13 Do No Harm: Does Repeated Surgical Resections for Management of High-Grade Glioma Recurrence Impact Quality of Life?

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Objective: High-grade gliomas are aggressive and infiltrate surrounding brain parenchyma, making gross total resection difficult, and despite aggressive treatment, its recurrence is inevitable (Zhou et al., 2016). Repeated tumor resections have been shown to increase survival (Chaichana et al., 2013) but the cost of doing so on quality of life (QoL) and functioning is not known. To address this gap, we compared changes in QoL using the Functional Assessment of Cancer Therapy-Brain questionnaire (FACT-Br; Weitzner et al., 1995) in high-grade glioma patients undergoing first versus repeat surgical resection.
Participants and Methods: Thirty-three patients with high-grade gliomas (mean age=52, 54.5% female) that underwent tumor resection and completed comprehensive neuropsychological evaluations that included FACT-Br pre-operative and at 2-week follow up were included in this study. FACT-Br assesses four QoL domains: physical well-being (PWB), social well-being (SWB), emotional well-being (EWB), and functional well-being (FWB). A subscale total score was computed for each domain, and these subscale scores were summed to compute a total score for overall QoL. Difference scores were computed for each subscale score and total score by subtracting patients' pre-operative rating from post-operative rating. More positive scores indicate lesser perceived changes of QoL post-operatively. One-way MANOVA analysis was run to compare the difference scores between patients that underwent first resection and those that underwent repeated resection.
Results: There was no significant difference in perceived changes of overall QoL between the two groups of patients. However, patients with previous resection reported larger decline in perceived physical well-being compared to patients without previous resection ($F(1,30)=99.93$, $p<.05$, partial $\eta 2=.16$). There were no significant differences in other QoL domains between the two groups.
Conclusions: We showed no differences in perceived changes across most QoL domains in patients undergoing repeat versus first surgical resection for treatment of high-grade glioma, suggesting that repeated resections may be a viable strategy in managing tumor recurrences. Specifically, there were no group differences in social, emotional, and functional well-being pre- to postoperatively. However, patients with previous resection reported significantly larger decline in their perceived physical well-being than those without any previous resection. A possible explanation is that patients with previous resection underwent adjuvant therapies (e.g., radiation therapy, chemotherapy) and experienced tumor progression necessitating reoperation, which could have made them more vulnerable to the physical impacts of surgery. Our findings are encouraging and may provide useful insight to guide treatment strategies and patient's decision making to optimize both surgical and functional outcomes.

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Keyword 1: brain tumor
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14 The Impact of Socioeconomic Status (SES) on Phonemic Fluency in Patients with Pediatric Brain Tumor (PBT)

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Objective: Phonemic fluency, an important cognitive skill for everyday functioning, has been shown to decline in comparison to same-aged peers following pediatric cancer diagnosis and treatment, despite intact semantic fluency. More generally, socioeconomic status (SES) has recently been shown to be one of the strongest predictors of neuropsychological outcomes among pediatric oncology patients, with lower SES predicting worse intellectual and academic functioning. However, the association between SES and phonemic fluency within this population has yet to be explored. The main objective of this project was to determine whether SES

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(specifically estimated household income) significantly predicts phonemic fluency performance among patients with PBT, and it was hypothesized that higher SES would be associated with better phonemic fluency outcomes.
Participants and Methods: 136 participants with PBT ages 7-20 ($\bar{x}$=14.15 years, *SD*=3.87), were administered phonemic fluency trials (either from the *NEPSY - Second Edition or Delis-Kaplan Executive Function System*, with no significant differences in performance between measures). The sample was 58.8% male and half Latino (50.0%), followed by Caucasian (30.1%), Asian American (7.4%), Black (6.6%), and Other (5.9%) ethnicity. All patients identified English as their primary and preferred language regardless of predominant household language, reducing the potential confounding impact of language. Given documented associations between PBT and lower intelligence following diagnosis and treatment, estimated intellectual functioning was included in the first block of hierarchical regression to isolate and further elucidate the potential contributing influence of SES on phonemic fluency. Median household income for specific neighborhoods was used as a proxy for SES, while *Wechsler Matrix Reasoning (MR)* was used as an estimate of general intellectual functioning given the high correlation between MR and full scale IQ.
Results: Consistent with prior literature, phonemic fluency was lower than normative age expectations [$t(135)=-3.653$, $p=.0002$], though still within the average range clinically ($\bar{x}$=8.93). As hypothesized, SES was positively correlated with phonemic fluency [$r(136)=.219$, $p=.005$]. Furthermore, SES significantly predicted phonemic fluency performance above and beyond estimated intelligence, accounting for a significant increase in variance ($p=.020$). Post-hoc analyses also revealed poorer phonemic fluency among participants with infratentorial brain tumors as compared to supratentorial brain tumors after controlling for SES, $t(108)=-1.748$, $p=.042$.
Conclusions: Consistent with the known impact of SES on neuropsychological late effects among patients with pediatric cancer, phonemic fluency was positively correlated with SES among participants with PBT above and beyond estimated intelligence, suggesting the distinct role of SES on rapid verbal retrieval within this population. This has important implications for identifying patients at higher risk, helping to ensure timely provision of services and supports. Poorer phonemic fluency was also noted among patients with infratentorial (vs. supratentorial) brain tumors after controlling for SES, which may influence studies combining tumor location as the vast majority of PBTs are infratentorial. This supports prior literature demonstrating the need for increased cerebellar activation during phonemic (vs. semantic) retrieval. Additional research is needed to further explore these findings.

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Keyword 2: brain tumor
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15 Practical Adaptive Skills in Pediatric Brain Tumor Survivors

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Objective: Adaptive functioning, most notably practical skills, are impacted in pediatric brain tumor survivors. This study aimed to examine the individual components of practical adaptive functions that are most impacted in pediatric brain tumor survivors, and to identify specific medical and socio-demographic factors that contribute to weaknesses in this domain.
Participants and Methods: The sample consisted of 117 pediatric brain tumor patients seen for a clinical neuropsychological evaluation. Inclusion criteria included participants <18 years at time of brain tumor diagnosis, and whose parents were administered the Adaptive Behavior Assessment System, Second (ABAS-II) or Third Edition (ABAS-3) as a measure of adaptive functioning. Medical and socio-demographic variables were gathered from the patient's medical record. Medical variables examined were age at diagnosis, age at evaluation, time since diagnosis, tumor location (supratentorial or infratentorial), and history of treatment and associated complications as measured by the

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