Guest Editorial Bisphosphonate-Induced Osteonecrosis of the Jaws: A Challenge, a Responsibility, and an Opportunity

In the period since bisphosphonate-induced osteonecrosis of the jaws (BIONJ) was first identified in 2003,[1] more than 300 publications have appeared, and more than 3,600 cases have been reported to the US Food and Drug Administration (FDA). Since most cases are seen and treated in dental offices throughout the world and never reported to the FDA, this number represents only a small fraction of the actual number of patients affected. Like the radiated patient who develops radiation caries, xerostomia, periodontal bone loss, or even osteoradionecrosis, patients with BIONJ depend on their dental providers to recognize, understand, treat, and prevent BIONJ. This formidable challenge also carries a responsibility for the dental profession to take the lead in educating their medical colleagues about this drug-induced complication of the jaws, in the same tradition as radiation-induced complications of the jaws.

The Challenge: Perhaps the greatest challenge for dental practitioners is to avoid either under- or overstating the BIONJ problem. Dental providers should understand that some publications minimize the risk of BIONJ and understate its impact on oral health, using its low incidence as justification for being unprepared.[2,3] Conversely, it is important not to overreact or be fearful either of caring for patients who are taking bisphosphonates or of treating those who have BIONJ. In addition to following established protocols,[4–8] dentists should know that this group of patients requires more frequent monitoring and oral maintenance schedules than others, a greater effort made toward preventive dentistry, and a well-planned and executed treatment program.

The Responsibility: The first responsibility for dental providers is to include a history of bisphosphonate use in their health history forms. Questions should be asked regarding not only the use of a bisphosphonate, but also the form (intravenous vs oral) and type (intravenous: pamidronate [Aredia] or zoledronate [Zometa]; oral: alendronate [Fosamax], residronate [Actonel], or ibandronate [Boniva]), along with the dosage, frequency, and most importantly, the duration of therapy. The responsibility continues with the need to be informed and to educate others as to the mechanism of BIONJ and its incidence related to each form and type of bisphosphonate, clinical and radiographic appearance, and treatment and prevention protocols. This information is readily available through the published position papers of several organizations and individual authors.[4–9]

The Opportunity: Dental professionals can minimize the impact of bisphosphonates on the quality of life of those affected by educating the medical profession and seeking their understanding and cooperation in the care they provide. Specific to intravenous bisphosphonates, prevention involves completing needed oral surgical and periodontal surgical procedures prior to or at least within the first 3 months of intravenous bisphosphonate use. Restorative prevention and periodontal maintenance procedures also enable these patients to avoid the need for invasive surgical procedures once they have started receiving intravenous bisphosphonates. This requires dentists to consult the treating oncologist as to the patient's dental needs and recommendations for a reasonable time frame in which to accomplish them consistent with medical treatment goals. The mainstay of treatment for patients who have developed intravenous bisphosphonate–induced osteonecrosis is palliation with 0.12% chlorhexidine alone or in combination with various antibiotic courses to control secondary infections and hence pain. Resection is necessary in only rare instances of refractory BIONJ or pathologic fracture. In either case, coordination with the patient's oncologist provides the best control and keeps him/her apprised of the treatment course.

Similar to intravenous bisphosphonates, prevention of BIONJ in those patients receiving oral bisphosphonates is best achieved by completing all necessary invasive oral surgical and periodontal procedures and even elective procedures, such as ridge augmentation and dental implant placements, prior to the start of their risk period. The critical difference in oral BIONJ risk is that it does not begin until after about 3 years of oral bisphosphonate use and can be assessed with the morning fasting serum C-terminal telopeptide (CTX) test. This information needs to be conveyed to the physicians treating osteopenia and osteoporosis. Ideally, physicians will learn to refer patients for dental evaluations before or during their early treatment course with an oral bisphosphonate. By following these guidelines, dental and medical professionals can work together to prevent a large percentage of potential BIONJ cases from developing.

Treatment of oral BIONJ also differs from that of intravenous BIONJ. Because oral bisphosphonates accumulate in bone at a much slower rate, osteoclast function can be restored by discontinuation of the oral bisphosphonate, often described as taking a "drug holiday." The patient's CTX values are monitored throughout this period. Such drug holidays can be initiated only by the prescribing physician at the request of the dental provider. During this period, exposed bone may spontaneously heal or be resolved by minor office-based debridements, something that is not usually possible with intravenous BIONJ.[7,9] The safety of such drug holidays or of even longer periods of suspended use has been documented in the medical literature.[10,11]

This recently identified disease has in some ways reversed the old tradition of dentists seeking a "medical clearance" to proceed with their dental care. With BIONJ, medical providers also need to consult dentists and work equally to provide optimum therapeutic care while preventing the complications that sometimes result from it.

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