

ABSTRACT CITATION ID: NOAE064.619

QOL-31. NEUROPSYCHOLOGICAL FUNCTIONING AND QUALITY OF LIFE IN INFANT AT/RT SURVIVORS: FOCUS ON FLUID INTELLIGENCE AND VISUAL PROCESSING

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BACKGROUND: Understanding the long-term cognitive sequelae in infant brain tumor survivors remains incomplete, particularly regarding the impact of tumor type, multimodal treatment, and other patient-related factors. This retrospective analysis explores neuropsychological and quality of survival (QoS) outcomes in survivors of atypical teratoid/rhabdoid tumors (AT/RT) and extracranial malignant rhabdoid tumors of soft tissues (eMRT) and kidneys (RTK), all treated within the same framework. Neuropsychological data from children with AT/RT were compared to data from children with non-irradiated low-grade glioma (LGG). **METHODS:** Patients (0 - 36 months at diagnosis) underwent various treatments, including radio-chemotherapy for AT/RT (n = 13) and eMRT/RTK (n = 7), chemotherapy only for LGG (n = 4) and eMRT/RTK (n = 1), or observation for LGG (n = 11). Neuropsychological evaluations were conducted at a median of 6.8 years (AT/RT), 6.6 years (eMRT/RTK), and 5.2 years (LGG) post-diagnosis.

RESULTS: Impairments were observed for all tumour types. Patients with AT/RT exhibited impairments in fluid intelligence ($p = .041$; $d = 1.11$) and visual processing ($p = .001$; $d = 2.09$) when compared to LGG-patients. Both groups demonstrated deficits in psychomotor speed and attention abilities ($p < .001$ – $.019$; $d = 0.79$ – 1.90). Diagnosis significantly predicted cognitive outcomes, whereas gender and age-related variables did not. QoS outcomes for all rhabdoid patients indicated lower scores in psychosocial functioning ($p = .023$; $d = 0.78$) and quality of life ($p = .006$; $d = 0.79$) compared to healthy controls. **CONCLUSIONS:** Infant rhabdoid tumor survivors experience cognitive and quality-of-life sequelae. Patients with AT/RT are especially vulnerable to impairments in fluid intelligence and visual processing, while infant LGG-patients without radiotherapy demonstrated comparable deficits in psychomotor and attention abilities. Close monitoring of neuro-psychological and quality of life outcomes is crucial for early onset and multimodal treatment.