

- ⊗ Advanced age (> 65 years old)²
- ⊗ Estrogen use^{1,2}
- ⊗ Concomitant cancer therapy (i.e. head and neck radiotherapy procedures, chemotherapy, or steroid therapy)¹
- ⊗ Alcohol abuse, smoking, malnutrition, poor oral health, xerostomia¹

Patient Tips

When your dentist is taking a medical history, be sure to inform him/her if you are taking, or have ever taken, bisphosphonates – and in what forms and dosages.

Personal Tips: Maintain excellent oral hygiene to reduce the risk of infections. Go for regular exam and cleaning appointments and report any oral signs and symptoms to your dentist. If you wear a denture that is causing you discomfort, ask your dentist to adjust it.

Treatment of BRONJ

Currently, there is no established effective cure for BRONJ. The majority of the cases are managed with pain relief medications, maintenance of excellent oral hygiene and the use of antiseptic mouth rinse (0.12% chlorhexidine gluconate). If there is evidence of infection, antibiotic therapy may be prescribed. Surgical treatments may be necessary but are usually minor. Simple discontinuation of bisphosphonate use has not been shown to be an effective remedy. Discontinuation of bisphosphonate therapy

may compromise your primary condition and should only be done in consultation with your physician.¹

Conclusion

The precise causal relationship between bisphosphonate therapy and BRONJ has not been established. Some risk factors can increase the likelihood of developing BRONJ. Both the dentist and the patient should be focused on reducing these risk factors while establishing a regular dental care routine to monitor for early signs of BRONJ.

For more information on BRONJ:

<http://www.ada.org/prof/resources/topics/osteonecrosis.asp>

References:

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- 2) American Dental Association Council on Scientific Affairs. Dental management of patients receiving oral bisphosphonate therapy – expert panel recommendations. J Am Dent Assoc 2006;137(8): 1144–50.
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 - a. Drs. McKee and Tran are members of the Jamson T.N. Wong Laboratories for Calcified Tissue Research as part of the Centre for Bone and Periodontal Research.
 - b. This document is part of an article by: MR Dai, Y Li, TW Head, MD McKee, SD Tran (2008). J Can Dent Assoc. volume, pages.

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Bisphosphonate & YOU

For the past decade, millions of patients have been taking bisphosphonates for many purposes, including the treatment of resorptive bone diseases such as osteoporosis and cancer locating to bone. They are also recognized as an effective therapeutic agent for Paget's disease, osteogenesis imperfecta, and other conditions that cause bone fragility such as chronic renal disease in dialysis patients.

There are two methods of administering bisphosphonates:

1. By **mouth** in pill form: used mainly for osteoporosis. Patients taking these bisphosphonates are at minimal or no significant risk for bisphosphonate - related osteonecrosis of the jaw.
2. **Intravenous (IV)** form (i.e. injected): used to reduce bone pain, hypercalcemia and skeletal complications in patients with multiple myeloma, breast, lung and other cancers, as well as Paget's disease of bone and osteogenesis imperfecta.





What is BRONJ

Bisphosphonate-related osteonecrosis of the jaw (BRONJ) means the death of a portion of, or all of, the jaw bone. It is clinically defined as the presence of exposed bone in the mouth region that does not heal within 8 weeks after being identified by a health care provider.¹

What you need to know



The bisphosphonates that are commonly in use (e.g. Zometa, Aredia, Actonel, and Fosamax) are drugs that bind to bone mineral and act by inhibiting specific enzymatic pathways necessary for the action of cells that resorb/remodel bone. Decreasing bone resorption over time ultimately increases bone mass and skeletal strength, and thus these drugs are highly effective in treating osteoporosis and other bone diseases. One hypothesis on how bisphosphonates might cause BRONJ is that the suppression of bone turnover may also impair some of bone's biomechanical and reparative properties. Microdamage which is usually repaired by normal bone remodelling, might be left uncorrected, accumulate, and lead to BRONJ.² However, a causal relationship between bisphosphonate and BRONJ has not been definitively established. **More importantly, current data indicate that the vast majority of bisphosphonate users will not develop BRONJ.**¹

The risk of developing BRONJ with oral bisphosphonate use (e.g. Actonel, Fosamax)

appears to be very low, estimated to be less than 0.01% ~ 0.04%³, or possibly non-existent. In contrast, the risk of BRONJ in patients who are on high doses of intravenous bisphosphonates (e.g. Aredia, Zometa) is in the range of 1-10%.¹

What are the symptoms of BRONJ?



Symptoms of BRONJ may occur spontaneously in the bone, or more commonly, at the site of a previously extracted tooth. These lesions are most frequently symptomatic when sites become secondarily infected or when there is trauma to the soft tissue via the sharp edge of the exposed bone. Typical symptoms include: **jaw pain, exposed bone, irregular soft tissue swelling, loosening of teeth, infection with or without pus drainage.** Some patients may report a numbness or heavy sensation.¹



Example of a 69-year-old male showing dead bone with no healing 3 months after a tooth extraction. The patient has prostate cancer and is receiving intravenous Zoledronic acid. Picture courtesy of Drs. Emery/Pompura.

However, patients with BRONJ are **not always symptomatic**; there may be no symptoms for weeks or even months, with exposed jaw bone being discovered only during a dental examination.²

What are the possible risk factors?

The risk of developing BRONJ while taking **oral bisphosphonate** is extremely small. However, this small risk can be increased by the following factors:

- ⊗ Advanced age (> 65 years old)²
- ⊗ Estrogen use^{1,2}
- ⊗ Glucocorticoid (e.g. Cortisone) use for chronic inflammatory conditions¹
- ⊗ Concomitant cancer therapy (i.e. head and neck radiotherapy procedures, chemotherapy, or steroid therapy)¹
- ⊗ Alcohol abuse, smoking, malnutrition, poor oral health, xerostomia¹

For patients who are receiving **IV bisphosphonates**, the factors that could increase the risk of developing BRONJ are:

- ⊗ Surgical / dental procedures (i.e. tooth extractions)¹
- ⊗ Intraoral trauma, poor-fitting dental appliances²
- ⊗ Pre-existing dental problems or periodontal disease¹
- ⊗ Edentulous regions, tori and other bony exostosis²
- ⊗ Glucocorticoid (e.g. Cortisone) use for tumors of the bone¹