Multidisciplinary Care Best for Pain Secondary to Bisphosphonate-Related Osteonecrosis of the Jaw: A Case Study

March 7, 2014, Phoenix, AZ -- A multidisciplinary treatment plan that combined splint use, physical therapy and discontinuation of bisphosphonates brought excellent results for a 58-year-old woman diagnosed with bisphosphonate-related osteonecrosis of the jaw (BRONJ). The treatment team and study authors highlighted the effectiveness of advanced imaging technology and multidisciplinary collaboration for patient outcomes that included a 90% decrease in pain, improved function and normalized imaging results. They presented study results today in a scientific poster at the 30th Annual Meeting of the American Academy of Pain Medicine.

Lead author Toni Jo Hanson, MD, said BRONJ is under recognized as a potential pain generator, especially Stage 0 BRONJ, which has no open lesion in the mouth. Furthermore, she said, the diagnosis of BRONJ can be missed without use of advanced imaging as symptoms may mimic other conditions that include occipital neuralgia, trigeminal neuralgia and headache.

“Early diagnosis and proper management can reduce the frequency and extent of severe debilitating effects,” said Dr. Hanson, who is a physiatrist in the Physical Medicine and Rehabilitation Department of the Mayo Clinic in Rochester, Minn. Effects include pain, inability to eat a normal diet and a significant reduction in quality of life, often leading to reparative costs that may include extensive resection of necrotic segments of the jaw bone and, less often, replacement of the mandible.

“Lack of awareness and acceptance of the potential for BRONJ are significant barriers. Preventative dental care prior to initiation of bisphosphonates is recommended and does not approach the cost of care once BRONJ has developed,” Dr. Hanson said.

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The patient, who was followed for 7 years, first presented clinically with head, neck and facial pain. During examination, pain occurred during palpation of the masseter temporalis muscles that help close the mouth, the temporomandibular joint (TMJ), and the nuchal musculature on the back of the neck. She had a history of left TMJ arthritis and had been taking bisphosphonates for 2 years to treat osteopenia. Bisphosphonates are a class of drugs that prevent bone mass loss but are also associated with osteonecrosis of the jaw, in which a loss of blood supply to the bones occurs (Drake et al, *Mayo Clin Proc* 2008;83(9):1032-45; Marx et al; *J Oral Maxillofac Surg* 63(11):1567-75).

Using cone-beam computed tomography (CT), magnetic resonance imaging (MRI) and dental X-rays, researchers confirmed the diagnosis of stage 0 BRONJ. “The CT elucidates boney status; however, an MRI is necessary to reveal the presence of inflammation, sclerosis and fibrosis, which can indicate necrosis,” Dr. Hanson explained.

Joint replacement was not an option due to poor bone quality. Instead, a variety of treatment modalities were employed that included discontinuing the bisphosphonates, placing a dental splint to reduce muscle pressure, debriding the temporomandibular joint, and referring for physical therapy.

Following treatment, the patient’s headache and facial symptoms resolved. Her pain decreased from an 8 out of 10 to between 0 and 1 out of 10 on the visual analog scale. Results observed via advanced imaging showed that after the collapse due to the BRONJ, the bone returned to a more normal condition and a new cortical layer was formed in the reparative process.

Dr. Hanson lauded the multidisciplinary approach as bringing the best possible outcome for the patient. The study’s co-author Rand L Redfern, DDS, whose private practice in Colorado Springs, Colo., specializes in orofacial pain and TMJ disorders, provided splint care and coordination of service.

“The dentist is integral to diagnosis and management strategies including splints, oral care, managing oral infection and coordination with the other care providers,” Dr. Hanson said. “The physician is essential for managing medications, as appropriate to the underlying medical condition or conditions. A physiatrist can coordinate musculoskeletal rehabilitation as appropriate.”

Dr. Hanson said the goal is to increase awareness and research regarding early diagnosis and evolving management strategies for BRONJ. “Given our population demographics we can anticipate an increase in the number of patients with osteoporosis treated with bisphosphonates.”

*Poster 204 – Bisphosphonate-Related Osteonecrosis of the Jaw/TMJ Presenting as Facial, Head, and Neck Pain: Case Study with 7-year Follow-Up*
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