SURG-12. LASER INTERSTITIAL THERMAL THERAPY (LITT) TO MANAGE PROGRESSED GLIOBLASTOMA DURING PREGNANCY

Na Tosha Gatson, Clement Pillainayagam, Ganesh Rao, T. Linda Chi, Sujit Prabhu, Shiao-Pei Weathers

phore labeled anti-EGFR antibodies) offer promising results on histological accuracy but are still in the pre-clinical phase. CONCLUSION: For FGS in glioma surgery, 5-ALA and fluorescein offer the best improvement in GTR rate and survival. However, several pre-clinically tested agents may be interesting future alternatives.

SURG-10. IMPACT OF INSURANCE STATUS AND RACE ON RECEIPT OF SURGERY FOR ACOUSTIC NEUROMA: A NATIONAL CANCER DATABASE ANALYSIS

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INTRODUCTION: The traditional management of acoustic neuroma (AN) has involved microsurgical excision. Previous inpatient studies have demonstrated that in-hospital morbidity/mortality following AN surgery differs by patient race and insurance status; however there have been no studies addressing the impact of these demographics on the receipt of surgery on a nationwide level. METHODS: The National Cancer Data Base (NCDB) from 2004-2013 was used to identify patients who received surgical resection as the sole treatment for AN. A multivariable logistic regression model characterized patients who received surgery, adjusting for patient age, sex, income, medical comorbidities, and tumor size. RESULTS: 10,136 patients received AN surgery. Patients who were African-American (OR=0.7;95%CI=0.5-0.9;p=0.01), at least age 65 (OR=0.4;95%CI=0.4-0.6;p<0.0001), had Medicare insurance (OR=0.6;95%CI=0.4-0.7;p=0.0005), or treated at a community hospital (OR=0.4;95%CI=0.2-0.7;p=0.007) were less likely to receive surgery. Patients who had Medicaid insurance (OR=1.2;95%CI=0.8-1.8;p=0.04), a Charlson/Deyo score of one (OR=1.9;95%CI=1.5-2.3;p=0.002), residence in the central United States (OR=1.6;95%CI=1.4-1.9;p=0.006), or treated at an integrated network (OR=1.2;95%CI=0.9-1.6;p=0.0004) were more likely to receive surgery. CONCLUSIONS: Elderly age, African-American race (by 30%), Medicare insurance (by 40%) and treatment at a community hospital (by 60%) were independent predictors for reduced receipt of AN surgery. Conversely, Medicaid insurance (by 20%), Charlson/Deyo score of one, central United States location, and treatment at an integrated network (by 20%) independently predicted increased receipt of AN surgery. Given that the adjusted relative risk for in-hospital mortality of AN surgery for African-Americans is 10.6 compared with Caucasians (Curry et al., 2009), and that private insurance reduces in-hospital and perioperative morbidity by 42% compared with non-private insurance (McClelland et al., 2011), these findings indicate that while it may be beneficial for African-American and Medicare insurance patients to be steered away from surgery, it is likely detrimental for Medicaid insurance patients to be steered towards AN surgery.

SURG-11. PERSONAL PREFERENCES FOR GROSS TOTAL RESECTION OF GLIOBLASTOMA: A PILOT STUDY

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INTRODUCTION: Most studies examining the notion of gross total resection (GTR) in glioblastoma are conducted with the assumption that extended survival is universally desirable. There are limited data describing how such survival benefits should be weighed against the risk of the surgery and the impact of surgical morbidity on the patient's quality of life and desire for extended survival. METHODS: To study this issue, we surveyed physician members of the Society for Neuro-Oncology (SNO) who have cared for glioblastoma patients*. We posed the question of whether the respondent would elect for gross total resection if afflicted with glioblastoma located in the right frontal lobe, right motor cortex, left motor cortex, or the posterior corpus callosum. Information on physician age, marital status, medical specialty (neurosurgery, neuro-oncology, medical oncology, or radiation oncology), years of practice, and personal values was collected. RESULTS: 224 SNO physicians (~10% of SNO membership) completed the survey. The proportion of respondents electing for gross total resection (GTR) was highest for a right frontal lobe lesion (92.8%), followed by a lesion in the right motor cortex (29.0%), left motor cortex (11.6%), and finally the corpus callosum (2.2%, P<.001). Neurosurgeons and non-neurosurgeons did not differ in their preference for a GTR across each individual tumor location (P>.05). Amongst oncologists, medical oncologists were more likely to forego GTR (P<.001) relative to other oncology specialties, irrespective of tumor location. Respondents who highly valued physical independence were more likely to forego GTR when presented with glioblastoma involving the right motor cortex (P=.02). Age, marital status, and years of practice did not significantly associate with preference for GTR. CONCLUSIONS: A physician's choice survey suggests that preference for GTR of glioblastoma is influenced by tumor location and the values of the afflicted patient. These factors should be considered during patient counseling and surgical planning. *The findings of this study reflect only the opinions of the physicians surveyed and in no way reflect an official endorsement by the Society for Neuro-Oncology.

SURG-12. LASER INTERSTITIAL THERMAL THERAPY (LITT) TO MANAGE PROGRESSED GLIOBLASTOMA DURING PREGNANCY

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Glioblastoma (GB) is the most lethal primary brain tumor in adults. Despite optimized multimodality treatment, median overall survival is 14-16 months. While these tumors inevitably progress, the rare concurrence with pregnancy has been demonstrated to increase aggressive tumor behavior through mechanisms that have not been clearly defined. Pregnancy further complicates the already limited available treatment options for recurrent GB (rGB) due to pregnancy-associated host immunosuppression, increased metabolic and vascular demands, and the need to avoid risks to the fetus. Here, we review the literature of reported neurosurgical interventions for rGB during pregnancy, and are first to report a clinical case using laser interstitial thermal therapy (LITT) to manage GB recurrence during pregnancy. This work discusses the unique challenges related to determining the neurosurgical approach, selecting medical treatment, arranging multidisciplinary clinical follow-up, and evaluating neuroimaging pre- and post-LITT procedure. Ultimately, this research offers potential indications and considerations for use of the LITT neurosurgical approach in pregnant patients with progressed disease.

SURG-13. STIMULATED RAMAN SCATTERING MICROSCOPY PROVIDES DIAGNOSTIC INTRAOPERATIVE HISTOPATHOLOGIC IMAGES IN BRAIN TUMOR PATIENTS

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Accurate histologic information is essential to decision-making during brain tumor surgery. Current methods of intraoperative histopathologic diagnosis are labor intensive, prone to artifacts that complicate interpretation, and may delay surgical care. Stimulated Raman scattering (SRS) microscopy, a label-free optical process, presents an opportunity for rapid intraoperative histopathologic imaging as it has recently been shown to detect brain tumor infiltration in fresh, unprocessed human surgical specimens. Until now, execution of SRS microscopy in a clinical setting has not been possible. Here, we report the first demonstration of SRS microscopy in an operating room using a portable, fully-integrated fiber-laser-based SRS microscope in a series of fresh, unprocessed specimens from 97 neurosurgical patients. Additionally, we leverage 2-channel SRS images to generate virtual hematoxylin and eosin-stained images, revealing microscopic architectural features essential for the diagnosis of human brain tumors. In a simulation of intraoperative pathologic consultation completed by three board-certified neuropathologists, the concordance of SRS- and standard H&E-based methods for predicting diagnosis was nearly perfect (k>0.89) and the accuracy exceeded 92% for both methods. A multi-layer perceptron based on quantified attributes from SRS images was capable of predicting brain tumor subtype with 86.6% accuracy in a test set of 30 patients. SRS microscopy provides a simple, automated method for rapidly providing diagnostic histopathologic images in the operating room, without the need for processing, preparation, and staining tissue specimens in a pathology lab. SRS microscopy may ultimately enable more thorough histologic sampling of brain tumors and meticulous assessment of their interface with surrounding brain tissue during surgery.

SURG-14. OPERATIVE MORTALITY RATES OF ACOUSTIC NEUROMA SURGERY: A NATIONWIDE CANCER DATABASE ANALYSIS

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