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Title: C-Reactive protein (CRP) at diagnosis does not correlate with CRP at local recurrence of soft-tissue sarcoma.

Background: C-reactive protein (CRP) has been shown to be a predictor of survival in soft-tissue sarcoma (STS) patients. No studies have evaluated the relationship of CRP at diagnosis to CRP at time of local recurrence (LR) of STS.

Purpose: To evaluate if initial and LR CRP levels correlate in STS patients.

Patients and Methods: 769 patients undergoing extremity STS resection from a single-center were retrospectively reviewed from 2009-2013. The LR rate was 10.7% (83/769). Baseline CRP at diagnosis prior to primary excision and CRP at time of LR was recorded. CRP of >5 mg/L was considered abnormal. Patients were excluded if they did not have both CRP levels, had active infection at either time, had >1 malignant diagnosis, or did not have pathology confirmed LR. Of the 83 patients with LR, 46 patients were excluded due to inadequate CRP measurements. Three patients were excluded for concurrent infection. Thirty-four patients were included in final analysis. Pearson correlation was used to analyze the association of baseline CRP with CRP at LR.

Results: The average baseline CRP was 13.94 mg/L and the LR CRP was 21.46 mg/L. No correlation between initial CRP and LR CRP for all 34 patients was found ( $r=0.30$ ,  $p=0.08$ ). Subgroup analysis of 15 patients who had initial CRP values >5 mg/L had a mean initial CRP of 29.37 mg/L and 42.74 mg/L LR CRP. This subgroup showed no correlation between the CRP levels ( $r=0.14$ ,  $p=0.610$ ). Graphical representations of both patient groups are shown below. Additional subgroup analysis of patients was performed based on tumor grade. CRP levels for the high grade tumors ( $n=22$ ) showed no correlation ( $r=0.24$ ,  $p=0.28$ ). Statistical correlation for the low grade group ( $n=12$ ) was not performed due to all CRP levels, except one, being in the normal range.

Conclusions: CRP at diagnosis does not correlate with CRP at LR in patients with STS. Future study, with larger datasets, is warranted.

