For the Patient: Bisphosphonates and Oral Health

Regular dental care is very important for all cancer patients. As soon as possible after your cancer diagnosis, your dentist should be involved as part of your treatment team. You should also let your oncologist know your dental history and any dental procedures that you require.

If you have been prescribed a bisphosphonate as part of your therapy, you should be aware that these medications have been linked to a small risk of osteonecrosis of the jaw.

It is because of this risk that a dental evaluation is recommended before you begin the medication. Your oncologist will refer you to your own dentist, or if you do not have one, to the Department of Oral Oncology at the BC Cancer Agency where a thorough exam and evaluation will be done. This is necessary even if you do not have any natural teeth. Complete prevention of bisphosphonate osteonecrosis of the jaw may not always be possible, but the already very low risk can be reduced by addressing potential oral problems early. The specialists in Oral Oncology will work closely with your own dentist to coordinate any treatment you need so that an optimal oral condition is achieved before you begin bisphosphonate therapy.

What are bisphosphonate medications?

Bisphosphonates are a class of medications which include pamidronate (AREDIA®), zoledronic acid (ZOMETA®), alendronate (FOSAMAX®), risedronate (ACTONEL®), etidronate (DIDRONEL®), clodronate (BONEFOS®, OSTAC®) and ibandronate (BONAVIA®).

Bisphosphonates are used intravenously and sometimes orally to treat cancer which has spread to the bone, to prevent hypercalcemia of malignancy, for multiple myeloma, and for Paget's disease. They are also used orally to treat osteoporosis and osteopenia.

Bisphosphonates decrease bone turnover and they may also decrease blood supply to the bone. In doing so, they can reduce bone problems associated with cancer, but they may also make it difficult for the bone to heal. The changes made to the bone with these medications are considered permanent. Be sure to tell your dentist that you have taken a bisphosphonate medication, even after you stop using it.

What is bisphosphonate osteonecrosis of the jaw?

This is a very rare condition in which areas of the jaw bone become exposed and do not heal. It can occur due to dental disease, following oral surgery, or without any known cause. Prevention is the best approach to reducing the risk of this complication, by

ensuring that oral infections are avoided and that future dental surgeries or extractions are not required once the bisphosphonate treatment begins. All cancer patients should keep up with regular dental visits, and this is especially true for those who have taken bisphosphonate medications.

The pre-bisphosphonate dental appointments aim to create dental health which can be maintained for the rest of your life. The following care guidelines have been developed by the BC Cancer Agency Program in Oral Oncology.

Dental Care for Patients Prescribed Bisphosphonates

For patients who are already taking bisphosphonates, frequent oral, dental and radiographic examinations should be done. Preventive care and regular dental cleanings are very important. Routine dental treatment, including fillings, crowns and root canal therapy can be safely undertaken, and is strongly encouraged to prevent future dental problems. Crowns should be placed on teeth with large fillings or with a high risk of fracture.

Extractions, periodontal surgery, orthodontics and implants should be avoided in those who have had intravenous bisphosphonate treatment. For those who have taken oral forms of the medication, these procedures increase the risk for bisphosphonate osteonecrosis.

Dentures require frequent adjustments to prevent irritation or trauma. Denture wearers should see a dentist regularly to evaluate the oral tissues.

If extractions are required, and the bisphosphonate was prescribed for cancer, consultation should first be made with the Department of Oral Oncology at the BC Cancer Agency. Referral to an oral surgeon familiar with bisphosphonate osteonecrosis of the jaw is recommended if possible.

Early bisphosphonate osteonecrosis may cause teeth to loosen. There may be swelling or infection in the mouth, numbness or a feeling of “heavy jaw”, pain, or a sudden change in oral health. If you notice any of these signs, discuss them with your oncologist and see a dentist as soon as you can. Often, there are no symptoms, which is why you should see your dentist every three months for an examination and regular maintenance.

In the rare cases where it does occur, successful treatment of osteonecrosis of the jaw is very challenging. Chewing and eating may become difficult, but infection or pain can be controlled with antibiotics, oral rinses or removable appliances which protect the exposed bone. Sometimes the exposed bone can be recontoured to remove sharp edges, but surgery is avoided because it can make the condition worse. Prevention is the key.

Keeping Your Oral Tissues Healthy

Oral care is important when you have cancer and even more important when you have taken a bisphosphonate medication. Meticulous oral hygiene and undertaking necessary preventive dental treatment is recommended. Smoking, excessive alcohol, a high sugar diet and between meal snacking should be avoided. Keep your mouth moist with plain water throughout the day. Do not use juice, pop or sweet flavouring, even if dilute. A dry mouth is more prone to decay. Use medications or saliva substitutes as prescribed.

Brush your teeth after every meal and at bedtime. Floss at least once per day, preferably at bedtime. Use a mirror daily to check your teeth and gums and be sure to seek treatment for any change in your oral health, including bleeding gums, pain, discomfort, or infection in the teeth or mouth.

PLEASE TAKE THIS HANDOUT AND THE ATTACHED DENTAL CARE PROTOCOL TO YOUR DENTIST

Keep your dentist up to date on your medical history and your medications. Your dentist is welcome to contact Oral Oncology at the BC Cancer Agency by calling 604-877-6136.

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BC Cancer Agency
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An agency of the Provincial Health Services Authority

Bisphosphonates and Osteonecrosis of the Jaw: Dental Care Protocols

Bisphosphonate medications are linked to a risk of osteonecrosis of the jaw. Care guidelines are based on expert opinion but clinical decisions are left up to practitioners. The following protocols have been developed by the BC Cancer Agency Department of Oral Oncology. Case by case professional judgment, in consultation with an educated patient is recommended.

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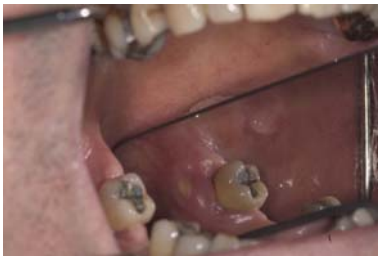
Bisphosphonates are used intravenously to treat cancers with metastatic spread to bone, to prevent hypercalcemia of malignancy, for multiple myeloma, and for Paget's disease. They are used orally to treat osteoporosis and osteopenia.

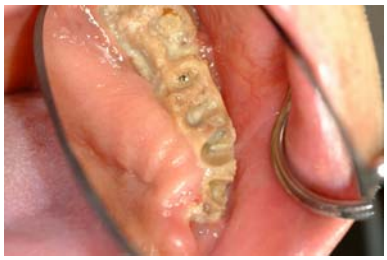
Bisphosphonates decrease bone turnover by disabling osteoclast and osteoblast function. They may also inhibit intraosseous blood vessel formation, as is the case with radiation treatment. However, unlike osteoradionecrosis, increasing angiogenesis with hyperbaric oxygen does not appear to alleviate bisphosphonate osteonecrosis.

What is bisphosphonate osteonecrosis?

In this condition, areas of necrotic bone become exposed and do not heal. It can occur spontaneously, due to dental disease or secondary to dental therapy. Approximately 60% of the reported cases have followed dentoalveolar surgery.



Spontaneous Bisphosphonate Osteonecrosis



Post-Extraction Bisphosphonate Osteonecrosis

Early bisphosphonate osteonecrosis may present with symptoms such as tooth mobilities, soft tissue swelling or infection, parasthesia, feeling of “heavy jaw”, undiagnosed oral pain, or a sudden change in periodontal/mucosal health.

The spontaneous form usually presents as a painless oral ulceration with a smooth or ragged border of inflamed mucosa, exposing necrotic bone. The bone sequestra sometimes slough off or can be easily removed. In severe cases, mostly associated with dentoalveolar surgery, there is chronic pain, swelling, irreversible dysfunction and disfigurement of the jaw. In extreme cases, jaw fracture can occur.

Dental Care Protocol for Patients Prescribed Bisphosphonates

Currently, prevention is the only known way to address this complication. Complete prevention is not possible, but the patient’s risk can be decreased by ensuring that invasive dentoalveolar treatment is not required. A complete and up to date medical history is required for all patients. Recognize that those with any significant history of bisphosphonate use are at permanent risk.

A thorough oral assessment for patients about to begin therapy with bisphosphonates is required.

Initiation of bisphosphonate therapy should be postponed if possible, until an optimal dental condition is achieved.

The pre-bisphosphonate dental appointments should establish a dentition that the patient can maintain for the rest of their life.

Informed consent should be obtained, with a signed patient released.

For patients who are already taking bisphosphonates:

- Complete oral, dental and radiographic examination.

- A traumatic non-surgical periodontal therapy. Meticulous oral hygiene will be mandatory. Home care instruction and education regarding lifelong osteonecrosis should be done. Cariogenic diet, smoking and excessive alcohol should be avoided.

- Routine restorative treatment should be encouraged, to prevent future dental problems.

- Aggressive non-surgical management of dental infections. Extractions should be avoided in favour of endodontic treatment and if necessary coronal amputation.

- Place cast restorations on heavily restored teeth to reduce the risk of coronal fracture. Care with or avoidance of retraction cord is recommended. Crown lengthening surgery is contraindicated in patients on intravenous bisphosphonates and is high risk in patients taking oral treatment.

- Evaluation of prostheses for proper fit. Frequent adjustments are recommended to prevent irritation or trauma. Occlusal splints should not contact soft tissues and should be kept meticulously clean.

If extractions are required, consultation should be made with the patient's physician (and oncologist if applicable). Referral to an oral surgeon familiar with bisphosphonate osteonecrosis is recommended if possible.

Bisphosphonate osteonecrosis usually occurs two to three months after dentoalveolar surgery. Immediately see patients taking bisphosphonate medications for evaluation of suspicious changes or symptoms.

If bisphosphonate osteonecrosis occurs, refer immediately to a dentist or oral surgeon experienced with this condition and report the event to Health Canada.

For more detailed information on this topic and for a sample patient release form, please go to the BC Dental Association website, member page at bcdental.org.