Bisphosphonate and Osteonecrosis of the Jaw: Update

In press releases by Novartis Pharmaceutical Company dated September 2004 and August 2006 as well as the August 2006 issue of the Journal of the American Dental Association, it was stated that patients suffering from cancer, osteoporosis, osteopenia, Paget’s disease of the bone and are being treated by bisphosphonates, run the risk of developing spontaneous osteonecrosis of the jaw. This osteonecrosis may also occur when undergoing certain dental procedures. According to the ADA, these risks are slight, however, patients must be made aware of them by their dentist in cases where dental treatments are being planned.

Fosamax, Actonel and Boniva are among the oral medications being used to treat osteoporosis. Aredia (pamidronate disodium) and Zometa (zoledronic acid) are administered intravenously in cancer treatments such as multiple myeloma. These medications regulate bone metabolism and inhibit bone resorption. Novartis has sent letters to physicians warning them that certain patients being treated with these medications run the risk of osteonecrosis of the jaw.

Bisphosphonates are a family of compounds that inhibit growth and the dissolution of bone hydroxyapatite crystals as well as osteoclast activity. They also inhibit the proliferation of tumour cells and prevent angiogenesis. They are used in the treatment of hypercalcemia of tumour origin, osteoporosis and Paget’s bone disease. They are useful in the treatment of bone metastasis, in cases of multiple myeloma, breast cancer and prostate cancer.

Over the last two years, many articles have identified the existence of a possible relationship between the use of bisphosphonates and avascular osteonecrosis of the jaw. Often, osteonecrosis will occur as a result of a latent dental infection or a routine surgical procedure such as the simple extraction of a tooth. It also appears that this complication may arise without any aggravating factors and may develop spontaneously.

Novartis has therefore recommended that all patients undergo a dental evaluation prior to beginning bisphosphonate therapy in order to eliminate all possible sources of infection.

Furthermore, it is recommended to avoid any surgical dental procedure for patients being treated with bisphosphonates. In my opinion, this recommendation may also apply to implant placement, bone grafts and sinus lifts. There are no contraindications for operative dentistry or prosthetic treatments.

According to Novartis, there is no evidence to confirm that stopping the use of these medications will reduce the risk of osteonecrosis.

The precautions that must be taken are not obvious in these cases and until the time that we know more about these complications, it appears to me prudent to follow the same recommendations as those used for patients suffering from head and neck cancer and undergoing radiotherapy. There are certainly many similarities between osteoradionecrosis of the jaw following radiotherapy and osteonecrosis of the jaw as a result of bisphosphonate administration.

The key lies in careful examination of these patients, regular dental visits, the elimination of all sources of infection prior to the start of bisphosphonate medications and maintaining good oral hygiene.