

AAOMS Issues Prevention and Management Strategies for Bisphosphonate-Related Osteonecrosis of the Jaw (BRONJ)

[Rosemont, IL] — In 2003 and 2004, oral and maxillofacial surgeons recognized and reported an increased number of cases of osteonecrosis of the jaw, characterized by non-healing, exposed bone, in the maxillofacial area of patients treated with intravenous and oral bisphosphonates. Bisphosphonates are a recognized and effective class of drugs used intravenously to help cancer patients and in oral form for patients with osteopenia and osteoporosis.

Noting that a patient's risk of developing Bisphosphonate-Related Osteonecrosis of the Jaw, or BRONJ, may be affected by the administered dosage and by the length of time he or she has been on the medication, the American Association of Oral and Maxillofacial Surgeons has issued prevention and management strategies for those who are at risk for developing the disease and for patients with BRONJ. The strategies were developed by an AAOMS task force composed of clinicians with extensive experience in caring for BRONJ patients, clinical epidemiologists and basic science researchers with a broad range of experience and background. The complete task force report is available at www.aaoms.org.

BRONJ is characterized by exposed bone in the maxillofacial region that has persisted for more than eight weeks in patients who have no history of radiation therapy to the jaws and who are currently being, or have previously been, treated with bisphosphonate drugs.

Bisphosphonates are administered intravenously most often to treat cancer-related conditions, including bone metastases associated with solid tumors such as breast, prostate and lung cancer. They have a positive impact on the quality of life for patients with advanced cancer that involves the skeletal system.

Oral bisphosphonates are approved to manage a variety of bone-related conditions, but are most frequently prescribed for osteoporosis and osteopenia. The drug's treatment efficacy is well established in the prevention of osteoporosis related fractures. More than 190 million oral bisphosphonate prescriptions have been dispensed worldwide. Oral and maxillofacial surgeons, who counsel, manage and treat a majority of BRONJ

patients, report that patients taking oral bisphosphonates are at a significantly lower risk for the disease than those taking the drug intravenously.

The AAOMS task force cited four categories of risk factors for the development of BRONJ.

- **Drug-related risk factors** include the potency of the particular bisphosphonate, with the IV route of administration providing a greater drug exposure risk than the oral route; and the duration of therapy, with the risk increasing the longer the patient uses the drug.
- **Local risk factors** including invasive dental surgery, such as tooth extractions and periodontal surgery involving a bone injury. Patients receiving IV bisphosphonates AND undergoing dentoalveolar surgery are more likely to develop BRONJ than patients who are not having such surgery. In addition the site of the dentoalveolar surgery may affect the likelihood of developing the disease and patients with a history of inflammatory dental diseases, such as periodontal and dental abscesses, are at an increased risk for developing BRONJ.
- **Demographic and systemic factors.** Patients with multiple myeloma who are receiving IV bisphosphonates have a higher risk of developing BRONJ than do breast cancer patients receiving the drug. Similarly, breast cancer patients receiving IV bisphosphonates have a greater risk than those with other cancers, and a higher risk for patients diagnosed with both osteopenia/osteoporosis AND cancer.
- **Other risk factors for BRONJ** are thought to be:
 - Corticosteroid therapy
 - Diabetes
 - Smoking
 - Alcohol use
 - Poor oral hygiene
 - Chemotherapeutic drugs

While recognizing the value of IV bisphosphonates for adjunct cancer treatment, the AAOMS Strategies for prevention of BRONJ state that, if systemic conditions permit, the following should occur prior to treatment with an IV bisphosphonate:

- Patients should have a thorough oral examination to begin to optimize the patient's dental health. Treatment should include the removal of all nonsalvageable teeth, completion of all dental procedures and the achievement of optimal periodontal health.
- Patients with full or partial dentures should be examined for denture sores or exposed bone.
- Patients should be directed to maintain good oral hygiene, have regular dental evaluations and to immediately report any pain, swelling or exposed bone to their physician or dentist.

Patients taking oral bisphosphonates are at a significantly reduced risk of developing BRONJ than those being treated with IV bisphosphonates. Patients considering elective dental surgery who have been on the oral therapy for more than three years and those who have taken the drug for less than three years but are also taking corticosteroids should speak with their prescribing physician, family dentist or oral and maxillofacial surgeon about the risks and benefits of continuing treatment.

The paper also provides management recommendations for patients with BRONJ, based on the stage of the disease.

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The American Association of Oral and Maxillofacial Surgeons (AAOMS), the professional organization representing more than 7,000 oral and maxillofacial surgeons in the United States, supports its members' ability to practice their specialty through education, research, and advocacy. AAOMS members comply with rigorous continuing education requirements and submit to periodic office examinations, ensuring the public that all office procedures and personnel meet stringent national standards.