

Table of Contents

Erbasi, Neslihan - #5531 - Association of Postoperative Infection on Soft Tissue Sarcoma Resection Outcomes	1
Abstract submission for Institutional Repository	1



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Association of Postoperative Infection on Soft Tissue Sarcoma Resection Outcomes

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Abstract

Introduction:

Postoperative infection (POI) following osteosarcoma resection has been shown to be associated with a potential survival benefit. A 2014 study by Behnke *et al* found no difference in survival, local recurrence, or metastasis between soft tissue sarcoma (STS) patients with or without POI. Our goal was to expand this study with a larger cohort and a different patient population to determine whether POIs were correlated with distant metastasis (DM), 5-year overall survival (OS), or 5-year disease specific survival (DSS) in patients with STS.

Methods:

A retrospective case review was conducted on a cohort of patients with STS of the extremities that underwent surgical resection at a single tertiary referral and sarcoma center between 2008 and 2023. To determine DSS and OS, we utilized Surveillance, Epidemiology, and End Results (SEER) Cause-Specific Death Classification (DOS to 1/1/2018). Patient characteristics and primary outcomes were compared across POI groups (n=691 participants). Survival curves for metastasis free survival, OS, and DSS were analyzed using Cox Proportional Hazard (CPH) models and presented using Kaplan-Meier methods (n= 684 participants; n=172 with POI). Statistical software R was used for analyses.

Results:

Multivariable adjusted CPH models were used to calculate hazard ratios (HR). The risk of DM, OS,

and DSS among those who developed POI was 0.97 (95% CI: 0.45, 2.12), 1.60 (95%CI: 0.73, 3.53), and 1.01 (95% CI: 0.73, 1.41) respectively. There was no difference in DM, OS, and DSS between patients with or without a POI.

Competing risk model demonstrated positive margins, increased tumor size, higher tumor grade, and metastasis at presentation increased the risk of all oncologic outcomes. Receiving radiotherapy was associated with improved DM, OS, and DSS.

Discussion and Conclusion:

There are no significant differences in long term oncologic outcomes between the STS resection patients who developed POI and those who did not.