

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.