Comparative Survival Analysis of Surgical Resection versus Non-Surgical Treatment for Metastatic Primary Bone and Soft Tissue Tumors: An NCDB Study

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INTRODUCTION:
The management of primary malignant bone and soft tissue tumors in patients with metastatic disease at presentation remains a complex challenge that may benefit from a large multidisciplinary surgical and medical team. We sought to answer: Does tumor resection improve survival outcomes in patients with metastatic disease in comparison to only stabilization with chemotherapy?
METHODS:
The 2004-2020 National Cancer Database (NCDB), a national registry was analyzed to identify patients with primary malignant bone or soft tissue tumors. The study sample was divided into two groups: those who underwent surgical resection and chemotherapy and those who received chemotherapy alone. Data obtained included demographics, tumor characteristics, and additional treatment. Multivariate Cox regression analyses were used.
RESULTS:
A total of 1,160 patients with primary malignant bone or soft tissue tumors were included. After controlling for tumor type and patient demographics, surgical resection of the primary sarcoma + chemotherapy improved overall survival in patients with metastatic disease as compared to chemotherapy alone (hazard ratio 0.63; $p<0.001$). Distant metastasis to sites other than bone and lung were found to be associated with decreased overall survival (hazard ratio 1.966; p 0.001), along with a clinical tumor classification of 3-4 (hazard ratio 1.647; p 0.011).
DISCUSSION AND CONCLUSION:
Surgical resection + chemotherapy of the primary site was associated with an increased overall survival in comparison to those who only received chemotherapy in those who presented with metastatic disease.