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958 – Photobiomodulation in radiodermatitis in patients with breast cancer: a literature review

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Introduction: Among the therapeutic modalities for breast cancer, Radiotherapy (RT) is distinguished by the use of ionizing radiation in precisely calculated doses, capable of promoting direct and indirect ionizations that damage the deoxyribonucleic acid (DNA) of tumor cells, inhibiting their proliferation or inducing apoptosis. This process is also associated with inflammation and increased oxidative stress. Among the adverse effects of RT, radiodermatitis (RD) is the most frequent, potentially compromising skin integrity and quality of life of the patients. Photobiomodulation (PBMT), also known as low-level laser therapy, has been investigated as an effective therapeutic strategy for the prevention and treatment of RT-associated skin lesions, demonstrating efficacy in mitigating symptoms such as pain and inflammation.

Objective: To analyze the effects of PBMT on RD in patients with breast cancer undergoing RT.

Methods: An integrative literature review was conducted using the PubMed and SciELO databases, including studies published in both Portuguese and English between 2021 and 2026, available in full text. As an exclusion criteria, studies not related to the descriptors “breast cancer,” “radiodermatitis,” and “photobiomodulation” were removed. A total of 33 publications were identified, of which 8 were included.

Results: The findings indicate that PBMT, using different light sources such as low-level lasers and light-emitting diodes (LEDs), shows beneficial effects in modulating the inflammatory response, stimulating tissue repair, and reducing pain associated with RD, potentially decreasing its severity and occurrence.

Conclusion: PBMT represents a safe and potentially effective intervention in the management of RD in patients with breast cancer. However, more robust clinical studies are needed to establish standardized protocols and expand its incorporation into clinical practice.

Ethics: Public data.

Keywords: breast cancer; radiodermatitis; photobiomodulation; radiotherapy; low-level laser therapy.