Purpose/Objective(s): To measure outcomes in patients with “radioresistant” brain metastases who were treated with stereotactic radiosurgery (SRS) and to determine the usefulness of the Diagnosis-Specific Graded Prognostic Assessment (DS-GPA) for this patient population.

Materials/Methods: We retrospectively reviewed the charts of patients (n = 69) with brain metastases from radioresistant tumors (melanoma, n=55; renal cell carcinoma (RCC), n=14) that were treated with SRS between April of 2008 and February of 2010 at MD Anderson Cancer Center. The median age of the patients was 63.8, and the median Karnofsky Performance Score (KPS) was 90. The median tumor volume treated was 1.0 cm$^3$ (range, 0.03 - 14.2 cm$^3$). The distribution of DS-GPA scores was 0.5 (n = 7), 1.0 (n = 21), 1.5 (n = 19), 2.0 (n = 22). Baseline DS-GPA recorded was based on presentation at the time of brain metastasis diagnosis. All patients were followed until death or for at least 12 months. Between the melanoma and RCC groups, there were no statistically significant differences in gender, ethnicity, age, liver mets, bone mets, primary controlled disease, extracranial disease, baseline KPS, total tumor volume, and largest site of treated volume.

Results: The median overall survival, median distant brain control, and one year local control were 11.41 months, 5.3 months, and 84.8%, respectively. For these parameters, no statistically significant difference was found for the melanoma and RCC subgroups. DS-GPA proved to be a clear indicator of overall survival. Median survival was 3.95 months for patients with 0.5 points, 7.53 months for 1.0 points, 10.49 months for 1.5 points, and the median was not reached for 2.0 points (p = 0.0011). One year survival rates after radiosurgery were 14.3% for 0.5 points, 35.9% for 1.0 points, 47.4% for 1.5 points, and 68.2% for 2.0 points. DS-GPA did not predict control for local brain tumor (p = 0.5439) or control of distant brain metastasis (p = 0.3124).

Conclusions: DS-GPA seems to be a robust prognostic indicator of overall survival in patients undergoing SRS for radioresistant metastases.