

ABSTRACT

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CNS infection in children with brain tumors: adding ventriculostomy to brain tumor resection increases risk more than 20-fold.

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PURPOSE: To investigate the risk of central nervous system (CNS) infections in children undergoing neurosurgery for brain tumors.

METHODS: Single-center retrospective cohort study including all children with brain tumors undergoing neurosurgical treatment over an 11-year period.

RESULTS: A total of 274 patients undergoing 733 neurosurgical procedures were included. Overall, 12.8% of patients were diagnosed with a CNS infection during their course of treatment. CNS infections were more frequent among children treated with CSF diversion ($p < 0.001$) and independently associated with low age (OR/y 0.9 (CI 95% 0.769-0.941), intraventricular (OR 2.8, CI 95% 1.2-6.5), and high-grade tumors (OR 2.7, CI 95% 1.1-6.5). The majority of CNS infections occurred within 30 days of surgery, resulting in a postoperative CNS infection rate of 5.3%. Postoperative CNS infections were significantly more frequent following adjunct EVD placement during tumor resection compared to a stand-alone craniotomy (30.4% vs. 1.5%, RR 20.6, CI 95% 5.7-72.2).

CONCLUSION: CNS infections affect at least 12% of children with brain tumors and are associated with age, tumor location, and grade. Adding EVD to tumor surgery increases the risk of postoperative CNS infection, and reconsidering routine adjunct EVD placement is therefore advocated.

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