

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.