Is Geographic Access to Care Associated with Survival Outcomes in Patients with Bone and Soft-Tissue Sarcomas? Nationwide Patterns in the United States

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INTRODUCTION: Clinical practice guidelines recommend centralized care for patients with bone and soft-tissue sarcomas. However, survival impact of geographic access to sarcoma care has not been characterized. This study aimed to investigate the survival impact of patient travel burden to care institutions and the relationship of the type of institutions in the survival of patients with bone and soft-tissue sarcomas.

METHODS: We used the National Cancer Database to examine the association between travel distance and survival among 9,523 patients with bone sarcomas diagnosed from 2004 to 2015. Associations were identified using multivariable Cox regression analyses (MVA) that controlled for patients' socio-demographic, clinical, and hospital-level factors. Data were compared with those among 34,528 patients with soft-tissue sarcomas.

RESULTS: In patients with bone sarcomas, the increased travel distance (>100 miles: HR, 0.81 versus ≤10 miles; P = 0.002) and management at an academic/research institute (HR, 0.90 versus non-academic/research institute; P = 0.007) independently decreased mortality risk. A major variation along with the travel distance was observed in the proportion of patients who received sarcoma care at an academic/research institute: 54.2%, 66.2%, 75.3%, and 78.1% of patients with ≤10 miles, 10.1–50 miles, 50.1–100 miles, and >100 miles, respectively (P < 0.001). On MVA, patients traveling very long miles (>100 miles) to an academic/research institute had a 28% survival benefit (HR, 0.72; P < 0.001) compared with those traveling short distance (≤10 miles) to a non-academic center. In patients with soft-tissue sarcomas, travel distance >100 miles versus ≤10 miles (HR, 0.87; P < 0.001) and management of soft-tissue sarcomas at an academic/research center versus non-academic/research center (HR, 0.85; P < 0.001) significantly decreased mortality risk. The increased proportion of patients who received sarcoma care at an academic/research center was associated with increased travel distance; 37.0%, 51.0%, 73.5%, and 75.9% of patients with ≤ 10 miles, 10.1–50 miles, 50.1–100 miles, and > 100 miles, respectively (P < 0.001). Patients traveling very long distance (>100 miles) to an academic center had a 28% survival benefit (HR, 0.72; P < 0.001) compared to those traveling short distance (≤10 miles) to a non-academic center.

DISCUSSION AND CONCLUSION: Greater travel burden was associated with higher survival rates in patients with bone and soft-tissue sarcomas, attributable to patients traveling to receive sarcoma care at academic/research centers. Patients who received care shorter miles from home at non-academic centers had inferior survival, which was more frequently seen in patients with soft-tissue sarcomas. These data support centralized care for sarcomas. Overcoming referral and travel barriers may enable more patients to be treated at specialized centers and may further improve survival rates, even when it imposes an increased travel burden.