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Original Article

High-dose chemotherapy with autologous stem cell rescue for children with recurrent malignant brain tumors

Chie-Schin Shih, MD ¹, Gregory A. Hale, MD ², Lindsey Gronewold, MSc ¹, Xin Tong, MPH ^{1,3}, Fred H. Laningham, MD ⁴, Elizabeth A. Gilger, RN, PNP ¹, Deo Kumar Srivastava, PhD ^{1,3}, Larry E. Kun, MD ⁴, Amar Gajjar, MD ¹, Maryam Fouladi, MD ^{1*}†

¹Department of Oncology, St. Jude Children's Research Hospital, Memphis, Tennessee
²Division of Bone Marrow Transplantation and Cellular Therapy, St. Jude Children's Research Hospital, Memphis, Tennessee
³Department of Biostatistics, St. Jude Children's Research Hospital, Memphis, Tennessee
⁴Division of Radiation Oncology, Department of Radiological Sciences, St. Jude Children's Research Hospital, Memphis, Tennessee
email: Maryam Fouladi (maryam.fouladi@cchmc.org)

*Correspondence to Maryam Fouladi, Division of Hematology/Oncology, Cincinnati Children's Hospital Medical Center, 3333 Burnet Avenue, Cincinnati, OH 45229

† Fax: (513) 636-3549

Funded by:

- National Cancer Institute; Grant Number: CA 21765
- Musicians Against Childhood Cancer (MACC)
- The Noyes Brain Tumor Foundation
- American Lebanese Syrian Associated Charities (ALSAC)

KEYWORDS

high-dose chemotherapy • recurrent • central nervous system neoplasms • salvage therapy • autologous stem cell transplantation

ABSTRACT

BACKGROUND.

High-dose chemotherapy (HDCT) with autologous stem cell rescue (ASCR) has been reported to be effective in treating children with recurrent central nervous system (CNS) malignancies.

METHODS.

To evaluate the efficacy and toxicities of HDCT and ASCR, the medical records of 27 children with recurrent CNS malignancies who received such therapy at St. Jude Children's Research Hospital between 1989 and 2004 were reviewed.

RESULTS.

The median age at diagnosis was 4.5 years (range, 0.4-16.6 years) and that at ASCR was 6.7 years (range, 1.1-18.5 years). Diagnoses included medulloblastoma (13 patients), primitive neuroectodermal tumor (3 patients), pineoblastoma (2 patients), atypical teratoid rhabdoid tumor (2 patients), ependymoma (3 patients), anaplastic astrocytoma (2 patients), and glioblastoma multiforme (2 patients). The 5-year overall and progression-free survival (PFS) rates were 28.2% and 18.5%, respectively. The 5-year PFS rate for patients aged <3 years at

diagnosis (57.1%) was significantly better than older patients (5.0%) ($P = .019$). Among the 6 long-term survivors (5 with M0 disease and 1 with M3 disease at diagnosis), 5 received both radiotherapy and HDCT as part of their salvage regimen; 4 were aged <3 years at diagnosis and had received chemotherapy only as part of frontline therapy. Two patients died of transplant-related toxicities; 44% experienced grade 3 or 4 transplant-related toxicities (toxicities were graded according to the National Cancer Institute Common Toxicity Criteria).

CONCLUSIONS.

HDCT with ASCR is not an effective salvage strategy for older children with recurrent CNS malignancies. The significantly better outcome in the younger cohort was most likely related to the use of radiotherapy as part of the salvage strategy. Cancer 2008. © 2008 American Cancer Society.

Received: 13 August 2007; Accepted: 26 September 2007

DIGITAL OBJECT IDENTIFIER (DOI)

10.1002/cncr.23305 [About DOI](#)

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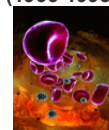
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