



Venetian Pointe Dentistry

A Newsletter Prepared by Richard C. Rampi, DMD

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BON: A Potentially Serious Oral Complication from the Use of Medications for Osteoporosis and Other Skeletal Disorders

Roughly translated, osteonecrosis means “bone death”. Osteonecrosis of the jaw (ONJ), then, refers to death of the jawbone. ONJ has been reported in the literature since the 19th century⁷. While necrosis of the jawbones may be the result of a variety of sources such as head and neck radiation treatment, chemotherapy, infections, or trauma, ONJ in this newsletter will be used as it pertains to a potentially serious complication from the use of a class of medications known as bisphosphonates.^{1,9,10} These well-accepted and popular class of medications are used for the management of osteoporosis and other skeletal disorders.¹⁻¹⁰ The term applied in this case of ONJ is “bisphosphonate-associated osteonecrosis of the jaw”, or simply “BON”. According to the American Association of Oral and Maxillofacial Surgeons, to be considered BON, the osteonecrosis must be present in a patient who has been exposed to bisphosphonates, the osteonecrosis has been present for more than eight weeks, and there is no history of radiation therapy to the jaws (in which case it’s referred to as osteoradionecrosis).^{1,4}

While I feel this topic is of great importance, it is important to note that based upon the current literature a patient’s risk for developing BON when taking the bisphosphonate orally or in low-doses intravenously is very low (1 in 60,000)⁸. Unfortunately, this risk is much greater for those taking high doses of the bisphosphonate intravenously; this is especially true for cancer therapy. One reference states that “retrospective studies estimate that a minimum of 5 percent of IV BP users develop ONJ”². This newsletter will describe BON, the risk factors which may predispose someone to the development of BON, the measures which can be taken to minimize these risks, and the procedures used to help treat the condition in the unlikely event of its occurrence.

ALSO IN THIS NEWSLETTER:

**“This and That” from the Office!
From the Doctor’s Desk**

ATTENTION PATIENTS WITH DELTA DENTAL INSURANCE

We are now a Preferred Provider for the Delta Dental PREMIER Plan. Now that we will be a network provider, you will obtain the full benefit allowed by the Delta Dental Premier Plan of the PPO network. At the same time, you will receive the same high quality of care you have come to expect from my staff and me. In addition, we are able to accept the referral of your coworkers who likely also have Delta Dental.

There is no greater compliment that you can give us than the referral of your family, friends, neighbors, and coworkers. Your referral would be greatly appreciated!

HISTORY

As defined in the introduction, BON is the acronym for bisphosphonate-associated osteonecrosis of the jaw. Cases of BON first surfaced in 2003.^{2,4,7} The early reports were associated with the use of Zometa and Aredia being given intravenously in high doses. These were primarily used to reduce bone pain and skeletal complications in patients with breast, lung, or other cancers, as well as Paget's disease of bone. The majority of the complications experienced in these cases were associated with dental procedures (such as tooth extraction); however, BON was also seen to occur spontaneously. Since the early cases with the intravenous administration of bisphosphonates, BON also has been associated with the use of those administered orally (e.g. Fosamax for the treatment of osteoporosis).¹⁻¹⁰ Bisphosphonates commonly used in the U.S. are shown in the table below.

COMMON BIOPHOSPHONATES

Bisphosphonates Taken Orally*

Actonel (risedronate)
Boniva (ibandronate)
Didronel (etidronate)
Fosamax (alendronate)
Skelid (tiludronate).

Bisphosphonates Given I.V.*

Aredia (pamidronate)
Boniva IV (ibandronate)
Reclast (zoledronic acid)
Zometa (zoledronic acid).

*Brands (generics are in parentheses)

THE CLINICAL PRESENTATION OF BON

The typical clinical presentation of BON includes pain, soft-tissue swelling and infection, loosening of teeth, drainage, and exposed bone. While these symptoms most commonly are found at the site of a recent tooth extraction, they may also occur as a result of other dental procedures (such as gum surgery), from other sources of gum irritation (such as an ill-fitting denture), or may even occur spontaneously. Other symptoms which may present include numbness of the affected jaw, a feeling of "heaviness" of the jaw, and dysesthesias (a condition in which light physical contact of the skin

causes pain).^{6,7,9,10} Which symptoms occur can vary and the severity of the symptoms which do occur can range from relatively mild to severe.⁷

RISK FACTORS

Common risk factors include receiving high doses of bisphosphonate intravenously (as used in cancer treatment), long-term use of oral bisphosphonates (greater than two years), radiation treatment to the head and neck, chemotherapy, the use of corticosteroids, smoking, diabetes mellitus, poor oral hygiene, the presence of gum disease, and ill-fitting dentures.^{2,3,4,7,9,10}

A patient's risk for developing BON when taking the bisphosphonate orally or in low-doses intravenously is very low.³

At this time there is no sure, proven test that can accurately predict the likelihood of developing BON. However, recently there has been some promise for a blood test used to determine the levels of CTX (C-terminal cross-linking telopeptide)⁸. In addition, there is no evidence to suggest that interrupting bisphosphonate therapy will prevent or lower the risk of ONJ since the half-life of the drug is often measured in years.^{1,6,7}

THE DENTAL MANAGEMENT OF PATIENTS TAKING BISHPHOSPHONATES

Because of the higher prevalence for complication, there are different recommendations for dental managements for those patients taking the medication orally versus intravenously.^{6,7,9,10}

1) For patients on oral or low-dose intravenous bisphosphonate therapy

Patients taking bisphosphonates orally or intravenously in low-doses (e.g. once per year) should be informed that the medication places them at risk for developing BON. However, the risk, in the case of oral administration, is relatively low (less