

Advances in Supportive Care of Patients With Cancer and Bone Metastases: Nursing Implications of Zoledronic Acid

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Patients with bone metastases often develop skeletal complications that adversely affect their quality of life (QOL). Skeletal-related events (SREs) from malignant bone disease include bone pain, pathologic fractures, spinal cord compression, and hypercalcemia of malignancy (HCM) (Coleman, 1997). Bone pain is the most common complication of bone metastases, tends to occur throughout the course of the disease, and may respond to palliative radiotherapy (Ripamonti & Fulfaro, 2000). In contrast, HCM and pathologic fractures are late complications of bone metastases and may require acute treatment (Coleman). Although HCM easily can be managed with bisphosphonate therapy, it often is unrecognized and can cause acute renal failure, cardiac arrest, or death (Barnett, 1999; Watters, Gerrand, & Dodwell, 1996). Pathologic fractures occur because of losses in bone integrity, contribute to increases in bone pain, and may require surgery. Spinal cord compression also is accompanied by significant pain that coincides with myelographic abnormalities or epidural disease. Early diagnosis and decompression within 24–48 hours are necessary to ensure recovery of function (Coleman; Siegal, Tiqva, & Siegal, 1985).

Approximately 40%–50% of patients with bone metastases develop one or more SREs per year. For example, in women with

The knowledge and training of nursing staff is essential for the safety and comfort of patients receiving IV therapies. The use of IV bisphosphonates as an adjunct to standard antineoplastic therapies in patients with advanced cancer is becoming widespread. Zoledronic acid and pamidronate (Zometa® and Aredia®, Novartis Pharmaceuticals Corporation, East Hanover, NJ) are nitrogen-containing bisphosphonates. Pamidronate has been the standard of care for patients with osteolytic bone lesions from breast cancer or multiple myeloma. However, zoledronic acid, which has demonstrated increased potency and a broad clinical utility, is emerging as the new standard of care. In addition to treating hypercalcemia of malignancy, zoledronic acid is approved for treating patients with bone metastases (osteolytic or osteoblastic) from a wide range of solid tumors, including breast, prostate, and lung cancers, or osteolytic bone lesions from multiple myeloma. Zoledronic acid (4 mg via a 15-minute infusion) has a safety profile comparable with pamidronate (90 mg via a two-hour infusion) and has demonstrated comparable or superior efficacy to that of pamidronate in every patient population tested. The shorter infusion time of zoledronic acid compared with that of pamidronate may provide added convenience, but safety guidelines should be followed for all IV bisphosphonate therapies. These guidelines and nursing care of patients receiving IV bisphosphonates are reviewed.

Key Words: neoplasm metastasis; hypercalcemia; fractures, spontaneous

bone metastases secondary to breast cancer, the estimated rate of fractures has been reported as 1.2 vertebral and 2.2 pathologic fractures per patient each year, with about half occurring in the vertebrae (Lipton et al.,

2000; Paterson et al., 1993). The mean annual incidence of all SREs per person, based on the placebo arms of two large clinical trials, is three or four events per year (Lipton et al.; Theriault et al., 1999). The skeletal morbidity rate (SMR) (i.e., SREs per year) in patients with multiple myeloma has been reported as 2.2 events per year (Berenson et al., 1998). Although SREs have been associated with many forms of cancer, few studies have evaluated the impact of SREs on QOL for patients with cancer. However, bone pain palliation showed a direct correlation with QOL improvement in patients with advanced metastatic prostate cancer receiving strontium-89 for bone pain (Turner, Gruenewald, Spry, & Gebiski, 2001), and QOL also was found to be significantly higher for osteoporotic women

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