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The clinical value of pretreatment C-reactive protein in predicting survival of patients with bone sarcoma

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Background: Elevated preoperative serum C-reactive protein (CRP) levels are found in a variety of cancers and an elevated pretreatment CRP level is an indicator of a poorer prognosis in many cancers. Elevated CRP levels have also been shown to be a poor prognostic factor in patients with soft tissue sarcoma. The purpose of this study was to determine whether serum CRP levels before treatment predicted the disease-specific survival and local tumor control in bone sarcoma patients.
Patients: A total of 318 primary bone sarcoma patients between 2003 and 2010 were retrospectively reviewed at single institution (U.K). Patients that presented with metastases and/or local recurrence at diagnosis were excluded from this study.
Results: Elevated CRP levels were seen in 84 patients. The tumor size, tumor histological grade and tumor stage in the patients with elevated CRP levels were significantly higher than those in patients with normal CRP levels. Patients with elevated CRP levels prior to initial treatment had a poorer disease-specific survival (57% at 5 years) than patients with normal CRP levels (79% at 5 years) ($p<0.0001$). Patients with elevated CRP levels prior to initial treatment had a poorer local recurrence-free rate (71% at 5 years) after initial treatment than patients with normal CRP levels (79% at 5 years) ($p=0.04$). Multivariate analysis also showed the preoperative CRP level to be an independent predictor of survival and local control. Individually, pre-treatment CRP levels were prognostic factor for disease free survival in chondrosarcoma and Ewing sarcoma but not osteosarcoma and for local control in osteosarcoma.
Conclusion: Our studies suggested that elevated pretreatment CRP levels may be related to aggressive tumor behavior. We recommend routine measurement of CRP levels in patients with bone sarcoma because this test is familiar to most physicians and is readily accessible.

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