TREATMENT OF BONE METASTASES

By: Gil Lederman, MD

Bone metastases occur when cancer spreads from its primary or original site, gets in the blood stream and deposits itself and grows within the bone. Sometimes this is called bone cancer, however, it is in fact bone metastases. Cancers are defined by their origin.

One of the most common origins of bone metastases is breast cancer. New treatment was recently evaluated by Hortobagyi et al and published as a lead article in the prestigious New England Journal of Medicine.

Bone metastases are of great concern because of both the pain they inflict and as well, the immobility they produce.

A variety of treatments have been given with great success including localized radiation therapy. Radiation therapy is usually directed at symptomatic areas to maximize local benefit.

Bisphosphonates are recently developed drugs that inhibit resorbtion of bone. They work on the osteoclasts which are normally present within the bone. Osteoclasts' normal function is to remove elements from formed bone. A new type of Bisphosphonates, are called Pamidronate Disodium. These drugs inhibit the resorbtion of bone.

Early data suggested that the use of this material can decrease the complications of patients who have breast cancer spread to the bone.

In this multi-center study, women with metastatic breast carcinoma who had received combination chemotherapy and had bone metastases were given either placebo or treatment. The treatment was carried out over a two-hour period monthly for one year.

Bony complications were defined as pathologic fractures of the bone caused by the cancer, need for radiation to relieve symptoms, surgery on the bony metastases, cancers growing in the spine and compressing the delicate spinal cord and elevation of the calcium indicative of bony disease. Additionally, pain in the bones, use of drugs to relieve symptoms, function of the patient and quality of life were evaluated routinely.

Of 382 patients allocated placebo or treatment, 380 were actually evaluated. One-hundred-eighty-five received Pamidronate, while 195 received placebo. The time to occurrence of the first bony complication was longer in the treated group than in the placebo group. Time to bony complication averaged 13.1 months in the treated group and was 7.0 months in the placebo group. Furthermore, the number of patients having complications was lower in the group receiving Pamidronate treatment (43%) compared to 56% in the placebo group. Also, the authors noted there was "significant less increase in bone pain and deterioration of performance status" in the treated group. They stated that the drug treatment was well-tolerated.

Furthermore, the patients evaluated radiographically who were treated with Pamidronate had a greater likelihood of improving the bone lesions than those who had placebo. Only 18% of patients treated with placebo had some improvement radiographically while 33% had improvement with Pamidronate.

Only 2% of patients who were followed over this time frame developed spinal cord compression. Spinal cord compression is a serious complication producing impaired neurological function. That did not differ whether placebo or treatment was rendered.

A cancer marker abbreviated CEA (carcino embryonic antigen) was no different in the treated or untreated groups.

Adverse reaction to the drug was minimal. It was said to be well-tolerated. Three patients from the Pamidronate study were withdrawn because of toxicity - one because of increased weakness, fatigue and shortness of breath, one because of low calcium and one refused treatment because of severe bone pain.

Pamidronate, however, did not improve survival in women with metastatic breast carcinoma. This is also indicative of no difference in the CEA levels between the two groups.

The authors concluded that "Monthly infusions of Pamidronate are an effective supplement to chemotherapy for the reduction of skeletal complications and the relief of symptoms associated with lytic bone lesions due to metastatic breast cancer. Pamidronate is safe and well-tolerated as palliative treatment of osteolytic bone metastases."

An accompanying editorial by Pierre Delmas from Hopital Edouard Herriot in France, suggested that use of Pamidronate "might also delay the occurrence of bone metastases." He went on to add that "It seems probable that the use of Bisphosphonates will be an important advance in the management of cancer at several stages of the disease."

Radiation has been a great standard of care for the treatment of bone metastases. It is highly effective because it focuses the beam on the area where painful cancer is destroying bone. Stereotactic body radiosurgery takes this one step further by focusing a more precise radiation beam. Often – not always – higher doses of radiation can be given which, because of the biologic nature of radiation – should have a higher control or success rate in the area where the beam is aimed. Often pain relief is quicker and more durable with stereotactic body radiosurgery. It is certainly something to be considered. Control rate is defined as cessation of growth, shrinkage or disappearance of the tumor in the treated field.

We have seminars open to the public to explain stereotactic body radiosurgery in more detail. We also have a hot line at 212-CHOICES or send e-mail questions to gil.lederman@rsny.org.