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Title: *Bone modifying agents in multiple myeloma: compliance with guidelines and safety evaluation*

Purpose: Bone modifying agents (BMAs) are a vital adjuvant therapy for multiple myeloma (MM) due to its osteolytic tendencies. The purpose of this study is to evaluate the compliance of the use of BMAs in MM and analyze the safety profile of these medications.

Methods: A retrospective chart review was conducted following a database query. Patients (< 18 years) included were diagnosed with Multiple Myeloma between 6/1/2017 and 8/1/2018. For the primary outcome, BMA use with clinical practice guidelines were considered consistent if: 1) BMA is started upon detection of lytic bone lesions or diagnosis of osteopenia in patients with MM; and 2) zoledronate or pamidronate is the initial agent used unless creatinine clearance < 60mL/min, in which denosumab is also acceptable. Secondary outcomes include types of inconsistencies that occur and frequency of adverse events from BMAs.

Results: 28 patients met inclusion criteria. BMA utilization was consistent with the guidelines in 18 (64%) patients. There were 7 (25%) of patients who met criteria for treatment but did not receive a BMA. Zoledronate was the most common agent, accounting for 93 (88.6%) of 105 administrations. Of 21 patients treated both pre-and post-update who received a BMA, 18 (85.7%) were compliant with the guideline update.

Conclusion: At our institution, the use of BMAs can be improved to better adhere to recommendations in the clinical practice guidelines. This study has allowed evaluation of guideline compliance and safety considerations for this institution.