Comprehensive Clinical Literature Review of Managing Bone Metastases in Breast Cancer: Focus on Pain and Skeletal-Related Events

Kawther Hamash, PhD, RN, and Suzanne L. Walker, PhD, CRNP, BC, AOCN®

BACKGROUND: Bone metastases are the most common site of metastatic disease in breast cancer and can result in significant pain and an increased risk of skeletal-related events (SREs). Uncontrolled pain can further lead to negative outcomes.

OBJECTIVES: The aim is to provide oncology nurses with the latest evidence on the management of bone metastases in metastatic breast cancer (MBC) with a focus on pain and SREs.

METHODS: A literature search was conducted using the Embase®, PubMed®/MEDLINE®, CINAHL®, and Cochrane Library databases. Clinical trials, retrospective studies, systematic reviews, meta-analyses, and practice guidelines, as well as one high-level conference abstract, were reviewed.

FINDINGS: Options for managing bone metastases in MBC include surgical and interventional strategies, radiation, and bone-modifying agents. Management plans frequently include a combination of these modalities. More information is needed to better define the role of bone-directed therapies in MBC, particularly as they relate to nursing care.

KEYWORDS
breast cancer; bone metastases; pain; symptom management; pain management

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BREAST CANCER IS THE MOST COMMON CANCER in the United States, with nearly 300,000 female cases and about 43,000 deaths estimated for 2023 (American Cancer Society, 2023). Although only 6% of patients with breast cancer present with metastatic disease at the time of diagnosis, recurrent metastatic disease is common, and there are projected to be almost 170,000 women living with metastatic breast cancer (MBC) by 2025 (Gallicchio et al., 2022). The most common site for metastatic disease is the bone, occurring in 55%–65% of patients with MBC (Body et al., 2017; Chen et al., 2017; Wang et al., 2019).

Bone metastases can result in significant pain for patients with MBC, with about 80% of patients reporting pain at the time of presentation (Henry et al., 2019). In addition, patients with bone metastases are at risk for developing painful skeletal-related events (SREs), which are commonly identified as a pathologic bone fracture, needing radiation therapy (RT) or surgery, or experiencing spinal cord compression (National Comprehensive Cancer Network [NCCN], 2023a). Rates of SREs have been reported to range from 17% to 60% in patients with bone metastases from MBC, with the highest likelihood in the first year (Alzahrani et al., 2022; Hong et al., 2020; Lingamaneni et al., 2020; Miyashita et al., 2020). Uncontrolled pain and SREs have been associated with a host of negative sequelae with implications for patients, caregivers, and the larger healthcare arena (see Figure 1).

Despite the high incidence of pain and SREs in patients with MBC, there is little consensus on optimal therapies for bone metastases in this population. In addition, there is a dearth of nursing literature on the topic. Only about 40% of oncology nurses in a survey study reported feeling confident in managing bone metastases (Drudge-Coates et al., 2020). Oncology nurses educate patients and their caregivers about available cancer therapies and the associated risks, thereby facilitating informed decision-making. In addition, oncology nurses assess patients receiving these therapies for toxicities that require prompt attention. Nurses also assess patients' needs for effective strategies to prevent complications and reduce suffering (Ehrlich & Vallerand, 2023; Xia, 2017). Therefore, the aim of this review is to provide oncology nurses with an update about treatment options to address bone metastases in patients with MBC, with an emphasis on pain and SREs (see Table 1).