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Irradiation of pediatric high-grade spinal cord tumors.

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Abstract

PURPOSE: To report the outcome using radiation therapy (RT) for pediatric patients with high-grade spinal cord tumors.

METHODS AND MATERIALS: A retrospective chart review was conducted that included 17 children with high-grade spinal cord tumors treated with RT at St. Jude Children's Research Hospital between 1981 and 2007. Three patients had gross total resection, 11 had subtotal resection, and 3 underwent biopsy. The tumor diagnosis was glioblastoma multiforme (n = 7), anaplastic astrocytoma (n = 8), or anaplastic oligodendroglioma (n = 2). Seven patients received craniospinal irradiation (34.2-48.6 Gy). The median dose to the primary site was 52.2 Gy (range, 38-66 Gy).

RESULTS: The median progression-free and overall survivals were 10.8 and 13.8 months, respectively. Local tumor progression at 12 months (79% vs. 30%, p = 0.02) and median survival (13.1 vs. 27.2 months, p = 0.09) were worse for patients with glioblastoma multiforme compared with anaplastic astrocytoma or oligodendroglioma. The median overall survival was shorter for patients when failure included neuraxis dissemination (n = 8) compared with local failure alone (n = 5), 9.6 vs. 13.8 months, p = 0.08. Three long-term survivors with World Health Organization Grade III tumors were alive with follow-up, ranging from 88-239 months.

CONCLUSIONS: High-grade spinal cord primary tumors in children have a poor prognosis. The propensity for neuraxis metastases as a component of progression after RT suggests the need for more aggressive therapy.

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