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Objective Clinical, Radiographic and Biochemical Parameters Associated with Treatment Outcomes for Patients with MRONJ

Medication-Related Osteonecrosis of the Jaw (MRONJ), a devastating side effect of anti-resorptives, including bisphosphonates and denosumab, presents as exposed bone, or bone that can be probed through a fistula, in the oral cavity. MRONJ becomes the clinical diagnosis when this exposed bone lasts more than eight weeks, in a patient with current or previous anti-resorptive treatment, without a history of radiation therapy to the jaws (Ruggiero et al. 2014). Despite advances in our understanding of the disease, MRONJ remains exceedingly difficult to treat. Once established, treatment options include both surgical and non-surgical therapy. However, treatment decisions are ultimately dictated by the clinician, some of which advocate for surgical therapy, while others advocate for non-surgical therapy. The literature supports many treatment approaches, ranging from the management of symptoms to the use of vascularized free flaps, and various iterations between the two (Carlson and Basile 2009; Guggenberger et al. 2013; Hadaya et al. 2018; Marx et al. 2005; Ruggiero et al. 2014). Of note, AAOMS has provided clinical guidelines for the treatment of MRONJ, with surgical debridement limited to those with refractory stage 2 disease or stage 3 disease, and surgical resection to those with stage 3 disease. Although these clinical guidelines exist, several studies advocate for debridement or surgical resection, regardless of staging. Success rates with these techniques range from 53 to 92%. However, these more aggressive surgical approaches might not consider the morbidity associated with surgery in medically compromised or elderly patients. Studies of nonsurgical treatment also exist, with disease resolution ranging from 18 to 90%. This range in treatment approaches leaves the clinician with uncertainty of which patients would benefit from surgical vs. nonsurgical therapy, while maintaining quality of life. With this in mind, the ability to predict which patients would heal with non-surgical therapy, before considering surgical debridement or resection, would significantly enhance outcomes and improve patient quality of life, especially in severely medically compromised patients or those who cannot tolerate a major surgical procedure. This study aims to objectively measure clinical, radiographic, and biochemical markers in patients treated with non-surgical, local wound care, who heal MRONJ lesions vs. patients whose disease progresses, ultimately requiring surgical therapy. Our long-term goal is to develop a multivariate model to specifically tailor therapy to each patient with MRONJ, providing a personalized approach to the treatment of this disease. The short-term goal of this proposal is to identify objective predictors of MRONJ healing.