CLINICAL Roundtable

The professional perspective.

When can patients who are being treated with oral and IV bisphosphonates receive periodontal, implant, and/or oral surgical care?

INTERVIEWEES:
Louis Rose, DDS, MD; Salvatore Ruggiero, DMD, MD; Lee H. Silverstein, DDS, MS; and Peter C. Shatz, DDS

DR. ROSE

The American Academy of Maxillofacial Surgeons considers patients to have bisphosphonate-related osteonecrosis of the jaw (BRONJ) if all of the following three characteristics are present: current or previous treatment with a bisphosphonate; exposed, necrotic bone in the maxillofacial region that has persisted for more than 8 weeks; and no history of radiation therapy to the jaws.

Asymptomatic patients receiving intravenous bisphosphonates should maintain good oral hygiene and dental care to prevent dental disease that may require dentoalveolar surgery. Procedures that involve direct osseous injury should be avoided. Placement of dental implants should be avoided in the oncology patient who was exposed to the more potent intravenous medication on a frequent dosing schedule (four to 12 times a year.)

Sound recommendations for patients taking oral bisphosphonates that are based on strong clinical research designs are lacking. It appears that the risk of developing BRONJ associated with oral bisphosphonates increases when the duration of therapy exceeds 3 years. For individuals who have taken an oral bisphosphonate for less than 3 years and have no clinical risk factors, no alteration or delay in the planned surgery is necessary.

If dental implants are placed, it is suggested that an informed consent be provided related to possible future implant failure and possible osteonecrosis of the jaws if the patient continues to take an oral bisphosphonate. Such patients should be placed on a regular recall schedule.

For those patients who have taken an oral bisphosphonate for less than 3 years and have also taken corticosteroids concomitantly, the prescribing provider should be contacted to consider discontinuation of the oral bisphosphonate for at least 3 months before oral surgery, if systemic conditions permit. The bisphosphonates should not be restarted until osseous healing has occurred.

For those patients who have taken an oral bisphosphonate for more than 3 years with or without any concomitant prednisone or other steroid medication, the prescribing provider should be contacted to consider discontinuation of the oral bisphosphonate for 3 months before oral surgery, if systemic conditions permit.

DR. RUGGERIO

The risk of developing BRONJ in patients receiving bisphosphonates is small, especially in those patients receiving the oral medications. The risk appears to be related to three main variables: the potency of the bisphosphonate; the duration of exposure; and surgical dentoalveolar procedures.

Based on the guidelines issued by the American Association of Oral and Maxillofacial Surgeons, procedures that involve direct osseous injury (extractions, implant placement, and apical surgery) should be avoided in those patients receiving intravenous bisphosphonates or who have established BRONJ. Non-restorable teeth may be treated by removal of the crown and endodontic treatment of the remaining roots.

Patients receiving oral bisphosphonates are also at risk for developing BRONJ, but to a much lesser degree than those treated with intravenous bisphosphonates. For individuals who have taken an oral bisphosphonate for less than 3 years and have no clinical risk factors, no alteration or delay in the planned surgery is necessary. For those patients who have taken an oral bisphosphonate for more than 3 years or are also receiving concomitant chronic steroid medication, the prescribing provider should be contacted to consider discontinuation of the oral bisphosphonate for 3 months before oral surgery. The bisphosphonate should not be restarted until osseous healing has occurred.

Regardless of the type or duration of bisphosphonate therapy, routine restorative dental procedures are not associated with a risk of BRONJ and, therefore, should not be withheld from this population of patients. In fact, regular dental surveillance and prophylactic care should be strongly encouraged to optimize the dental health and mitigate the risk of BRONJ.

DR. SILVERSTEIN AND DR. SHATZ

There is increasing evidence that patients who have been treated with bisphosphonates may be susceptible to BRONJ associated with dental surgical procedures such as extractions, dental implant placement, and infections involving craniofacial bone. Bisphosphonates change bone metabolism, reducing bone resorption while allowing bone deposition to continue. There is evidence that these changes are long term and cannot be reversed by discontinuing the use of these medications. The majority of these reported cases have been subsequent to bisphosphonate therapy used in conjunction with anticancer therapy. In these situations, patients have received, by intravenous administration, third- and some second-generation nitrogen-containing bisphosphonates concomitantly with chemotherapeutic agents.

However, there has been a small percentage of reported cases of BRONJ in patients who have had orally administered bisphosphonate therapy, such as with alendronate. According to James L. Rutkowski DMD, PhD (Duquesne University Graduate School of Pharmaceutical Sciences, Pittsburgh, PA, there is a window of opportunity where the oral bisphosphonates help increase bone mineral density and have minimal adverse effects on the skeletal system. Dosages of approximately 35 mg per week have this window up to 4.9 years; at 70 mg per week the window is decreased to 2.45 years. The key to remember is that the half-life of the medications is approximately 10 to 12 years, indicating that these medications are very slowly eliminated from the bone.

The incidence of BRONJ is approximately 1 per 100,000 in the population of people taking oral bisphosphonates. In other words, it is far less than the reported risk of hip fracture secondary to osteoporosis, and less than other risks commonly faced in modern society, such as death by motor vehicle accident.

Prevention of osteonecrosis must include identifying those at risk, such as patients with a history of bisphosphonate therapy, before performing invasive dental surgical procedures. These at-risk patients, especially those with intravenously administered bisphosphonates, are at a higher risk of complications in any dental procedures that involve the bone. Extractions and dental implant placement should be avoided altogether.

Unfortunately, there is insufficient data to unequivocally guide the management of patients who have developed BRONJ. There also appears to be a prevailing consensus that efforts by the dental practitioner should be focused on preventing the progression of lesions and limiting complications relating to BRONJ. A developing consensus for preventative therapy is prescribing broad-spectrum antibiotics before and continuing for 7 days after the procedure. Patients allergic to penicillin could use doxycycline. When BRONJ develops, management may include rinsing with an antifungal/antibacterial mouth rinse and, when necessary, conservative debridement of sequestering bone. Lastly, early diagnosis and management may prevent or reduce the morbidity resulting from advanced destructive BRONJ.

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