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QOL-50. THE ROLE OF TUMOR SIZE IN COGNITIVE FUNCTIONING AMONG SURVIVORS TREATED FOR MEDULLOBLASTOMA
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BACKGROUND: Medical and treatment variables, including presence of post-operative cerebellar mutism syndrome (CMS), shunt placement, craniospinal radiation, and total radiotherapy (RT) dose, have been evaluated as potential risk factors for adverse cognitive effects among pediatric patients diagnosed and treated for medulloblastoma. Larger brain tumor size is associated with increased risk of medical complications, but cognitive risk of larger tumor size remains unknown. METHODS: Cognitive scores were examined for 40 participants diagnosed and treated for medulloblastoma. The age-appropriate Wechsler Intelligence Scale was administered at the start of RT and up to 10 years post-RT (M=4.96, SD=3.78). A total of 162 evaluations were examined across participants. Linear mixed models examined change in Wechsler Index scores over time since RT based on tumor size, which was dichotomized at the median diameter (small ≤4.6cm versus large >4.6cm), covarying for maternal education, total RT dose, and presence of CMS. RESULTS: Patients (72.5% male) were diagnosed with medulloblastoma and began RT at a mean age of 8.89 years. Groups did not differ on demographic or medical variables with the exception of presence/absence of CMS, with a higher proportion of patients diagnosed with CMS having large-size tumors (40%) versus small-size tumors (5%). Tumor size did not predict change in IQ, working memory, or processing speed performance over time since RT after accounting for covariates. CMS was associated with significant decline in processing speed (p<.001) and IQ over time (p<.005); RT dose was associated with significant working memory and IQ decline (both p<.05); and maternal education was associated with decline in processing speed, working memory, and IQ (all p<.05). CONCLUSIONS: While tumor size may be associated with treatment intensity and other medical risk factors, CMS and RT dose significantly increase cognitive risk, independent of tumor size. Lower socioeconomic status also increases cognitive risk post-RT, which may illuminate pathways for prevention and intervention efforts.