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Real-World Experience with Radium-223 in metastatic castration-resistant prostate cancer: A single-center retrospective study

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Background

Radium-223 dichloride (Ra-223) has demonstrated improved overall survival and symptomatic control in patients with bone-dominant metastatic castration-resistant prostate cancer (mCRPC). However, data from routine clinical practice remain limited. We aimed to evaluate real-world efficacy, safety, and treatment patterns of Ra-223 in a single tertiary center.

Methods

We retrospectively reviewed all 97 patients treated with Ra-223 at Hospital Universitario 12 de Octubre between June 2013 and June 2024. 79 patients met inclusion criteria (confirmed mCRPC diagnosis and no Ra-223 within a clinical trial). Baseline demographics, ECOG performance status, extent of bone disease (grades 1–3), nodal and visceral metastases, and prior systemic therapies were recorded. Treatment details (number of Ra-223 injections, discontinuation reasons), subsequent therapies, overall survival (OS; from first injection to death) and time to progression (TTP; first radiologic progression) were analyzed via Kaplan–Meier estimates.

Results

Median age was 78 years. ECOG 0/1/≥2: 19%/53%/28%, respectively. Bone disease was extensive (more than 10 lesions) in 43% of patients; nodal metastases occurred in 32% and visceral metastases in 14%. Prior to Ra-223, 88% of patients had received androgen receptor pathway inhibitors, 59% docetaxel and 26% cabazitaxel. Among 52 patients with complete administration records, the median number of injections was five (IQR 3–6), and 30% completed all six planned cycles. Treatment was discontinued for progression in 43%, for toxicity in 41%, and for other reasons in 16%. At a median follow-up of 23.3 months, median OS was 15.7 months (1-year OS rate 65%) and median TTP was 4.6 months. Sixty percent of patients received further systemic therapy, most commonly androgen receptor pathway inhibitors (29%) and cabazitaxel (21%).

Conclusions

In this real-world, heavily pretreated cohort, Ra-223 demonstrated efficacy and safety consistent with pivotal trials, yielding a median OS of 15.7 months and manageable toxicity. Disease progression and adverse events limited completion of all six cycles. These findings support the integration of Ra-223 into routine practice for bone-predominant mCRPC.

Legal entity responsible for the study

The authors.

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Disclosure

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