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### **Brain tumors across the age spectrum: biology, therapy, and late effects.**

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The clinical difference between brain tumors in adults and children is striking. Compared with adults, pediatric tumor types (mostly glial and neuronal) are more sensitive to adjuvant irradiation and chemotherapy. Pediatric tumors more often require craniospinal irradiation based on their propensity to disseminate within the neuraxis. The spectrum of side effects is broader in the child based on age and extent of treatment: radiation therapy brings increased risk of severe long-term sequelae affecting neurologic, endocrine, and cognitive function. In this review of glioma, ependymoma, and medulloblastoma, we highlight the differences between adults and children, including the higher incidence of spinal cord ependymoma and supratentorial high-grade glioma in the adult and a higher incidence of medulloblastoma in the child. With the exception of completely resected low-grade glioma, radiation therapy remains a standard of care for most patients. In some settings, the radiation oncologist should suggest further surgery or additional adjuvant therapy in an effort to optimize local tumor control. An effort is underway to better characterize adult and pediatric brain tumors biologically with an emphasis on improving our understanding of tumor genesis, malignant transformation, and some of the similarities and differences between tumor types and their response to conventional therapy.

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