Systemically, 73% received ICI, 46% received BRAF targeted therapy, and 12% received neither. With a median follow up of 11 months (mo), total-cohort median OS was 13.2 mo. Median OS for first-line SRS combined with ICI or BRAF therapy was 11.0 mo (95% CI: 11.5–15.4) compared to 10.0 mo (95% CI: 9.5–17.6) for ICI monotherapy. CONCLUSIONS: Treatment regimen and first-line therapy choice influenced survival outcomes. Further work is needed to identify BM cases in free-text registries which can serve as a quality control measure and aid data aggregation. Standardizing shorthand terminology to CDE with DNN trained in word embedding can possibly address semantic heterogeneity and facilitate data automation. Solutions are needed to compile and automate quality BM data across institutions to achieve the volume and complexity required for contemporary analysis using ML.

MLTI-06. BEVACIZUMAB VERSUS SURGICAL INTERVENTION FOR RADIATION NECROSIS IN PREVIOUSLY IRRADIATED BRAIN METASTASES
Christopher Hong, Nanthiya Sujiantaratt, and Veronica Chiang

INTRODUCTION: Both medical management with bevacizumab and surgical management via craniotomy or more recently with laser interstitial thermal ablation (LITT) have been shown to be efficacious in the management of radiation necrosis (RN) after radiosurgery for brain metastases (BM). Indications for how to choose medical or surgical management for RN cases remain unclear. METHODS: Single-institution chart review was performed of all patients with biopsy or radiographically confirmed RN after radiosurgery for BM between 2011 and 2017. Progression-free survival (PFS) and overall survival (OS) were compared among those treated using bevacizumab versus surgical intervention. RESULTS: Fifteen patients underwent craniotomy, 13 patients underwent LITT, and 18 patients were treated with bevacizumab. Those treated with bevacizumab had significantly longer progression-free survival (PFS) compared to patients who underwent craniotomy or LITT (15.2% vs 0.05). The pre-treatment KPS was lower in the bevacizumab cohort (median: 50 vs 100). All patients treated with bevacizumab demonstrated a response (PR, SD, or CR). Conclusions: Bevacizumab therapy is associated with an improved outcome for RN. Further investigations are needed to determine the most efficacious treatment for severe RN cases. Simultaneously, longer life expectancy comes with increasing incidences of comorbid conditions reflecting an evolving complexity of and need for coordination of care for patients with MBM.

MLTI-07. PREOPERATIVE VERSUS POSTOPERATIVE STEREOTACTIC RADIOSURGERY FOR LARGE BRAIN METASTASES: AN INTERNATIONAL META-ANALYSIS
Henry Ruiz Garcia, Eric Lehrer, Adip Bhargav, Jennifer Peterson, Kanorn Chaichang, Alfredo Quinones-Hinojosa, Anna Harrell, David Routman, Terry Burns, Nicholas Zatsorky, and Daniel Trilleti

PURPOSE: Preoperative stereotactic radiosurgery (SRS) for symptomatic brain metastases has been as a therapeutic option for patients with brain metastases, potentially reducing the risk of leptomeningeal disease, as well as delays in systemic therapy after craniotomy. The purpose of our work is to analyze the current evidence regarding 1-year local control (LC) and RN rates in the preoperative and postoperative settings. METHODS AND MATERIALS: Population, Intervention, Control, Outcomes, Study Design/Preferred Reporting Items for Systematic Reviews and Meta-analyses and Meta-analysis of Observational Studies in Epidemiology guidelines were used to select articles in which patients had “large” brain metastases (>4 cm3 or >2 cm in diameter) solely treated with preoperative or postoperative SRS and 1-year LC and/or rates of RN reported. Radiosurgery was stratified by timing: preoperatively or postoperatively. Random effects meta-analyses using timing of SRS relative to surgery as covariates were conducted. Meta-regression using existing data was used to determine the effect of increasing tumor size on the summary estimate, where the null hypothesis was rejected for p < 0.05. RESULTS: Fifteen studies were included (of 314 screened), published between 2012 and 2018 with 854 brain metastases. Preoperative SRS was delivered in 229 lesions. The 1-year LC random effects estimate was 79.1% (95% confidence interval [CI]: 59.9–95.0%; I² = 80%) for preoperative SRS and 80.3% (95% CI: 66.3–91.5%; F = 93%) for postoperative SRS (p=0.9). Radionecrosis incidence random effects estimate was 2.1% (95% CI: 0.1–6.1%; F = 36%) for preoperative SRS and 0.7% (95% CI: 1.1–15.4%; F = 90%) for postoperative SRS (p=0.52). CONCLUSIONS: Rates of 1-year LC and RN incidence are similar after preoperative SRS as compared to postoperative SRS for large brain metastases. Results from ongoing prospective clinical trials studying preoperative SRS are important to further investigate these two techniques.