BONE METASTASES OF THYROID TUMORS SHOULD BE TREATED WITH BISPHOSPHONATES

Orita Y, Sugitani I, Toda K, Manabe J, Fujimoto Y. **Zoledronic acid in the treatment of bone metastases from differentiated thyroid carcinoma.** Thyroid 2011;21:31-5. Epub November 8, 2010.

SUMMARY • • • •

BACKGROUND

Bisphosphonates are increasingly being used to delay the growth of bone metastases in a number of cancers, such as in malignant tumors of the lung, breast, prostate, and kidney and in multiple myeloma. They have also been reported to be of value in metastatic thyroid cancer, but most reports include only a small number of cases. Bisphosphonates inhibit osteoclastic bone resorption, and in the cancers mentioned above bisphosphonates are able to decrease the release of markers of bone resorption such as pyridinoline-cross-linked carboxy terminal telopeptide (ICTP).

METHODS AND RESULTS

Among a large cohort of patients with thyroid cancer—1687 patients; 1554 with papillary thyroid carcinoma and 100 with follicular thyroid carcinoma, observed from 1976 through 2008—the records of 50 patients with bone metastases were analyzed. In 28 patients, multiple bone metastases were present at the time of entry into the study.

In Japan, zoledronic acid (ZA) was not available before 2006. This study included patients treated before and after this. By definition, therefore, all patients without ZA treatment were treated before 2006. Standard treatment (radioiodine [131], external-beam radiation, and surgery) was identical in the two groups of patients. During the 2-year observation period, 22 of the 50 patients were treated with ZA. Skeletal-related symptomatic events developed in three patients in this group, as compared with 14 of the 28 patients not treated with ZA.

CONCLUSIONS

Bisphosphonates have emerged as a promising therapeutic tool to slow the progression of bone metastases of many malignant tumors. The present paper, although purely observational, still provides valuable evidence that the beneficial effect of bisphosphonates (in this case, zoledronic acid) also applies to bone metastases of differentiated thyroid tumors. Whether other bisphosphonates, particularly the less expensive and more conveniently applicable ones, have the same effect as zoledronic acid remains a open question.

COMMENTARY • • • • •

This retrospective study has its limitations, since the authors compare the efficiency of ZA treatment over a period of 2.5 years with that of data of a group of patients that had been collected over 33 years. Yet, the results (see Figure 1 of the original article) show such a remarkable difference in the survival rate between the two groups that a detailed report of the findings is certainly justified.

Bisphosphonate treatment is not without side effects. In this study, two patients suffered from bisphosphonaterelated osteonecrosis of the jaw, a serious complication that greatly affects quality of life (1). The complications occurred despite regular dental controls and adaption of the dosage to renal function.

The 10% complication rate of osteonecrosis reported in this article is high. This figure is likely to depend on the intensity of treatment. The choice of ZA rather than other bisphosponates may be justified by its allegedly higher efficacy in rapidly progressing tumor metastases. In these cases, its effect can be documented by a marked decrease in ICTP levels. On the other hand, differentiated thyroid carcinomas progress less rapidly, which may explain why the treatment with ZA did not affect ICTP levels. ZA is

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expensive and necessitates monthly infusions. One may be tempted to believe that in the case of slowly progressing bone metastases, pamidronate and other oral preparations of bisphosponates are of similar efficacy. It is hoped that more objective data will be available in the near future.

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REFERENCE

1. Silverman SL, Landesberg R. Osteonecrosis of the jaw and the role of bisphosphonates: a critical review. Am J Med 2009;122(2 Suppl): S33-S45.

