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.

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Key words: castration-resistant prostate cancer; radium-223 dichloride; ALSYMPCA; bone metastasis; alpha emitter; radiopharmaceutical

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