

<https://doi.org/10.29289/259453942025V36S11191>

1191 – The use of denosumab in the treatment of osteoporosis in postmenopausal women with breast cancer: a systematic review (2015–2026)

Luiz Paula Silveira Júnior¹, Luiz Paula Silveira Neto¹, Maria Luiza Bessa Paula¹, Vyvian Paes Oliveira¹

¹Pontifícia Universidade Católica de Goiás – Goiânia (GO), Brazil.

Introduction: Osteoporosis is a prevalent condition in postmenopausal women, with a significantly increased risk in patients with breast cancer, especially due to estrogen deprivation induced by aromatase inhibitors, chemotherapy, and aging. In this context, denosumab, an anti-RANKL monoclonal antibody, has been used as an antiresorptive therapy to reduce osteoclastic activity and improve bone mineral density.

Objective: To evaluate the efficacy and safety of denosumab in postmenopausal women with breast cancer.

Methods: This systematic review was conducted according to the PRISMA guidelines and based on the PICO framework (Population, Intervention, Comparator, Outcomes). The PubMed/MEDLINE, Embase, Cochrane Library, SciELO, LILACS, ClinicalTrials.gov, NICE, and BVSM databases, as well as NIH resources, were consulted from 2015 to 2026, using descriptors related to the topic. A total of 93 studies were identified, of which 54 were included after applying the eligibility criteria.

Results: Denosumab significantly increases bone mineral density in the lumbar spine, femoral neck, and total hip, in addition to improving bone quality parameters. Evidence from randomized clinical trials indicated a reduction of up to 50% in the risk of fractures, especially in patients using aromatase inhibitors. Compared to bisphosphonates, it showed similar or superior efficacy, with advantages in therapeutic adherence and administration. The safety profile was favorable, with a low incidence of serious adverse events. However, treatment discontinuation was associated with a rebound effect, with accelerated bone mineral density loss and an increased risk of vertebral fractures, requiring therapeutic transition strategies.

Conclusion: Denosumab proved to be an effective and safe option for the management of osteoporosis in postmenopausal women with breast cancer and should be considered first-line therapy in high-risk patients, with special attention to discontinuation planning.

Ethics: Public data – Literature review

Registry: International Prospective Register of Systematic Reviews (PROSPERO) CRD420261357370.

Keywords: denosumab; osteoporosis; breast cancer; menopause.