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High grade osteosarcoma in adults: a single institution experience in the Czech Republic

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Background: The peak incidence of high grade osteosarcoma comes in the second life decade. Survival data for adult osteosarcoma patients are limited. Our aim was to study the treatment outcome of adult patients newly diagnosed and treated by a multidisciplinary team in Brno, Czech Republic.

Patients and Methods: At a mean follow up period of 57.6 months (2-211, median 36.5), 36 adult patients with osteogenic sarcoma were diagnosed and treated between years 2000 and 2010 - using standard protocols, including doxorubicin, cisplatin +- methotrexate. The impact of age, disease extent, histologic response to preoperative chemotherapy, baseline alkaline phosphatase (ALP) and lactate dehydrogenase (LD) serum levels and other possible prognostic factors were evaluated.

Results: 36 adults (17 males, 19 females) aged 19 to 82 (median 28.5 years) were included. 44 % of patients were older than thirty, 36 % older than forty years old. Extremity was affected in 69 % of cases. 31 % of patients were initially metastatic, only 27 % had good response to neo-adjuvant chemotherapy, 75 % underwent surgery. The 5-year OS in patients with localised disease was 65 % with the median survival of 93 months. The 2-year OS with initially metastatic disease was 27 % (median 15 months), 3-year OS 9 % only. The median survival of all patients was 44.5 months and 5-year survival 47 %. Dose reduction because of toxicity was necessary in 39 % of patients - 2 treatment related toxicity deaths occurred. A univariate analysis revealed that the prognosis of adult osteosarcoma patients was significantly related to distant metastasis ($p=0.002$), surgical stage ($p=0.003$), serum ALP level ($p=0.002$) and serum LD level ($p=0.024$). Age, pathological subtypes, response to chemotherapy, and others were insignificant in this population regarding survival outcome.

Conclusion: In our adult patient population we observed metastatic disease and axial or pelvic localisation more often in comparison with younger population. The treatment results of localised disease in adults are comparable to results of younger patients. In the case of metastatic disease in adult patients, the prognosis has been poor for past 20 years and remains so.

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