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## Infant ependymoma in a 10-year AIEOP (Associazione Italiana Ematologia Oncologia Pediatrica) experience with omitted or deferred radiotherapy.

Massimino M, Gandola L, Barra S, Giangaspero F, Casali C, Potepan P, Di Rocco C, Nozza P, Collini P, Viscardi E, Bertin D, Biassoni V, Cama A, Milanaccio C, Modena P, Balter R, Tamburrini G, Peretta P, Mascarin M, Scarzello G, Fidani P, Milano GM, Sardi I, Genitori L, Garrè ML.

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### Abstract

**PURPOSE:** The protocols of the 1990s omitted or delayed irradiation, using upfront chemotherapy to spare the youngest children with ependymoma the sequelae of radiotherapy (RT). We treated 41 children under the age of 3 years with intracranial ependymoma between 1994 and 2003.

**PATIENTS AND METHODS:** After surgery, chemotherapy was given as follows: regimen I with four blocks of vincristine, high-dose methotrexate 5 g/m<sup>2</sup>, and cyclophosphamide 1.5 g/m<sup>2</sup> alternating with cisplatin 90 mg/m<sup>2</sup> plus VP16 450 mg/m<sup>2</sup> for 14 months; subsequently, regimen II was used: VEC (VCR, VP16 300 mg/m<sup>2</sup>, and cyclophosphamide 3 g/m<sup>2</sup>) for 6 months. Radiotherapy was planned for residual tumor after the completion of chemotherapy or for progression.

**RESULTS:** We treated 23 boys and 18 girls who were a median 22 months old; 14 were given regimen I, 27 were given regimen II; 22 underwent complete resection, 19 had residual tumor. Ependymoma was Grade 2 in 25 patients and Grade 3 in 16; tumors were infratentorial in 37 patients and supratentorial in 4. One child had intracranial metastases; 29 had progressed locally after a median 9 months. Event-free survival was 26% at 3 and 5 years and 23% at 8 years. One child died of sepsis, and another developed a glioblastoma 72 months after RT. Progression-free survival was 27% at 3, 5, and 8 years, and overall survival was 48%, 37%, and 28% at 3, 5, and 8 years, respectively. Of the 13 survivors, 6 never received RT; their intellectual outcome did not differ significantly in those children than in those without RT.

**CONCLUSIONS:** Our results confirm poor rates of event-free survival and overall survival for up-front chemotherapy in infant ependymoma. No better neurocognitive outcome was demonstrated in the few survivors who never received RT.

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