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# Reduced-dose craniospinal radiotherapy followed by high-dose chemotherapy and autologous stem cell rescue for children with newly diagnosed high-risk medulloblastoma or supratentorial primitive neuroectodermal tumor.

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### Abstract

**BACKGROUND:** In this study, we investigated the effects of reduced-dose craniospinal radiotherapy (CSRT) followed by tandem high-dose chemotherapy (HDCT) with autologous stem cell rescue (ASCR) in children with a newly diagnosed high-risk medulloblastoma (MB) or supratentorial primitive neuroectodermal tumor (sPNET).

**METHODS:** Between March 2005 and April 2007, patients older than 3 years with a newly diagnosed high-risk MB or sPNET were enrolled. The patients received two cycles of pre-RT chemotherapy consisting of cisplatin, etoposide, vincristine, and cyclophosphamide (cycle A), and carboplatin, etoposide, vincristine, and ifosphamide (cycle B), followed by CSRT with 23.4 Gy and local RT with 30.6 Gy. After four cycles of post-RT chemotherapy (cycles A, B, A, and B), tandem double HDCT with ASCR was performed.

**RESULTS:** A total of 13 patients (MB=11, sPNET=2) were enrolled. Of these, one patient progressed, one patient died of septic shock after the second cycle of B, and one patient relapsed after the third cycle of B. The 3-year event-free survival (EFS) rate of the patients intended for HDCT was 76.9%, whereas the 3-year EFS rate of the patients who received HDCT was 100%. No treatment-related mortality occurred during HDCT.

**CONCLUSION:** Although the follow-up period was short and the patient cohort was small in size, the results of this study are encouraging. The limited toxicity and favorable EFS rate observed in children treated with reduced-dose CSRT followed by HDCT and ASCR warrant further exploration in a larger study population.

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