Prevention of bone lesions in prostate cancer : The role of bisphosphonates

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Bone metastasis in prostate cancer

Prostate cancer is the second leading cause of cancer death in men. About 75% of prostate cancer patients will ultimately develop bone metastases and virtually all men who die of prostate cancer have evidence of metastatic bone disease. Bone metastases are known to cause significant skeletal complications which increase morbidity, decrease quality of life, and cause significant bone pain. Until recently, commonly available bisphosphonates which effectively treat metastatic bone disease in breast cancer and multiple myeloma were found to be ineffective in prostate cancer. The lack of efficacy in this setting may be related to their comparatively low potency.

The first bisphosphonate effective in prostate cancer

The new third-generation bisphosphonate zoledronic acid (ZOMETA®) has dramatically improved treatment options for metastatic bone disease in prostate cancer. The most potent drug in its class known, zoledronic acid, is the first bisphosphonate proven effective in bone lesions from prostate cancer. It was shown to significantly reduce the proportion of patients with bone complications, delay the first skeletal related event, lower the annual incidence and the risk of developing skeletal complications, and reduce bone pain.

Preventing chemotherapy-induced bone loss in prostate cancer

Asymptomatic prostate cancer patients with rising prostate specific antigen (PSA) levels after radiation and/or surgical prostatectomy commonly receive androgen deprivation therapy (ADT) which results in castrate levels of androgens. Such patients may live for many years and accelerated bone loss due to ADT and substantially increase their risk of osteoporotic fractures and other skeletal complications. Zoledronic acid was shown to effectively preserve and increase bone mineral density in these patients.

Conclusion

It is clear that zoledronic acid is a major improvement in the treatment options for prostate cancer both in the early and advanced stage. The use of bisphosphonates has been a standard of care in treating metastatic breast carcinoma for over a decade. In comparison to breast cancer patients, prostate cancer patients have a higher incidence of bone metastases and a longer 5-year survival. Zoledronic acid has demonstrated even higher efficacy in bone metastases from prostate cancer than previous agents have had in breast cancer. It offers effective bisphosphonate therapy to prostate cancer patients with a relatively simple 15-minute infusion which can be administered in most urological offices.