, bioactive compounds such as caffeic acid phenethyl ester (CAPE) play a central role in antioxidant and immunomodulatory effects. Experimental models, including studies in Wistar rats, showed enhanced wound closure when propolis was incorporated into biomaterials, such as polyurethane nanofibers combined with hyaluronic acid and ethanolic extract of propolis (EEP 1%), demonstrating superior healing efficiency compared to control groups. Clinical studies also indicate improved healing outcomes in chronic wounds and burns. Despite these promising findings, limitations such as compositional variability due to botanical and geographical factors, lack of standardization, and the need for more robust clinical trials remain significant challenges. In conclusion, propolis represents a promising biomaterial with significant therapeutic potential in

tissue regeneration, although further studies are required to ensure its safety, efficacy, and standardization for clinical application.

Palavras-chave: Propolis; Biomaterials; Cytokines; Tissue Regeneration.

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Palavras-chave: Propolis; Biomaterials; Cytokines; Tissue Regeneration.

REGENERATION OF ORAL MUCOSA IN A PORCINE MODEL THROUGH TISSUE ENGINEERING AND BIOPRINTING

Talissa Caroline Pollon / Rodrigo Paolo Flores Abuná - Unimar; João Paulo Ruiz Lucio De Lima Parra - Unimar; Otavio Simões Giroto - Unimar; Maria Angelica Miglino - Unimar

RESUMO

Introduction: Extensive oral mucosa lesions resulting from surgical resections, trauma, chronic diseases, or complications of antineoplastic therapies impair essential functions such as

mastication, speech, and swallowing, in addition to representing a major reconstructive challenge. Although autogenous grafting is still considered the gold standard for repairing these defects, its limitations, including donor-site morbidity and limited tissue availability, reinforce the need for alternative therapies. In this context, biomimetic tissues associated with the use of decellularized extracellular matrix have emerged as a promising strategy for the development of oral mucosa substitutes. **Objective:** The present study proposes the development of a 3D bioprinted construct using a hybrid bioink composed of decellularized porcine buccal mucosa extracellular matrix, alginate, and GelMA, followed by recellularization with human fibroblasts and keratinocytes, aiming to obtain an oral mucosa model. **Methodology:** To achieve this, tissue decellularization was performed. Briefly, 1 cm² porcine oral mucosa fragments were treated with 0.5% and 1% sodium dodecyl sulfate (SDS) for 4 days under continuous agitation (100 rpm), with daily solution replacement. Detergent removal was subsequently carried out by washing in 1× PBS for 24 hours, with solution changes every 3 hours. Decellularized tissues were characterized by histology (Hematoxylin and Eosin, Picrosirius Red, Alcian Blue, and Masson's Trichrome), residual DNA quantification, immunohistochemical analysis (collagen IV, vimentin, and fibronectin), and scanning electron microscopy to evaluate cell removal efficiency and extracellular matrix preservation. **Results:** Partial results demonstrated that the 0.5% SDS concentration showed superior performance, promoting effective decellularization and greater preservation of extracellular matrix components compared with the 1% concentration. The efficiency of the process was confirmed by DNA extraction and quantification, with mean values of 10.47 ng/mg of tissue in the 0.5% group and 11.10 ng/mg in the 1% group. These values are consistent with the decellularization criteria described in the literature, which establish residual content below 50 ng/mg of tissue. In the immunohistochemical analysis, vimentin staining in the decellularized tissues was not satisfactory, whereas collagen IV and fibronectin indicated good preservation after removal of the cellular content from the matrix. Furthermore, histological and ultrastructural analyses revealed changes compatible with the decellularization process, such as preservation of tissue architecture and pore opening. **Conclusion:** Based on these findings, the decellularization process was considered successful at both concentrations, with 0.5% SDS being selected due to its superior preservation profile. Thus, the results demonstrate the feasibility of processing the decellularized extracellular matrix to be digested and combined with GelMA and alginate polymers, exploring its potential in 3D bioprinting techniques for the development of formulations that better mimic the oral mucosa microenvironment and provide ideal conditions for cell survival and proliferation.

Palavras-chave: Oral Mucosa Tissue Engineering Decellularized Extracellular Matrix Bioprinting Swine; Oral Mucosa Tissue Engineering Decellularized Extracellular Matrix Bioprinting Swine.

RELAÇÃO ENTRE O DIABETES MELLITUS TIPO 1 E A CETOACIDOSE DIABÉTICA

Ana Carolina Alvares Dalto Ribas / Iasmin Teruel Maia Universidade de Marília; Rafaela Dedemo Mesquita Lima Universidade de Marília; Roger Marcelo Mesquita da Silva Universidade de Marília; Victor Eugênio Bezerra Universidade de Marília; Márcia Rocha Gabaldi Universidade de Marília

RESUMO

O DM1 é uma doença autoimune que destrói as células produtoras de insulina, levando à hiperglicemia. A Cetoacidose Diabética (CAD) é uma condição grave, comum no diagnóstico inicial, especialmente em crianças e adolescentes, e pode causar complicações severas a vida. A

fisiopatologia da CAD envolve falta de insulina e aumento de hormônios contrarreguladores, resultando em hiperglicemia, quebra de gorduras (lipólise), produção de corpos cetônicos e acidose metabólica. Os principais sintomas incluem desidratação, respiração de Kussmaul, náuseas, vômitos e alteração da consciência. O estudo, mostra que a CAD está fortemente ligada à falha na administração de insulina e ao não reconhecimento precoce dos sinais de descompensação. Fatores como infecções, estresse e certos medicamentos também contribuem para seu desenvolvimento. Como prevenção, destacam-se: adesão à insulinoterapia, monitoramento da glicemia e cetonas, especialmente durante doenças, e educação em saúde. O acompanhamento multiprofissional e a atenção primária são essenciais para melhorar o controle da doença, reduzir complicações e promover maior autonomia do paciente.

Palavras-chave: Diabetes Mellitus Tipo1; Cetoacidose Diabética; Insulina; Acidose Metabólica; Prevenção De Doenças.

RELAÇÃO ENTRE OBESIDADE INFANTIL E MATURAÇÃO SEXUAL AVALIADA PELO ESTADIAMENTO DE TANNER

Luana Ribeiro dos Santos / Carolina Ruano Deodato da Silva (UNIMAR); Mariana Cristina da Silva Almeida (UNESP); Fernanda Regina de Moraes (UNESP); Robison José Quitério (UNESP)

RESUMO

O trabalho aborda a relação entre a obesidade infantil e a puberdade precoce, destacando como o excesso de peso pode influenciar a antecipação da maturação sexual em crianças e adolescentes. Além disso, enfatiza a importância da escala de Tanner como ferramenta para avaliar e acompanhar o desenvolvimento das características sexuais secundárias nessa população.

Palavras-chave: Obesidade Infantil; Puberdade Precoce; Desenvolvimento Da Criança; Saúde Das Crianças.

RELAÇÃO ENTRE OBESIDADE INFANTIL E MATURAÇÃO SEXUAL AVALIADA PELO ESTADIAMENTO DE TANNER

Luana Ribeiro dos Santos / CAROLINA RUANO DEODATO DA SILVA (UNIMAR); MARIANA CRISTINA DA SILVA ALMEIDA (UNESP); FERNANDA REGINA DE MORAES (UNESP); ROBISON JOSÉ QUITÉRIO (UNESP)

RESUMO

INTRODUÇÃO: A maturação sexual ocorre durante a puberdade, fase natural do desenvolvimento humano que representa a transição entre a infância e a vida adulta. Esse processo tem se tornado cada vez mais precoce na população infantojuvenil e pode ser influenciado por fatores genéticos, sexuais, nutricionais e ambientais. Nesse contexto, a escala de Tanner destaca-se como importante ferramenta de avaliação do desenvolvimento das características sexuais secundárias, como crescimento mamário, aumento testicular e surgimento de pelos pubianos, permitindo identificar o estágio maturacional esperado para cada faixa etária. Paralelamente, a obesidade infantil constitui importante problema de saúde pública devido ao aumento de sua incidência e prevalência, bem como às comorbidades associadas, entre elas possíveis alterações ou antecipação da maturação sexual. Embora a relação entre obesidade infantil e maturação sexual já seja discutida na literatura

científica, o uso do estadiamento de Tanner em uma amostra específica de crianças e adolescentes brasileiros agrega valor aplicado e regional ao estudo. Dessa forma, torna-se relevante acompanhar o desenvolvimento sexual dessa população por meio de instrumentos de fácil aplicação, visando estratégias de prevenção primária e secundária. **OBJETIVO:** Avaliar a maturação sexual, por meio do estadiamento de Tanner, em crianças e adolescentes obesos. **METODOLOGIA:** Estudo aprovado pelo Comitê de Ética em Pesquisa (CEP nº 1.685.041/2016). Foram avaliados 42 meninos e 38 meninas de 7 a 13 anos, divididos em dois grupos: eutróficos (percentil de IMC entre 3 e 85) e obesos (percentil de IMC ≥ 97), segundo classificação da WHO (2007). Realizou-se anamnese e, posteriormente, apresentou-se ao voluntário a escala de Tanner ilustrada, sendo orientado a assinalar o estágio correspondente à sua maturação sexual, com possibilidade de auxílio do responsável. Os dados foram tabulados e apresentados em mediana e intervalo interquartil. Para comparação entre grupos, utilizou-se o teste de Mann-Whitney, adotando-se $p < 0,05$. **RESULTADOS:** N=40, os dados do grupo obeso (N=20) e eutrófico (N=20) foram, respectivamente: Idade (anos): 10,0(1,0) e 10,0 (3,0) $p=0,99$; IMC (kg/m²): 25,09 (3,81) e 16,37 (2,75) $p < 0,001$; Mamas/genitália: 2,5 (1,0) e 2,0 (2,0) $p=0,03$; Pelos: 2,0 (1,0) e 2,0 (1,25) $p=0,07$. Como limitação do estudo, a avaliação do desenvolvimento mamário foi realizada por autoavaliação das crianças e responsáveis, podendo haver confusão entre tecido adiposo e broto mamário, principalmente no grupo obeso. Dessa forma, resultados mais precisos poderiam ser obtidos caso a avaliação fosse realizada por profissional capacitado na área. **CONCLUSÃO:** Crianças e adolescentes obesos apresentaram maior maturação sexual, observada pelo estadiamento de Tanner, especialmente no desenvolvimento de mamas e genitália, quando comparados aos eutróficos da mesma faixa etária, reforçando a possível associação entre obesidade e puberdade precoce.

Palavras-chave: Obesidade Infantil Puberdade Precoce Desenvolvimento Da Criança Saúde Das Crianças.

RELATO DE CASO: HIDRONEFROSE SECUNDÁRIA A CÁLCULO URETERAL EM FELINO JOVEM.

Manuela Gelmini Della Torre / Maria Julia Tebet Boccaletti

RESUMO

O presente trabalho consiste em um relato de caso, sem caráter experimental ou realização de intervenções adicionais além da rotina clínico- hospitalar já estabelecida para o paciente. Dessa forma, entende-se que o estudo se enquadra como isento de submissão ao Comitê de Ética no Uso de Animais (CEUA), conforme prática adotada por diversas instituições de ensino e pesquisa para relatos de caso de caráter descritivo e não experimental. Ademais, o tutor responsável assina o Termo de Livre Esclarecimento (TLE) no momento da admissão do paciente no hospital veterinário, autorizando a realização dos procedimentos clínicos e o uso das informações para fins acadêmico-científicos, preservando a confidencialidade e a identidade do animal e do tutor.

Palavras-chave: Ultrassonografia; Estruvita; Diagnóstico Por Imagem; Ureterolítase.

RHEOLOGY AND MECHANICAL STABILITY OF A CARDIAC EXTRACELLULAR MATRIX AND BACTERIAL NANOCELLULOSE SCAFFOLD

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RESUMO

ABSTRACT Introduction: The regenerative limitations of the myocardium represent a major challenge for cardiovascular reconstructive surgery due to the inability of conventional therapies to fully restore myocardial architecture and function. Strategies based on decellularized extracellular matrix (dECM) associated with biomimetic three-dimensional biomaterials may provide mechanical and bioactive support, promoting cell adhesion, organization, and maturation for myocardial regeneration. Objective: To obtain cardiac dECM with preserved structural and biochemical properties and to evaluate the structural, rheological, and biological properties of a hybrid three-dimensional composite composed of bacterial nanocellulose, dECM biogel, and cardiomyocytes for cardiovascular tissue engineering applications. Materials and Methods: Canine hearts obtained from natural deaths at the Veterinary Hospital of the University of Marília were subjected to decellularization using 1% sodium dodecyl sulfate (SDS) under continuous agitation (100 rpm), followed by serial washing steps with buffered solution. The study was approved by the Animal Ethics Committee of the University of Marília (protocol 22/2024). Decellularization efficacy was assessed through macroscopic analysis, light microscopy, scanning electron microscopy, residual genomic DNA quantification, and immunohistochemistry. The obtained matrix was frozen, lyophilized, and pulverized for biogel production. Viscoelastic characterization was performed using rotational oscillatory shear rheometry. Amplitude sweep tests defined the linear viscoelastic region, while frequency sweep tests determined the storage modulus (G') and loss modulus (G''). Creep-recovery assays evaluated viscoelastic resilience and permanent deformation, whereas steady-state flow curves analyzed hysteresis area and yield stress. The hybrid composite consisted of bacterial nanocellulose as the mechanical support, dECM biogel as the bioactive component, and in vitro cultured cardiomyocytes. Recellularization was evaluated regarding cell adhesion, viability, and cellular organization. Results: The 1% SDS protocol promoted complete decellularization after 30 days, demonstrating superiority over the 0.5% SDS plus Triton X-100 protocol, evidenced by the absence of cellular nuclei, residual DNA levels below 10 ng/mg dry weight, and preservation of the three-dimensional fibrillar architecture. Immunohistochemistry confirmed preservation of collagen types I and IV, fibronectin, laminin, and elastin. Rheological analysis demonstrated predominantly elastic behavior ($G' > G''$), with storage modulus values ranging from 36-47 kPa for pure nanocellulose and increasing to 42-54 kPa for the hybrid composite, compatible with the stiffness range of native myocardium. The material exhibited high viscoelastic resilience, low permanent deformation after cyclic loading, pseudoplastic shear-thinning behavior, low thixotropy, and yield stress compatible with bioprinting applications. Recellularization demonstrated efficient cardiomyocyte adhesion, maintenance of viability, and progressive cell proliferation guided by the fibrillar topography, without structural collapse. Conclusion: The proposed decellularization protocol efficiently produced a structurally preserved and biochemically intact cardiac dECM. The three-dimensional hybrid composite demonstrated biomimetic mechanical behavior, structural stability, and effective support for

cardiomyocyte adhesion and proliferation, highlighting its potential as an experimental platform for myocardial reconstruction and cardiovascular tissue engineering applications.

Palavras-chave: Myocardial Regeneration Decellularized Extracellular Matrix Bacterial Nanocellulose Cardiovascular Tissue Engineering Biomaterials.

SARCOPENIA AND COGNITIVE DECLINE IN AGING: PATHOPHYSIOLOGICAL MECHANISMS, CLINICAL IMPLICATIONS, AND STRATEGIES FOR HEALTHY AGING

Julia Marinho de Souza / Julia Silva Minari; Livia Calvetti Krubniki Melo; Maria Eduarda Michelotti Miranda; Maria Fernanda Barbosa Andrade; Sandra Maria Barbalho

RESUMO

ABSTRACT Introduction: Sarcopenia and cognitive decline are highly prevalent conditions associated with aging and are strongly linked to reduced functional capacity, loss of independence, and impaired quality of life among older adults. Due to increased life expectancy and the growing prevalence of chronic diseases, these conditions have become important public health concerns. Emerging evidence suggests that muscle dysfunction and cognitive impairment may share common pathophysiological mechanisms, including chronic inflammation, insulin resistance, oxidative stress, hormonal dysregulation, sedentary lifestyle, and nutritional deficiencies. Understanding the relationship between sarcopenia and cognitive decline may contribute to the development of preventive and therapeutic strategies aimed at promoting healthy aging. Objective: To elaborate a literature review analyzing the relationship between sarcopenia and cognitive decline, highlighting associated factors, pathophysiological mechanisms, and clinical repercussions in older adults. Methods: This study consists of a descriptive and exploratory literature review conducted through searches in the Scientific Electronic Library Online (SciELO), PubMed, Virtual Health Library (VHL), and Google Scholar databases. Scientific articles published between 2021 and 2026 in English were included. The descriptors “sarcopenia,” “cognitive decline,” “elderly,” “aging,” “muscle function,” and “dementia” were combined using the Boolean operators AND and OR. Inclusion criteria comprise full-text articles addressing the association between sarcopenia and cognitive impairment in older adults. Duplicate studies, editorials, incomplete manuscripts, and studies unrelated to the proposed theme were excluded. Results: The analyzed studies demonstrated that older adults with sarcopenia have a significantly increased risk of cognitive impairment, particularly involving memory, attention, and processing speed. Chronic inflammation, insulin resistance, mitochondrial dysfunction, hormonal alterations, reduced physical activity, and inadequate nutritional intake were identified as major mechanisms underlying this association. Additionally, muscle loss may contribute to mobility limitations, reduced social interaction, and greater physical dependence, factors that may further aggravate cognitive decline. The findings reinforce the existence of a bidirectional relationship between skeletal muscle health and brain function, highlighting the importance of early interventions. Conclusion: Sarcopenia and cognitive decline are interconnected conditions that negatively affect health and functional autonomy in aging. Preventive and therapeutic strategies, including regular physical exercise, adequate nutritional support, and multidisciplinary monitoring, may contribute to improved clinical and functional outcomes in older adults. Further studies are needed to better elucidate the mechanisms

linking muscle dysfunction and cognitive impairment. Keywords: Sarcopenia; Cognitive Decline; Aging; Elderly; Muscle Function; Dementia.

Palavras-chave: Sarcopenia; Cognitive Decline; Aging; Elderly; Muscle Function; Dementia.

SARCOPENIA IN TYPE 1 DIABETES MELLITUS

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RESUMO

Introdução: O diabetes mellitus tipo 1 (DM1) é caracterizado pela destruição das células β pancreáticas, perda da secreção de insulina e consequente hiperglicemia. A sarcopenia, descrita como falência muscular progressiva e generalizada, pode estar relacionada ao DM1, uma vez que a disfunção muscular está intimamente ligada à deficiência de insulina e ao controle glicêmico inadequado. Considerando a ação anabólica da insulina na estimulação da síntese proteica através da via de sinalização PI3K/Akt, sua privação ou controle glicêmico inadequado podem desencadear diversos processos catabólicos. **Objetivo:** Identificar evidências sobre a relação entre diabetes mellitus tipo 1 (DM1) e o desenvolvimento de sarcopenia, explorando os mecanismos envolvidos e as repercussões em diferentes faixas etárias. **Métodos:** Esta investigação consiste em uma revisão narrativa da literatura, desenvolvida a partir de buscas realizadas na base de dados PubMed. A estratégia de busca baseou-se na utilização de descritores controlados em combinação, incluindo "Diabetes Mellitus, Tipo 1", "Sarcopenia", "Força Muscular" e "Envelhecimento". Os critérios de elegibilidade foram aplicados para selecionar estudos observacionais e clínicos publicados nos últimos dez anos, em português e inglês, que analisaram a massa e a função muscular em indivíduos insulino dependentes. **Resultados:** Observou-se que o aumento da idade está diretamente relacionado a uma maior prevalência de sarcopenia. Uma maior prevalência da doença foi observada em indivíduos japoneses com mais de 65 anos de idade com DM1 em comparação com outros grupos etários. Em paralelo, observou-se um grupo de pacientes com DM2, e os resultados mostraram que a prevalência de sarcopenia, baixa massa muscular esquelética apendicular e baixa força de adesão e extensão do joelho foi significativamente maior em pacientes com DM1 em comparação com indivíduos com DM2 e com mais de 65 anos. Em relação a jovens e adolescentes, analisou-se um grupo de jovens indianos saudáveis e um grupo com DM1, todos com idades entre 6 e 19 anos, e nenhuma diferença foi detectada entre eles em relação à composição muscular; no entanto, os parâmetros de função muscular foram consideravelmente menores em indivíduos com DM1. **Conclusão:** Conclui-se que a sarcopenia é uma comorbidade relevante e precoce no DM1, manifestando-se como perda muscular em idosos e redução da função muscular em jovens. Portanto, o monitoramento preventivo da saúde muscular e a prescrição de exercícios resistidos devem ser integrados ao tratamento padrão do DM1, visando mitigar a fragilidade muscular e garantir a autonomia do paciente a longo prazo.

Palavras-chave: Type 1 Diabetes Sarcopenia Age Range Muscle Weakness.

THE EFFECTS OF PHYSICAL EXERCISE AND PROTEIN-ENRICHED SUPPLEMENTATION IN WOMEN UNDERGOING BREAST CANCER

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RESUMO

ABSTRACT Introduction. Cancer great challenges to global public health, and breast cancer is the most common type in women. During oncological treatment, changes in body composition, such as loss of muscle mass, compromise patients' prognosis and quality of life. Nutritional supplementation and supervised physical activity have positive effects on maintaining skeletal muscle mass, reducing fatigue, improving functional capacity, and improving the prognosis of these patients. Dual-energy X-ray absorptiometry (DEXA) and ultrasonography are used to assess and monitor changes in body composition. The combination of imaging findings and skeletal and cardiac muscle injury biomarkers enables a broader evaluation of the treatment impact and supports the clinical management of breast cancer patients. Objective. To assess body composition in patients with breast cancer during oncological treatment using dual-energy X-ray absorptiometry (DEXA) and ultrasonography, and correlate imaging findings with plasma muscular and cardiac injury biomarkers to identify early indicators toxicity and their impacts on patients' prognosis and quality of life. Methods: To evaluate the association between DEXA and ultrasound findings with clinical and laboratory measurements in women with breast cancer undergoing oncological treatment, receiving nutritional supplementation, and supervised physical exercise. Results: It is expected that participants in the intervention group will exhibit improvements in body composition, with preservation of lean mass and muscle loss throughout oncological treatment. Improvements in functional capacity, reduction of fatigue, and better quality of life are also anticipated. Regarding imaging methods, DEXA and ultrasonography are expected to be effective for monitoring changes in body composition correlate with biomarkers of skeletal muscle and cardiac injury, thereby contributing to a more comprehensive assessment of therapeutic impact in patients with breast cancer. Hypothesis: Women with breast cancer undergoing oncological treatment who participate in supervised physical exercise combined with highprotein nutritional supplementation are expected to have better preservation of muscle mass, improved functional capacity, and better prognostic outcomes compared with the placebo group. Furthermore, findings from DEXA and ultrasonography are expected to be associated with biomarkers of skeletal and cardiac muscle injury, enabling early identification of treatment-related toxicity.

Palavras-chave: Breast Cancer; Muscle Injury Biomarkers; Body Composition; Exercise Absorptiometry.

THE EFFECTS OF PHYSICAL EXERCISE AND PROTEIN-ENRICHED SUPPLEMENTATION IN WOMEN UNDERGOING BREAST CANCER

Giovana Cristina da Silva / Manuela dos Santos Bueno²; 3 Victor Eugênio Bezerra⁴ Larissa Naomi Takeda¹ Caio Sérgio Galina Spilla³ Sandra Maria Barbalho²; 5 Adriano Cressoni Araujo²; 6 Rui Curi²; 7; 8 Elen Landgraf Guiguer²; 6 9 Tania Cristina Pithon-Curi²; 7 1. Discente do Programa de Pós-graduação em Interações Estruturais e Funcionais na Reabilitação da Universidade de Marília (UNIMAR); Marília; São Paulo; Brasil. Bolsista CAPES. 2. Programa de Pós-graduação em Interações Estruturais e Funcionais na Reabilitação da Universidade de Marília (UNIMAR); Marília; São Paulo; Brasil. 3. Docente dos Cursos de Medicina e Enfermagem da Universidade de Marília (UNIMAR); Marília; São Paulo; Brasil. 4. Discente do curso de Farmácia da Universidade de Marília (UNIMAR); Marília; São Paulo; Brasil. 5. Docente dos Cursos de Medicina da Universidade de Marília (UNIMAR) Docente da Faculdade de Tecnologia de Alimentos de Marília (FATEC); Marília; São Paulo; Brasil. 6. Docente dos Cursos de Medicina e Farmácia da Universidade de Marília (UNIMAR); Marília; São Paulo; Brasil. 7. Programa de Pós-graduação Interdisciplinar em Ciências da Saúde (Medicina I); Universidade Cruzeiro do Sul; São Paulo; Brasil. 8. Instituto Butantan; São Paulo; Brasil. 9. Docente da Faculdade de Tecnologia de Alimentos de Marília (FATEC); Marília; São Paulo; Brasil.

RESUMO

ABSTRACT Introduction Cancer represents one of the greatest challenges to global public health, with breast cancer being the most common neoplasm among women. During oncological treatment, changes in body composition, especially the loss of muscle mass, are associated with worsening functional capacity, increased fatigue, and reduced quality of life. In this context, nutritional supplementation combined with supervised physical exercise may contribute to the maintenance of body composition, improvement of functional capacity, and better treatment tolerance. Dual-energy X-ray absorptiometry (DEXA) and ultrasonography are tools used to assess and monitor changes in body composition. Furthermore, the correlation between imaging findings and biomarkers of muscle and cardiac injury may expand the understanding of the effects of oncological treatment, assisting in the early identification of toxicities and in the clinical management of patients with breast cancer. Objective: To evaluate changes in body composition in women with breast cancer undergoing oncological treatment using DEXA and ultrasonography, correlating imaging findings with biomarkers of muscle and cardiac injury. Methods: Anthropometric and body composition assessments will be performed, including bone, fat, and lean mass measurements using DEXA and ultrasonography focused on the rectus femoris muscle. In addition, blood samples will be collected for the analysis of biomarkers of muscle and cardiac injury and their association with imaging findings. Expected Results: It is expected that the intervention involving nutritional supplementation and supervised physical exercise will contribute to the preservation of lean mass, improvement of functional capacity, and reduction of fatigue during oncological treatment. It is also expected that DEXA and ultrasonography findings will be associated with muscle and cardiac biomarkers, assisting in the early identification of changes related to treatment toxicity. Hypothesis: Women with breast cancer undergoing oncological treatment who participate in supervised physical exercise combined with a high-protein nutritional supplementation program will demonstrate better preservation of body composition and improved prognostic outcomes compared to the placebo group. In addition, DEXA and ultrasonography findings are expected to be associated with biomarkers of skeletal muscle and cardiac injury, enabling the early identification of treatment-related toxicity.

Palavras-chave: Breast Cancer; Muscle Injury Biomarkers; Body Composition; Exercise Absorptiometry.

THE GOTO-KAKIZAKI RAT: A MODEL OF NON-OBESE TYPE 2 DIABETES MELLITUS AND ITS COMORBIDITIES

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RESUMO

Type 2 Diabetes mellitus (T2DM) is characterized by peripheral insulin resistance, often triggered by excess body mass. However, worldwide, the T2DM phenotype without obesity represents 10-15% of patients, corresponding to more than 70 million people. In Japan, 60% of the population with T2DM are not obese. The non-obese T2DM GK rat was developed in 1975 at Tohoku University in Sendai, Japan, by Goto, Kakizaki, and Masaki through selective breeding of glucose-intolerant Wistar rats with hyperglycemia. GK rat exhibits typical manifestations of T2DM: chronic inflammation, moderate hyperglycemia, glucose intolerance, peripheral insulin resistance, hyperinsulinemia, impaired glucose-induced insulin secretion, reduced pancreatic β -cell function and number, increased hepatic gluconeogenesis, and elevated plasma lipid levels. The GK rat also develops chronic comorbidities, allowing examination of the intrinsic complications of T2DM. Herein, a literature review was conducted in the PubMed and Google Scholar databases using the descriptors "Goto-Kakizaki rat" combined with "type 2 diabetes mellitus," "diabetic cardiomyopathy," "diabetic nephropathy," "diabetic retinopathy," "diabetic neuropathy," "autonomic neuropathy," "cognitive dysfunction," "neurodegeneration," "insulin resistance," "oxidative stress," "hepatic steatosis," "bone loss," and "erectile dysfunction", with no time restriction. Only original English-language articles that employed the GK rat to investigate chronic conditions were included. The GK rat develops a multisystemic spectrum of chronic complications: progressive left ventricular hypertrophy, diastolic dysfunction, myocardial fibrosis, and endothelial dysfunction. Nephropathy, proteinuria, hyperfiltration, and moderate glomerular impairments were also reported. Retinopathy was associated with the transmigration of inflammatory cells across the blood-retinal barrier and progressive microvascular changes in GK rats. Neuropathies with structural remodeling of intracardiac ganglia, impaired sciatic nerve regeneration with sex differences, and corneal neuropathy with delayed epithelial healing were described. Morphological remodeling of the small intestine, constipation, and alterations in the cholinergic myenteric plexus were reported, indicating enteric dysautonomia. Concerning neurodegenerative signs, about 11% reduction in the number of cortical neurons, accompanied by microglial activation, was observed, along with impairment of adult hippocampal neurogenesis and spatial memory. Transcriptomic changes in brain regions revealed molecular pathways connecting central insulin resistance to Alzheimer's-like disease. Osteopathy with reduction in trabecular bone mineral density, hepatic steatosis, and erectile dysfunction was also described. So, the GK rat model enables investigation of pathophysiological mechanisms intrinsic to chronic hyperglycemia and its associated comorbidities in non-obese T2DM.

Palavras-chave: Goto-Kakizaki Rat; Type 2 Diabetes Mellitus; Chronic Diseases; Neurodegenerative Diseases; Diabetic Complications.

THE ROLE AND IMPORTANCE OF VETERINARIAN IN ONE HEALTH - A LITERATURE REVIEW

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RESUMO

Veterinary medicine is seen by the population as a profession primarily focused on animal health. However, veterinary medicine is one of the areas that integrate the One Health concept, promoting not only animal care but also human health and the environment. Veterinarians actively participate in the Brazilian Unified Health System (SUS), even being cited in Resolution No. 287/1998 of the National Health Council as health professionals; however, their actions within public health are still little known by the population and even by other health professionals. The coexistence between humans and animals favors the spread of transmissible diseases, causing impacts on collective health and economic losses for both the government and producers. This work aims to list the ways in which veterinarians participate in One Health, as well as highlight their importance for preventive medicine and maintaining the well-being of the population. The methodology applied was based on the use of the Boolean operators "Veterinarian and SUS" and "Veterinarian and One Health" in the Scielo and Google Scholar databases, selecting articles produced in the last ten years. Among the data found, the importance of the veterinarian in food inspection, sanitary and epidemiological surveillance, and quality control of products of animal origin was verified, ensuring that the population consumes safe and disease-free food. The literature also revealed the importance of the professional in actions aimed at disease prevention and control, environmental management, and research related to public health. Among the main areas of activity of this professional, the extensive knowledge of zoonoses stands out, considered one of the biggest public health problems today. In conclusion, the relevance of the veterinary professional in promoting and ensuring collective health and disease prophylaxis is highlighted, strengthening their role in the SUS and One Health.

Palavras-chave: One Health; Veterinary Medicine; Public Health; Unified Health System; Zoonoses.

TIRZEPATIDA COMO TERAPIA ADJUVANTE NO DIABETES MELLITUS TIPO 1 COM SOBREPESO OU OBESIDADE: EVIDÊNCIAS EMERGENTES E DESAFIOS CLÍNICOS

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RESUMO

Introduction: Type 1 Diabetes Mellitus (DM1) is characterized by absolute insulin deficiency, with insulin therapy being the mainstay of treatment. However, a growing proportion of patients present with the "Double Diabetes" phenotype, characterized by overweight, insulin resistance, and difficulty in glycemic control, which significantly increases cardiometabolic risk and long-term complications. Tirzepatide, a dual agonist of glucose-dependent insulinotropic peptide (GIP) and glucagon-like peptide-1 (GLP-1) receptors, has demonstrated metabolic benefits in other clinical contexts, sparking interest as an adjunctive therapy in DM1. Its synergistic action promotes not only the regulation of glycemia, but also the reduction of appetite and the improvement of peripheral insulin sensitivity, arousing scientific interest as a promising adjuvant therapy for the management of type 1 diabetes mellitus (DM1) associated with obesity. **Objective:** To analyze the emerging evidence on the use of tirzepatide as adjuvant therapy to insulin therapy in individuals with DM1, especially in the presence of overweight or obesity, identifying metabolic benefits and risks to patient safety. **Methods:** This is a narrative literature review, carried out through searches in scientific databases, including PubMed and Scopus, using terms related to "Type 1 Diabetes Mellitus", "tirzepatide", "incretins", "GLP-1" and "GIP". Randomized clinical trials, observational studies, systematic reviews and research protocols published between 2021 and 2026 were selected, with emphasis on outcomes related to body weight and metabolic safety. **Results:** Preliminary studies suggest that tirzepatide may promote weight loss, improved glycemic parameters, and a decrease in the total daily insulin dose, especially basal insulin, reflecting an improvement in tissue insulin resistance induced by the GIP component of the molecule. However, the available evidence is still limited, with small sample sizes, short follow-up times, and specific populations. Furthermore, safety concerns are highlighted, including the risk of hypoglycemia, ketosis, and euglycemic diabetic ketoacidosis, especially when insulin therapy is inadequately reduced. This occurs because a sharp reduction in insulin doses, motivated by weight loss and glycemic improvement, may result in insufficient circulating insulin levels to suppress lipolysis and hepatic ketogenesis, even with apparently controlled glucose levels. **Conclusion:** Tirzepatide represents an innovative therapeutic strategy as an adjunct in the management of type 1 diabetes in selected patients, but it is not yet fully established. Its use should be interpreted with caution and restricted to research or specialized monitoring contexts, with further studies needed to define its efficacy, safety, and clinical applicability. Robust clinical trials are necessary to define safe protocols and dose adjustments and to ensure that the metabolic benefits outweigh the acute risks of ketoacidosis complications.

Palavras-chave: Diabetes Mellitus Tipo 1 Tirzepatida Incretinas Resistência Insulínica Controle Glicêmico.

TIRZEPATIDE AS AN ADJUNCTIVE THERAPY IN TYPE 1 DIABETES MELLITUS WITH OVERWEIGHT OR OBESITY: EMERGING EVIDENCE AND CLINICAL CHALLENGES

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RESUMO

Introduction: Type 1 Diabetes Mellitus (DM1) is characterized by absolute insulin deficiency, with insulin therapy being the mainstay of treatment. However, a growing proportion of patients present with the "Double Diabetes" phenotype, characterized by overweight, insulin resistance, and difficulty in glycemic control, which significantly increases cardiometabolic risk and long-term complications. Tirzepatide, a dual agonist of glucose-dependent insulinotropic peptide (GIP) and glucagon-like peptide-1 (GLP-1) receptors, has demonstrated metabolic benefits in other clinical contexts, sparking interest as an adjunctive therapy in DM1. Its synergistic action promotes not only the regulation of glycemia, but also the reduction of appetite and the improvement of peripheral insulin sensitivity, arousing scientific interest as a promising adjuvant therapy for the management of type 1 diabetes mellitus (DM1) associated with obesity. **Objective:** To analyze the emerging evidence on the use of tirzepatide as adjuvant therapy to insulin therapy in individuals with DM1, especially in the presence of overweight or obesity, identifying metabolic benefits and risks to patient safety. **Methods:** This is a narrative literature review, carried out through searches in scientific databases, including PubMed and Scopus, using terms related to "Type 1 Diabetes Mellitus", "tirzepatide", "incretins", "GLP-1" and "GIP". Randomized clinical trials, observational studies, systematic reviews and research protocols published between 2021 and 2026 were selected, with emphasis on outcomes related to body weight and metabolic safety. **Results:** Preliminary studies suggest that tirzepatide may promote weight loss, improved glycemic parameters, and a decrease in the total daily insulin dose, especially basal insulin, reflecting an improvement in tissue insulin resistance induced by the GIP component of the molecule. However, the available evidence is still limited, with small sample sizes, short follow-up times, and specific populations. Furthermore, safety concerns are highlighted, including the risk of hypoglycemia, ketosis, and euglycemic diabetic ketoacidosis, especially when insulin therapy is inadequately reduced. This occurs because a sharp reduction in insulin doses, motivated by weight loss and glycemic improvement, may result in insufficient circulating insulin levels to suppress lipolysis and hepatic ketogenesis, even with apparently controlled glucose levels. **Conclusion:** Tirzepatide represents an innovative therapeutic strategy as an adjunct in the management of type 1 diabetes in selected patients, but it is not yet fully established. Its use should be interpreted with caution and restricted to research or specialized monitoring contexts, with further studies needed to define its efficacy, safety, and clinical applicability. Robust clinical trials are necessary to define safe protocols and dose adjustments and to ensure that the metabolic benefits outweigh the acute risks of ketoacidosis complications.

Palavras-chave: Type 1 Diabetes Mellitus tirzepatide Incretins Insulin Resistance Glycemic Control.

TIRZEPATIDE IN THE MANAGEMENT OF OBSTRUCTIVE SLEEP APNEA ASSOCIATED WITH OBESITY: CURRENT EVIDENCE

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RESUMO

Introduction: Tirzepatide is an innovative drug approved by the U.S. Food and Drug Administration (FDA) for the treatment of type 2 diabetes mellitus (T2DM). This drug also demonstrates efficacy in weight loss, justifying its off-label use for the treatment of obesity. Obstructive sleep apnea (OSA) is characterized by respiratory disturbances during sleep, is associated with significant cardiovascular complications, and excess adiposity is a major risk factor for OSA. The benefit of substantial weight reduction in the treatment of patients with OSA is well recognized; therefore, tirzepatide, a dual agonist of GIP/GLP-1 receptors, offers a novel cardiometabolic strategy that goes beyond glycemic control, also promoting significant weight reduction. **Objectives:** To analyze recent scientific evidence on the use of tirzepatide as adjunctive therapy in obstructive sleep apnea. **Materials and Methods:** A narrative literature review was conducted based on studies published in the PubMed database over the last 5 years. The search was performed using the descriptors "tirzepatide" and "obstructive sleep apnea". Original articles, clinical trials, systematic reviews, meta-analyses, and randomized controlled trials with a direct approach to the topic were included. **Results:** Current guidelines recommend a weight reduction of approximately 7% to 11% in patients with obstructive sleep apnea (OSA), although this goal is often difficult to achieve with lifestyle interventions alone. Bariatric surgery has demonstrated significant benefits in reducing the severity of OSA in adults; however, due to its invasive nature and eligibility criteria, it is not a viable option for many obese patients. In this context, pharmacological therapies have gained prominence. Clinical studies have shown that tirzepatide promotes substantial reductions in body weight, in addition to improving relevant cardiometabolic factors such as blood pressure and inflammatory markers. More recently, clinical trials have shown that, in individuals with moderate to severe OSA associated with obesity, tirzepatide significantly reduces the apnea-hypopnea index (AHI), body weight, hypoxic load, and systolic blood pressure, as well as improving patient-reported outcomes related to sleep and quality of life. Although the observed benefits are substantial, it is not yet fully established to what extent the improvement in OSA is mediated directly by the pharmacological action of tirzepatide or secondary to significant weight loss. **Conclusion:** Tirzepatide, a new drug for metabolic intervention, has demonstrated promising clinical value in the management of OSA, expanding the therapeutic landscape for individualized treatment. However, further studies are needed to define the full role of tirzepatide in the adjunctive treatment of obstructive sleep apnea.

Palavras-chave: Tirzepatide; Obstructive Sleep Apnea; Obesity.

TUMOR VENÉREO TRANSMISSÍVEL CUTÂNEO EM CÃO SEM LESÃO GENITAL PRIMÁRIA: RELATO DE CASO

Pedro Henrique Amorim / Glória Januário Pettinati; Leonardo Tambarucci Martins; Isadora de Pieri da Silva; Beatriz dos Santos Bueno

RESUMO

O Tumor Venéreo Transmissível (TVT) é uma neoplasia contagiosa de células redondas em cães, que afeta predominantemente os genitais externos. No entanto, apresentações extragenitais, como a forma cutânea, podem ocorrer por meio de contato social, representando um desafio diagnóstico. O objetivo deste estudo é relatar um caso clínico de tumor venéreo transmissível extragenital com apresentação cutânea na região cervical de um cão sem raça definida, destacando o método diagnóstico e a abordagem terapêutica. Um cão macho sem raça definida, de 3 anos de idade e pesando 13,4 kg, chegou para atendimento no Hospital Veterinário da Universidade de Marília (UNIMAR) com um aumento de volume em região cervical presente há um mês, acompanhado de vômitos e hematoquesia. O exame físico revelou um tumor endurecido, ulcerado e parcialmente aderido na região cervical ventral e lateral, medindo 6,0 x 5,5 cm. Foram realizados exames de triagem, incluindo hemograma completo, análises bioquímicas e exame citológicos. No exame citológico ficou estabelecido de forma sugestiva o diagnóstico de TVT. O tratamento consistiu em sessões de quimioterapia com sulfato de vincristina intravenoso (0,52 a 0,75 mg/m²), associadas a medicação de suporte. O exame citopatológico revelou uma neoplasia de células redondas com padrão linfocitoide (mais de 60% das células) e mitoses atípicas, confirmando o diagnóstico de TVT cutâneo. Os exames hematológicos iniciais mostraram anemia microcítica e normocrômica não regenerativa, bem como episódios subsequentes de leucopenia e neutropenia induzidas pelo tratamento, que foram controladas com suplementação e monitoramento. Durante as avaliações clínicas de acompanhamento após o início do protocolo antineoplásico, o paciente apresentou redução progressiva significativa das dimensões do nódulo cervical e melhora do quadro clínico geral. Em conclusão, o TVT deve ser incluído no diagnóstico diferencial de nódulos cutâneos em cães, mesmo na ausência de lesões genitais primárias. A citopatologia mostrou-se uma ferramenta altamente eficaz, rápida e minimamente invasiva para esse diagnóstico. Além disso, a quimioterapia com sulfato de vincristina foi eficaz na redução tumoral da apresentação extragenital, enfatizando a importância do monitoramento hematológico para o manejo de complicações mielossupressoras. Porém o animal não retornou para terminar as seções de quimioterapia.

Palavras-chave: Tumor Venéreo Transmissível Canino TVT Extragenital Apresentação Cutânea Citopatologia Sulfato De Vincristina.

TUMOR VENÉREO TRANSMISSÍVEL CUTÂNEO EM CÃO SEM LESÃO GENITAL PRIMÁRIA: RELATO DE CASO

Pedro Henrique Amorim / Glória Januário Pettinati; Leonardo Tambarucci Martins; Isadora de Pieri da Silva; Beatriz dos Santos Bueno

RESUMO

O Tumor Venéreo Transmissível (TVT) é uma neoplasia contagiosa de células redondas em cães, que afeta predominantemente os genitais externos. No entanto, apresentações extragenitais, como a forma cutânea, podem ocorrer por meio de contato social, representando um desafio diagnóstico. O objetivo deste estudo é relatar um caso clínico de tumor venéreo transmissível extragenital com apresentação cutânea na região cervical de um cão sem raça definida, destacando o método diagnóstico e a abordagem terapêutica. Um cão macho sem raça definida, de 3 anos de idade e pesando 13,4 kg, chegou para atendimento no Hospital Veterinário da Universidade de Marília (UNIMAR) com um aumento de volume em região cervical presente há um mês, acompanhado de vômitos e hematoquesia. O exame físico revelou um tumor endurecido, ulcerado e parcialmente

aderido na região cervical ventral e lateral, medindo 6,0 x 5,5 cm. Foram realizados exames de triagem, incluindo hemograma completo, análises bioquímicas e exame citológicos. No exame citológico ficou estabelecido de forma sugestiva o diagnóstico de TVT. O tratamento consistiu em sessões de quimioterapia com sulfato de vincristina intravenoso (0,52 a 0,75 mg/m²), associadas a medicação de suporte. O exame citopatológico revelou uma neoplasia de células redondas com padrão linfocitoide (mais de 60% das células) e mitoses atípicas, confirmando o diagnóstico de TVT cutâneo. Os exames hematológicos iniciais mostraram anemia microcítica e normocrômica não regenerativa, bem como episódios subsequentes de leucopenia e neutropenia induzidas pelo tratamento, que foram controladas com suplementação e monitoramento. Durante as avaliações clínicas de acompanhamento após o início do protocolo antineoplásico, o paciente apresentou redução progressiva significativa das dimensões do nódulo cervical e melhora do quadro clínico geral. Em conclusão, o TVT deve ser incluído no diagnóstico diferencial de nódulos cutâneos em cães, mesmo na ausência de lesões genitais primárias. A citopatologia mostrou-se uma ferramenta altamente eficaz, rápida e minimamente invasiva para esse diagnóstico. Além disso, a quimioterapia com sulfato de vincristina foi eficaz na redução tumoral da apresentação extragenital, enfatizando a importância do monitoramento hematológico para o manejo de complicações mielossupressoras. Porém o animal não retornou para terminar as seções de quimioterapia.

Palavras-chave: Tumor Venéreo Transmissível Canino TVT Extragenital Apresentação Cutânea Citopatologia Sulfato De Vincristina.

ULTRA-PROCESSED FOODS AND CANCER DEVELOPMENT: INFLAMMATORY AND METABOLIC PATHWAYS INVOLVED

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RESUMO

Introduction: The global increase in cancer incidence has been closely associated with changes in dietary patterns, particularly the rising consumption of ultra-processed foods (UPFs). These foods are typically rich in added sugars, unhealthy fats, additives, and low in fiber and bioactive compounds, contributing to metabolic dysfunction and chronic inflammation, that are key processes in carcinogenesis. **Objective:** The aim of this study is to investigate the role of ultra-processed food consumption in cancer development, focusing on the underlying inflammatory and metabolic pathways. **Methods:** This study consists of a narrative literature review based on searches conducted in PubMed, Scopus, and Web of Science using descriptors related to ultra-processed foods, cancer, inflammation, and metabolic pathways. Experimental, epidemiological, and clinical studies investigating the biological mechanisms linking UPFs to cancer were included. **Results:** High consumption of UPFs has been associated with increased risk of several cancers, including colorectal, breast, and pancreatic cancer. Mechanistically, UPFs promote metabolic disturbances such as insulin resistance, hyperinsulinemia, and obesity, which activate proliferative pathways including insulin/IGF-1 signaling and PI3K/Akt/mTOR cascade. Additionally, these foods contribute to chronic low-grade inflammation through activation of nuclear factor-kappa B (NF- κ B) and the NLRP3 inflammasome, leading to increased production of pro-inflammatory cytokines such as TNF- α , IL-6, and IL-1 β . Additives and food contaminants, including emulsifiers and advanced glycation end products (AGEs), may disrupt gut microbiota composition and increase

intestinal permeability, promoting endotoxemia and activation of toll-like receptor 4 (TLR4). This process further amplifies inflammatory signaling and oxidative stress, characterized by increased reactive oxygen species (ROS), DNA damage, and genomic instability. Furthermore, reduced intake of protective compounds such as fibers and polyphenols impairs antioxidant defenses and anti-inflammatory pathways. Conclusion: Ultra-processed food consumption contributes to cancer development through interconnected metabolic and inflammatory pathways involving insulin signaling, chronic inflammation, oxidative stress, and gut microbiota dysregulation. Reducing UPF intake and promoting dietary patterns rich in minimally processed foods may represent an important strategy for cancer prevention. Further longitudinal and mechanistic studies are needed to clarify causal relationships and support public health recommendations.

Palavras-chave: Ultra-Processed Foods; Cancer Development; Inflammatory Pathways.

URINARY TRACT INFECTIONS: RISK FACTORS, DIAGNOSTIC METHODS AND THERAPEUTIC APPROACHES

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RESUMO

Introduction: Urinary tract infections (UTIs) are among the most common bacterial infections worldwide, affecting individuals of all ages and sexes, with a higher prevalence in women due to anatomical factors. Most cases are caused by *Escherichia coli*, followed by other uropathogens such as *Klebsiella* and *Staphylococcus* species. UTIs range from uncomplicated cystitis to severe conditions such as pyelonephritis and urosepsis, representing a significant public health concern due to their high incidence and association with frequent antibiotic use. Objectives: To analyze the main risk factors, diagnostic methods, and therapeutic strategies for urinary tract infections, highlighting recent advances and challenges related to antimicrobial resistance. Material and Methods: This study is a narrative literature review based on scientific articles indexed in databases such as PubMed and SciELO, prioritizing recent publications. The Scale for the Assessment of Narrative Review Articles (SANRA) was utilized as an article selection tool to increase the methodological rigor of the research. Studies addressing etiology, clinical manifestations, risk factors, diagnostic techniques, and treatment approaches for UTIs were included. Results: UTIs are predominantly caused by bacterial ascent from the intestinal microbiota, with *Escherichia coli* accounting for most cases. Clinical manifestations vary according to the site of infection, with lower UTIs presenting dysuria, urinary frequency, and urgency, while upper UTIs are associated with fever, flank pain, and systemic symptoms. Risk factors include female anatomy, sexual activity, urinary catheterization, pregnancy, genetic predisposition, and hormonal changes such as reduced estrogen levels. Urine culture remains the gold standard for diagnosis; however, it is time consuming. Emerging diagnostic techniques, including polymerase chain reaction (PCR) and molecular based methods, have demonstrated higher sensitivity and faster pathogen detection. Treatment is primarily based on antibiotic therapy, although increasing antimicrobial resistance, particularly to beta lactams and fluoroquinolones, poses a significant challenge. Supportive strategies such as increased hydration and the use of probiotics may contribute to the prevention of recurrent infections. Conclusion: UTIs represent a highly prevalent condition with important clinical implications. Early and accurate diagnosis, combined with appropriate therapeutic strategies, is essential to prevent complications and reduce antimicrobial resistance. Advances in

diagnostic methods and the rational use of antibiotics are fundamental to improving patient outcomes.

Palavras-chave: Diagnosis; Urinary Tract Infection; Escherichia Coli; Probiotics; Drug Resistance; Microbial.

USE OF DIETARY SUPPLEMENTS IN CHILDREN AND ADOLESCENTS WITH NEUROLOGICAL IMPAIRMENT AND DYSPHAGIA

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RESUMO

Children and adolescents with neurological impairments, especially those with cerebral palsy, face important challenges related to feeding and nutritional status. Oropharyngeal dysphagia is frequent in this population, compromising safe and efficient swallowing and increasing the risk of aspiration, respiratory infections, and malnutrition. In this context, the use of oral dietary supplements has been adopted as a strategy to improve nutritional intake and promote growth and development. This study aims to identify the use of dietary supplements in children and adolescents with neurological impairments and dysphagia. This is an observational, cross-sectional, and quantitative study, approved by the Research Ethics Committee, in accordance with Resolution No. 466/2012 of the National Health Council, integrated into a broader study already approved under opinion No. 5.604.585. The sample is composed of children and adolescents of both sexes, aged between 2 and 19 years, diagnosed with neurological impairment and receiving oral feeding. Selection occurred by convenience sampling from patients treated in the Amor de Criança project. Individuals with neurological diagnosis and dysphagia confirmed in medical records, exclusively oral feeding, and signed informed consent by legal guardians were included. Information regarding supplement use was obtained through structured questionnaires administered to caregivers. The sample includes 138 participants, of whom descriptive analysis showed that 50 (36%) use hypercaloric and hyperproteic supplements. The results indicate that less than half of the evaluated children and adolescents use dietary supplements, even in the presence of neurological impairments and possible specific nutritional needs, reinforcing the importance of individualized nutritional follow-up and interdisciplinary care. However, further studies on the subject are necessary in order to expand scientific knowledge and enable more consistent conclusions regarding the use of dietary supplements and their relationship with the nutritional status of this population. It is expected that the findings will contribute to the development of more effective and individualized nutritional strategies, promoting improvement in nutritional status and quality of life in this population.

Palavras-chave: Neurological Impairment; Dietary Supplements; Dysphagia; Pediatrics.

USO ESTÉTICO DE IMPLANTES HORMONAIS SUBCUTÂNEOS: RISCOS CLÍNICOS E DESAFIOS PARA A ENDOCRINOLOGIA.

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RESUMO

INTRODUÇÃO: Nos últimos anos, a crescente valorização de padrões corporais idealizados tem impulsionado a procura por intervenções hormonais e metabólicas com finalidade substancialmente estética. Essas terapias são frequentemente associadas à busca por emagrecimento rápido e ganho de massa magra, porém muitas vezes sem indicação clínica formal ou acompanhamento médico adequado. Entre as práticas mais discutidas estão os implantes hormonais subcutâneos, conhecidos como “chips da beleza”. Embora essas substâncias possam ter indicações clínicas específicas, seu uso sem critérios médicos pode gerar riscos relevantes à saúde. Nesse contexto, a utilização indevida dessa terapia levanta importantes implicações éticas por expor indivíduos a riscos sem benefício terapêutico comprovado. Assim, elucidar essas práticas e suas repercussões clínicas torna-se fundamental para a comunidade médica e para a promoção do uso racional de terapias hormonais e metabólicas. **OBJETIVO:** Analisar os riscos clínicos, éticos e as implicações endocrinológicas e sistêmicas associados ao uso de hormônios para fins estéticos, com ênfase nos implantes hormonais subcutâneos. **METODOLOGIA:** Trata-se de uma revisão narrativa da literatura, baseada em documentos da ANVISA, do Conselho Federal de Medicina, da Sociedade Brasileira de Endocrinologia e Metabologia, além de artigos científicos disponíveis no Google Scholar. Foram utilizados descritores em português, incluindo “implantes hormonais subcutâneos”, “chip da beleza”, “gestrinona” e “eventos adversos”. Foram priorizados estudos e documentos relacionados aos riscos clínicos, eventos adversos, implicações éticas e aspectos regulatórios do uso de terapias hormonais com finalidade estética. **DISCUSSÃO:** A gestrinona é uma das substâncias mais frequentemente associadas aos implantes hormonais subcutâneos. Trata-se de um progestágeno sintético derivado da 19-nortestosterona, com efeitos antiestrógenos, antiprogestagênicos e androgênicos, utilizado em contextos específicos, como no tratamento da dor pélvica associada à endometriose (RODRIGUES et al., 2022). Entretanto, devido às suas ações androgênicas, difundiu-se a ideia de que o implante de gestrinona atuaria como um “chip da beleza”, sendo associado à redução da massa gorda, ao aumento da massa muscular e à elevação da libido. Nesse cenário, observa-se crescimento do uso de implantes hormonais contendo esteroides sexuais e seus derivados, especialmente a gestrinona, com finalidade estética. Paralelamente, a Sociedade Brasileira de Endocrinologia e Metabologia tem alertado para o aumento de relatos de efeitos adversos em mulheres (SBEM, 2021). Entre as complicações descritas, destacam-se dislipidemia, hipertensão arterial, arritmias, acidente vascular cerebral, acne, alopecia, hipertricose, alteração da voz, rouquidão, insônia, agitação, cefaleia e possíveis disfunções hepáticas, renais, musculares e psiquiátricas (DE FARIA ROLLER et al., 2023). Nesse contexto, o Conselho Federal de Medicina veda a prescrição de esteroides androgênicos e anabolizantes para fins estéticos, devido à ausência de comprovação científica suficiente quanto aos benefícios e à segurança do paciente (CFM, 2023). **CONCLUSÃO:** O uso estético de implantes hormonais subcutâneos preocupa a endocrinologia pela exposição a substâncias androgênicas sem indicação clínica ou segurança comprovada. A gestrinona, divulgada como “chip da beleza”, pode causar efeitos adversos sistêmicos. Portanto, são essenciais prescrição baseada em evidências, fiscalização e educação em saúde para uso racional hormonal seguro.

Palavras-chave: Endocrinologia; Gestrinona; Implantes Hormonais; Efeitos Adversos.