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Thiotepa/topotecan/carboplatin with autologous stem cell rescue in recurrent/refractory/poor prognosis pediatric malignancies of the central nervous system.

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BACKGROUND: Thiotepa and carboplatin are known to be active in central nervous system tumors. Topotecan potentiates the anti-cancer effects of alkylators and crosses the blood-brain barrier. We present ten patients with recurrent or progressive central nervous system malignancies treated on a myeloablative regimen using these drugs. **METHODS:** Treatment included: Thiotepa 300 mg/m² on days -8, -7, and -6; topotecan 2 mg/m² on days -8, -7, -6, -5, and -4; and carboplatin approximately 500 mg/m² (Calvert formula-area under the curve = 7) on days -5, -4, and -3. Stem cell rescue was on day 0. **RESULTS:** Age at study entry ranged from 2.5 to 20 years old (median age 8.7 years). Five had medulloblastoma (MB), four had high grade glioma (HGG), and one had trilateral retinoblastoma/pineoblastoma (tRB/PB). Prior treatment for all patients included surgery and chemotherapy (1-7 regimens, median 2). Nine patients received radiotherapy; one patient did not receive radiotherapy pre-study. Three patients had residual disease at the time of transplant. There were two toxic deaths. Four patients are event-free survivors at a median of 6 years (range 2.8-7.6 years) after treatment including 2/5 MB patients, 1/4 HGG patients, and the tRB/PB patient. Four of the seven patients with no evidence of disease/minimal residual disease status at the time of stem cell rescue are long-term survivors versus 1/3 with measurable disease. **CONCLUSION:** Thiotepa/topotecan/carboplatin may help consolidate remission of poor prognosis pediatric central nervous system tumors. Diagnosis and extent of disease prior to stem cell rescue may have an impact on outcome. *Pediatr Blood Cancer* (c) 2009 Wiley-Liss, Inc.

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