

# Nursing Management of Patients With Castration-Resistant Prostate Cancer Undergoing Radium-223 Dichloride Treatment

Anthony Delacruz, NP, OCN®, Gabrielle Arauz, RN, BSN, OCN®, Tracy Curley, RN, OCN®, Amabella Lindo, RN, and Trine Jensen



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**Background:** Radium-223 dichloride, or radium-223, is a first-in-class alpha emitter that selectively targets bone metastases with high-energy, short-range alpha particles and is approved for the treatment of patients with castration-resistant prostate cancer (CRPC), symptomatic bone metastases, and no known visceral metastatic disease. Nurses are essential in educating patients about radium-223.

**Objectives:** This article provides oncology nurses with information from the randomized phase III Alpharadin in Symptomatic Prostate Cancer (ALSYMPCA) trial, as well as important handling, administration, and safety details unique to radium-223.

**Methods:** Data from the ALSYMPCA trial and related published information on radium-223 were reviewed.

**Findings:** Radium-223 is the only alpha-emitting radiopharmaceutical that has been shown to improve overall survival in patients with CRPC, as demonstrated in the ALSYMPCA trial. In addition, radium-223 delays time to first symptomatic skeletal event, and it is well tolerated with a low incidence of myelosuppression and gastrointestinal adverse events. Delivered on an outpatient basis, radium-223 requires universal precautions for handling and administration. Because of the potential for additive myelosuppression, the concomitant use of radium-223 with chemotherapy, other systemic radioisotopes, or hemibody external radiation therapy is not recommended.

Anthony Delacruz, NP, OCN®, is a nurse practitioner, Gabrielle Arauz, RN, BSN, OCN®, and Tracy Curley, RN, OCN®, are oncology research nurses, and Amabella Lindo, RN, is a nuclear medicine nurse, all at Memorial Sloan Kettering Cancer Center in New York, NY; and Trine Jensen is an associate data manager at Algeta ASA in Oslo, Norway. The authors take full responsibility for the content of the article. Writing and editorial support was provided by Julia D'Ambrosio, PhD, and Barry L. Ziober, PhD, at SciStrategy Communications through support from Bayer HealthCare Pharmaceuticals, Inc. The content of this article has been reviewed by independent peer reviewers to ensure that it is balanced, objective, and free from commercial bias. No financial relationships relevant to the content of this article have been disclosed by the independent peer reviewers or editorial staff. Delacruz can be reached at [delacrua@mskcc.org](mailto:delacrua@mskcc.org), with copy to editor at [CJONEditor@ons.org](mailto:CJONEditor@ons.org). (Submitted May 2014. Revision submitted July 2014. Accepted for publication July 27, 2014.)

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Nurses are an essential part of the oncology team who are closely involved in the care and management of patients with castration-resistant prostate cancer (CRPC). They often are the first source of patient contact and are in a key position to intercede early in the patient care process by providing information on available treatments, discussing novel therapies, and educating about clinical trials.

About 90% of patients with CRPC have bone metastases (Armstrong, Garrett-Mayer, de Wit, Tannock, & Eisenberger, 2010; Tannock et al., 2004). Patients with bone metastases are at risk for developing skeletal complications (e.g., severe bone

pain, pathologic fracture, spinal cord or nerve root compression, hypercalcemia of malignancy). Decreased survival rates have been correlated with bone metastases and skeletal events in metastatic CRPC (Sathiakumar et al., 2011). Treatment options to improve overall survival and quality of life, as well as to prevent and delay skeletal events, are of high importance when managing the care of patients with metastatic CRPC. Because nurses are crucial in managing and educating patients on novel therapies, the current authors present in this article the nursing practice implications for patient care and management in the handling, administration, and safety of radium-223. A brief review of the results of the randomized