Characteristics of Patients Who Survived 2 Years After Surgery for Spinal Metastases: Can We Avoid Inappropriate Patient Selection?

Abstract:
Survival after metastatic cancer has improved at the cost of increased presentation with metastatic spinal disease. For patients with pathologic spinal fractures and/or spinal cord compression, surgical intervention may relieve pain and improve quality of life. Surgery is generally considered to be inappropriate if anticipated survival is <3 months. The aim of this international multicenter study was to analyze data from patients who died within 3 months or 2 years after surgery, to identify preoperative factors associated with poor or good survival, and to avoid inappropriate selection of patients for surgery in the future. A total of 1,266 patients underwent surgery for impending pathologic fractures and/or neurologic deficits and were prospectively observed. Data collected included tumor characteristics, preoperative fitness (American Society of Anesthesiologists advisory [ASA]),
neurologic status (Frankel scale), performance (Karnofsky performance score [KPS]), and quality of life (EuroQol five-dimensions questionnaire [EQ-5D]). Outcomes were survival at 3 months and 2 years postsurgery. Univariable and multivariable logistic regression analyses were used to find preoperative factors associated with short-term and long-term survival. In univariable analysis, age, emergency surgery, KPS, EQ-5D, ASA, Frankel, and Tokuhashi/Tomita scores were significantly associated with short survival. In multivariable analysis, KPS and age were significantly associated with short survival (odds ratio [OR], 1.36; 95% CI, 1.15 to 1.62; and OR, 1.14; 95% CI, 1.02 to 1.27, respectively). Associated with longer survival in univariable analysis were age, number of levels included in surgery, KPS, EQ-5D, Frankel, and Tokuhashi/Tomita scores. In multivariable analysis, the number of levels included in surgery (OR, 1.21; 95% CI, 1.06 to 1.38) and primary tumor type were significantly associated with longer survival. Poor performance status at presentation is the strongest indicator of poor short-term survival, whereas low disease load and favorable tumor histology are associated with longer-term survival.