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

Eugene S. Jang¹, Bradley Hammoor¹, Chung Min Chan², Andre R. Spiguel², C. Parker Gibbs², Mark T. Scarborough², Wakenda K. Tyler¹

¹Columbia University Medical Center, Department of Orthopaedic Surgery, New York, NY. ²University of Florida Health, Department of Orthopedics and Rehabilitation, Gainesville, FL

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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.

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