

Neoadjuvant chemotherapy for adult osteosarcoma: results of long-term follow-up

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Aim: Aggressive, multi-agent chemotherapy has significantly improved prognosis and limb salvage rates in adult osteosarcoma. We report the outcome of 65 patients treated at our institution.

Methods: All patients > 14 years treated for osteosarcoma were identified from the histology database & records reviewed.

Results: 65 patients received chemotherapy for localized and metastatic osteosarcoma over a 21 year period, with a median follow up of 8 years. Median age at diagnosis was 20 years (14 to 71). 52 (80%) patients were male. The site of primary tumour was the femur in 36 patients (55%), the tibia in 11 patients (17%), the humerus in 5 patients (8%); other sites included the ulna, scapula, maxilla, pelvis & calcaneum. 57 patients (88%) had localised disease and 8 patients (12%) were metastatic at presentation. 58 patients (89%) had neo-adjuvant chemotherapy with combination of cisplatin / doxorubicin alternating with high-dose methotrexate. 27 patients (42%) had tumour necrosis > 80% and received the same treatment postoperatively. Patients with poor tumour necrosis received VP16/ ifosfamide postoperatively. 47 patients (72%) had limb sparing surgery, 18 (28%) had an amputation. A total of 8 patients (12%) had a local recurrence at median time of 18 months (2 to 72), subsequently 3 of these patients (38%) developed distant metastases. Of the group with initially localized disease, a total of 11 patients developed distant metastases at a median time of 24 months (range: 12 to 48 months). 7 patients underwent resection of pulmonary metastases, of these 3 (43%) were alive and disease free at last follow-up. Of the 57 patients (88%) with localised disease at presentation, 41 (73%) were alive and disease free at last follow-up. Of the 8 patients (12%) with de novo metastatic disease, 2 (25%) were alive and disease free at last follow-up. There was one treatment-related death; no cases of doxorubicin induced cardiomyopathy were identified.

Conclusions: At a median follow-up of 8 years, no cases of local or distant recurrence were identified beyond 6 years. With pre- and postoperative chemotherapy, a cure rate of >70% for adult patients with localised disease was confirmed with long term follow-up. The combination of aggressive chemotherapy and surgical resection of metastatic disease resulted in a long term survival rate of 25% for patients presenting with distant metastases.