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# Long-term prognosis and treatment outcomes in infantile and neonatal brain tumors

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## Abstract

**Purpose:** The specifics of biological behavior, anatomical localization, treatment, decision-making, and long-term prognosis in neonatal and infantile intracranial tumors have not been well studied.

**Methods:** A retrospective monocentric study of patients aged  $\leq 12$  months treated for an intracranial tumor over a 23-year period was performed. Data regarding the survival rate according to the tumor histology were evaluated in further detail.

**Results:** A total of 63 patients with a median age of 200 days at the first admission (interquartile range (IQR) = 118-301 days) were analyzed. Most tumors were supratentorial (67.7%). Overall survival according to histopathological subgroups of included tumors was the most favorable in the low-grade glioma subgroup with 1- and 3-year survival of 96% (95% confidence interval [CI] = 88.6-100%) and 88% (95% CI = 76.1-100%), while the 3-year survival for the embryonal tumors subgroup was 15% (95% CI = 4.2-53.4%). Mortality in the cohort reached 42.8% with the median time to death of 6 months (IQR = 1-12 months).

**Conclusion:** Infantile and neonatal primary CNS tumors significantly vary from CNS tumors in older pediatric patients both in their localization, distribution of histopathological subtypes, and the presence of mutations specific to these tumors, providing useful therapeutic targets. Brain tumors in children under 1 year of age are scarce compared to other pediatric brain tumors.

**Keywords:** Infantile tumor; Intracranial brain tumors in children; Pediatric neurooncology; Pediatric neurosurgery.

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