



Comparison of Costs and Readmissions Rates Following Surgical Resection of Metastatic and Primary Spinal Tumors



Darryl Lau MD; Andrew Kai-Hong Chan MD; Corinna Clio Zygourakis MD; Dean Chou M.D.; Praveen V. Mummaneni MD; Shane Burch; Sigurd Berven MD; Vedat Deviren MD; Christopher P. Ames MD
Department of Neurological Surgery

Introduction

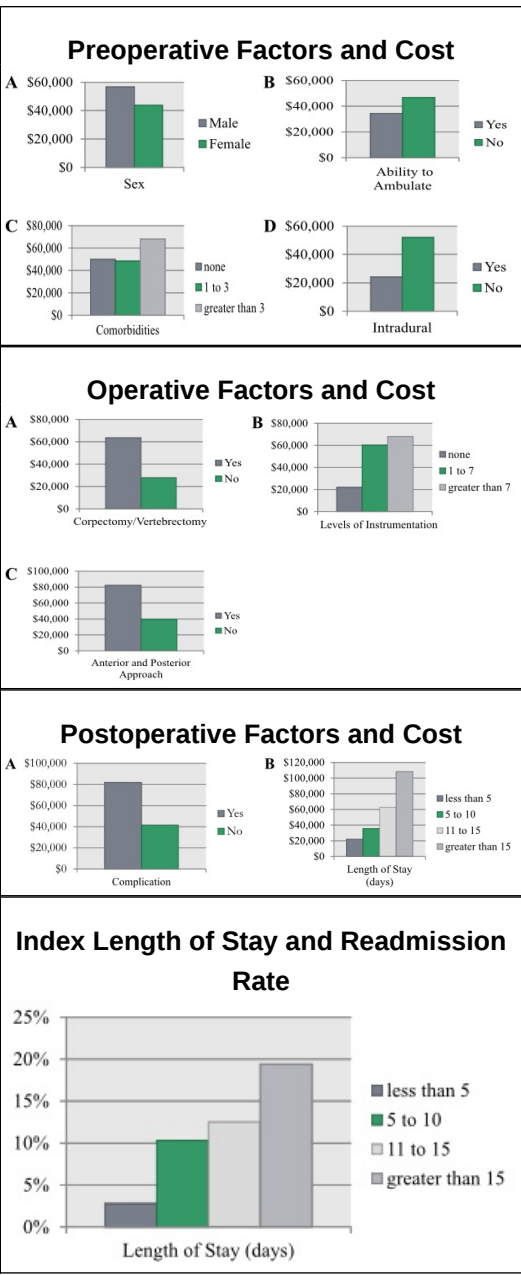
The surgical management strategies of metastatic and primary spinal tumors differ. Therefore, costs and morbidities associated with those treatments will vary. This study compares cost and 90-day readmission rates between metastatic and primary spinal tumors. Independent factors associated with cost and readmissions are also identified.

Methods

Adults that underwent surgical resection for spinal tumors between 2008 and 2013 were included. Direct costs of initial hospital admission and first 90-day readmission were acquired. Cost and health related quality of life (HRQOL) outcomes were compared between patients with metastasis and primary spinal tumors. Utilizing multivariate analysis, independent factors associated with cost and readmission were identified.

Results

A total of 194 patients were included: 118 metastatic and 76 primary tumors. Overall mean cost of initial hospital admission was \$50,216. There was no significant difference in cost of admission between metastatic (\$50,400) and primary (\$50,098) tumors (p=0.964). Independent factors associated with higher cost were: male sex (p=0.007), inability to ambulate before surgery (p=0.002), presence of peripheral vascular disease (p=0.023), having more than 3 comorbidities (p=0.013), undergoing corpectomy/vertebrectomy (p<0.001), instrumentation greater than 7 levels (p<0.001), undergoing anterior-posterior approaches (p<0.001), presence of perioperative complications (p<0.001) and longer hospital stay (p<0.001). Intradural tumors was independently associated with lower hospital cost (p=0.003). Perioperative complication rate was 21.6%. Of this cohort, 10.8% were readmitted within 90-days and mean cost was \$20,078. There was no significant difference in readmission rates between metastatic and primary tumors (11.9% vs. 9.2%, respectively) (p=0.561). The only independent predictor of readmission was prior hospital stay greater than 15 days (OR 6.21, CI 1.24-31.19). Similar HRQOL follow-up outcomes were seen in patients with metastatic and primary tumors.



Conclusions

Cost of surgery and HRQOL outcomes for spinal metastasis and primary spinal tumors are comparable. Factors associated with costs relate to preoperative health status, type of surgery performed, and postoperative course.

Learning Objectives

By the conclusion of this session, participants should be able to:

1. Understand the similarity in hospital cost of surgery for spinal metastasis and primary spinal tumors.
2. Identify factors associated with higher and lower hospital cost.
3. At follow-up patients with both metastatic and primary tumor have similar functional outcomes.

References

1. Theologis AA, Demirkiran G, Callahan M, Pekmezci M, Ames C, Deviren V. Hospital readmission rates after surgical treatment of primary and metastatic tumors of the spine. Spine (Phila Pa 1976). 2014 Oct 1;39(21):1801-8.
2. McCarthy IM, Hostin RA, Ames CP, Kim HJ, Smith JS, Boachie-Adjei O, Schwab FJ, Klineberg EO, Shaffrey CI, Gupta MC, Polly DW; International Spine Study Group. Total hospital costs of surgical treatment for adult spinal deformity: an extended follow-up study. Spine J. 2014 Oct 1;14(10):2326-33.