Abstracts

BM-13. THE (F)UTILITY OF PREDICTIVE MODELS
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PURPOSE/OBJECTIVES: Physician estimates of cancer patients' survival are notoriously inaccurate. A number of models have been developed in an effort to better predict patient lifespan based on clinical factors. The Graded Prognostic Assessment (GPA), most recently published in 2012 by Sperduto et al, estimates median survival (MS) for patients who had undergone treatment for new brain metastases from June 1993 to January 2010. While independently validated in numerous studies, we investigated the applicability of the GPA model in the modern era for a smaller cohort of patients with brain metastases who were specifically selected for SRS by retrospectively calculating the diagnosis-specific GPA predicted median survival for patients with brain metastases treated with SRS at our institution between 2006 and 2012. RESULTS: 100 patients underwent SRS; 73 received whole brain radiation therapy. Observed (O) and predicted (P) MS were 13.3 and 9.4 months. The difference between predicted and actual survival was computed for each patient, and the mean difference was 10.8 months (95% CI, 8.95 - 14.8 months); the mean actual/predicted ratio was 2.07 (95% CI, 1.64 - 2.50). Compared to the predicted, actual survival was 25/35/50% longer (an arbitrarily chosen yet clinically significant amount of time) in almost half (53/49/48%) of our patients. Even when KPS was overestimated (increasing GPA predicted survival), actual survival 25/35/50% longer than predicted survival was observed in 49/46/44% of patients. CONCLUSIONS: Our deliberate selection bias of recently treated patients with modern imaging and more advanced therapies confirms that clinical models such as the GPA must be used with awareness of the current clinical setting as well as a full understanding of the model and its derivation to be of greatest benefit.