

Distance from Treating Hospital as a Predictor of Outcomes after Treatment of Sarcomas

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Introduction

- Studies of other medical conditions have reported conflicting findings regarding the relationship between distance traveled for care and outcomes of treatment
 - For some medical conditions, the ability to travel farther for care is correlated with improved outcomes¹⁻²
 - In other diseases, being forced to travel farther is associated with worse outcomes³⁻⁴
- It is not known which of these categories best describes sarcoma care in the United States

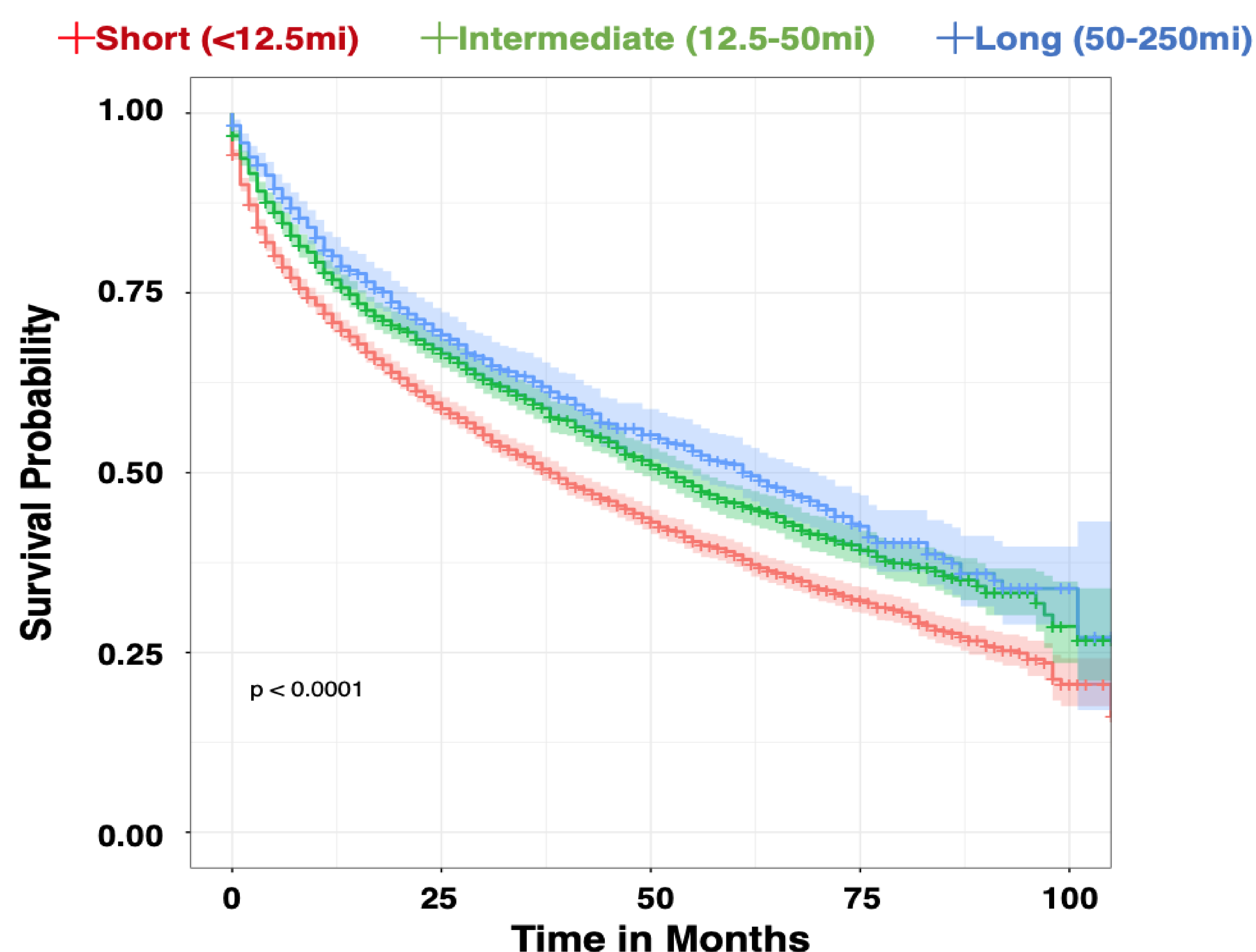
Methods

- SEER-Medicare linkage data was procured for patients diagnosed with bone and soft tissue sarcomas between 2006-2013
- A subset of 7,056 patients had supplementary data with ZIP codes of patient's residence and treating facility available, and were included for study
- Patients were stratified into short- (<12.5 miles), intermediate- (12.5-50 miles), and long- (50-250 miles) distance groups
- The association between distance to treating facility and overall survival was analyzed by a Cox proportional hazards model
- A multiple logistic regression was used to determine which demographic factors were associated with distance traveled

Results

- Patients who traveled longer distances for their sarcoma care had significantly improved 5-year survival [average 5-year survival with long distance 51.1% (95% CI 47.6-54.9%), intermediate distance 45.8% (43.5-48.2%), short distance 38.6% (36.9-40.3%), $p < 0.001$]
- Much of this effect was mediated by access to a Comprehensive Cancer Center (CCC), which conferred a 41% survival benefit compared to facilities without a Cancer Center designation
- Treatment at a CCC was associated with a higher likelihood of multimodality treatment being offered (38.7% in CCCs, vs 28.3% in non-CCCs, $p < 0.001$), as opposed to observation or radiation alone
- Patients who were younger, healthier, and of non-Hispanic white race were more likely to travel longer distances for care
 - Patients with a Charlson Comorbidity Index of 4-6 were 31% less likely to travel 50+ miles for care than those with an index of 0 ($p = 0.012$).
- Notably, patients with very high income and education levels were more likely to already have at least one residence in a metropolitan area, and thus did not need to travel as far for care.

Overall Survival as a Function of Distance From Treating Facility



Conclusions

- Geography has a complex relationship with outcomes after sarcoma treatment
- On average, those with the health and means to travel farther for their care had improved survival, as did the very wealthy and very well-educated who tended to live in more metropolitan areas to begin with
- Access to a Comprehensive Cancer Center was a significant contributor to the association between farther distance and improved survival

References

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