Evaluation of medication-related osteonecrosis of the jaw in patients receiving bone-modifying agents for bone metastases and multiple myeloma

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Introduction: Bone-modifying agents (BMAs), such as intravenous bisphosphonates and denosumab, play a crucial role in the management of patients with bone metastases. Medication-related osteonecrosis of the jaw (MRONJ) is a rare but serious complication of BMAs. A baseline dental examination and preventative dentistry before initiating BMAs is recommended. Additionally, pharmacologic treatment for the management of MRONJ is unclear and reinitiating the BMA is controversial. The study objective is to identify and evaluate patients with MRONJ and dental-related complications while on a parenteral BMA.

Methods: Patients receiving a BMA during a six-month period were assessed for a diagnosis of MRONJ or dental-related complications using the electronic-medical record. Patients 18 years and older were included if they had received at least one dose of a parenteral BMA indicated for bone metastases or multiple myeloma. Pregnant patients and patients taking oral bisphosphonates were excluded. The primary outcome was the incidence of MRONJ and dental-related complications. Secondary outcomes included number of patients who required emergency room visits or hospitalization, length of stay (LOS), number of BMA doses received, number of internal dental consults, and the documentation rate of BMA education. Exploratory outcomes include the frequency of MRONJ on concomitant angiogenesis inhibitors, initiation of pharmacotherapy for MRONJ management, and number of patients reinitiated on BMA after diagnosis. The data will be analyzed using descriptive and comparative statistics.

Results: Twenty-three patients out of 339 met the primary outcome and 9 of those patients were diagnosed with MRONJ. Patients on denosumab experienced MRONJ more frequently compared to zoledronic acid (50.0% vs. 36.8%). There were 6 patients that required an emergency room visit and 5 patients were subsequently hospitalized (median LOS=3 days). The median of BMA doses received before any dental issue was 16.5. Prior to initiation, 7 patients had documentation of BMA side-effects and 1 patient had recommended dental monitoring within the provider notes.

Conclusions: The incidence of MRONJ in this study was 2.7%. The incidence of MRONJ was higher amongst denosumab patients than in the zoledronic acid group. This demonstrates the importance of baseline dental examinations and monitoring throughout treatment with bone-modifying therapies to prevent MRONJ.