Abstract submission British Orthopaedic Oncology Society

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Ifosfamide/etoposide without MAP in adult osteosarcoma patients with poor necrosis rates post neoadjuvant chemotherapy

Background

Chemotherapy in the treatment of osteosarcoma has improved survival.

Attempts have been made to improve outcomes in patients with poor necrosis rates post neoadjuvant chemotherapy (NAC).

Patients and Methods:

Patients diagnosed between January 1986 and August 2012 were retrospectively reviewed and stratified according to stage (localised or metastatic) and age (≤40years; >40years). Event free survival (EFS) and overall survival (OS) was calculated. In those with localised disease ≤40yrs, survival was assessed according to necrosis rates post NAC (<90%; ≥90%). NAC consisted of two cycles of methotrexate alternating with doxorubicin/cisplatin (MAP). Those with ≥90% tumour necrosis continued on MAP. Patients with <90% necrosis received ifosfamide and etoposide (IE) post operatively.

Results:

Ninety-seven patients were included. Median age was 23yrs (Range 16 -75yrs) and 70% were male. Limb-salavge was performed in 77% of extremity disease. Of patients with localised disease (N=81), 5-year OS with a median follow up of 7 years (2-28.6) was 70% ($p<0.0001$). Patients aged 16-40 (N=68) with localised osteosarcoma had a significantly improved 5-year OS (74%) compared to those > 40 years (N=13) (42%) ($p=0.004$). Of the 68 patients with localised osteosarcoma ≤40 years, 62 were evaluated according to necrosis rates. In 33 patients who achieved ≥90% necrosis and continued MAP, 5 year OS was 82%. In 29 patients who had <90% tumour necrosis and received adjuvant IE, 5 year OS was 68% ($p=0.15$).

Conclusions:

Adult patients aged 16-40 years have comparable survival outcomes to paediatric patients. Postoperative ifosfamide/etoposide alone in patients with poor necrosis rates may improve outcomes.