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Intracranial Tumors in the First Year of Life

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Abstract

Intracranial tumors in the first year of life are rare and, in this age group, are the second most common type of pediatric cancer after leukemias. As the more common solid tumor in neonates and infants, they present some peculiarities such as the high incidence of malignancies. Routine ultrasonography made easier to detect intrauterine tumors, but diagnosis can be delayed due to the lack or scarcity of recognizable symptoms. These neoplasms are often very large and highly vascular. Their removal is challenging, and there is a higher rate of morbidity and mortality than seen in older children, adolescents, and adults. They also differ from older children with respect to location, histological features, clinical behavior, and management. Pediatric low-grade gliomas represent 30% of the tumors in this age group and comprise circumscribed and diffuse tumors. They are followed by medulloblastoma and ependymoma. Other non-medulloblastoma embryonal neoplasms, former known as PNETS, are also commonly diagnosed in neonates and infants. Teratomas have an expressive incidence in newborns but decline gradually until the end of the first year of life. Immunohistochemical, molecular, and genomic advances are impacting the understanding and targeting of the treatment of some tumors, but, despite all these advances, the extent of resection remains the most important factor in the prognosis and survival of almost all types of tumors. The outcome is difficult to estimate, and 5-year survival ranges from one-quarter to three-quarters of the patients.

Keywords: Astrocytoma; Choroid plexus tumors; Congenital tumors; Embryonal tumors; Hydrocephalus; Medulloblastoma.