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How wide should an R0 resection be in soft tissue sarcoma surgery?

Background

Despite adequate treatment for patients with soft tissue sarcoma (STS), it cannot be guaranteed that they remain free from local recurrence (LR). The major prognostic factor is a tumor-free surgical margin.

Questions/Purposes

This study was conducted in order to compare two different classifications of resection margins (R-classification and UICC-classification) according to their influence on LR in STS patients. Moreover, the correlation between both classifications and other prognostic factors as age, gender and grading was of interest.

Patients and Methods

374 patients with a mean follow-up of 47.2 months were included into this retrospective study, who underwent surgical resection between 1998 and 2013 at our department. Kaplan-Meier curves as well as univariate and multivariate Cox regression models were calculated.

Results

Univariate and multivariate analyses revealed significant associations with higher LR rates for both classifications (univariate: R-classification: HR 5,62, 95%CI 2,67–11,84, $p < 0,01$; UICC-classification: HR 10,08, 95%CI 2,87–35,41, $p < 0,01$ / multivariate: R-classification: HR 7,94, 95%CI 3,52–17,94, $p < 0,01$; UICC-classification: HR 9,44, 95%CI=2,57–34,68, $p < 0,01$).

In the multivariate analysis for the UICC-classification, the only significant factor for LR was the resection margin. Kaplan-Meier survival curve analysis showed a lower LR rate for R0 resection in the UICC-classification compared to R0 resection in the R- classification.

Conclusions

According to our results, negative resection margins (R0) are the crucial factor for low LR rates, with a better outcome for a minimal resection margin of 1 millimeter (UICC-classification).