BACKGROUND: Over 300 children annually are affected in the USA with recurrent/refractory medulloblastoma, ependymoma and atypical teratoid/rhabdoid neoplasms (AT/RT) - the major malignant posterior fossa tumors (MPFT). The prognosis of these children remains dismal as most of them succumb to their disease. It is imperative to profile less toxic novel therapies to provide a meaningful cure. STUDY OBJECTIVES: 1) To establish the safety, feasibility, efficacy, and maximum tolerated dose (MTD) of administering autologous natural killer (NK) cells directly into the fourth ventricle in recurrent/refractory MPFT, 2) To preliminary assess the antitumor activity and 3) Correlative biologic studies: immunophenotype and function of expanded NK cells will be evaluated. ELIGIBILITY: Patient is <22 years old, performance score >30, histologically confirmed recurrent medulloblastoma, ependymoma and AT/RT involving the brain and/or spine at original diagnosis or relapse will be eligible. Patient has either measurable or evaluable tumor, adequate CSF flow by MRI with CINE sequence, adequate bone marrow and liver function, life expectancy >12 weeks. EXPERIMENTAL DESIGN: Patients will receive 3 cycles of NK-cell infusions over 12 weeks through an ommaya reservoir connected to a catheter placed in the fourth ventricle. Each cycle consists of 3 NK-cell infusions per week for 3 weeks followed by a rest week. Response will be evaluated by MRI scans after the first and the third cycle and aspirated CSF prior to the NK cell infusions. Two to six evaluable patients per dose level (4 dose levels) will be entered in this study for determination of MTD. A minimum of 9 patients and a maximum of 24 patients will be enrolled.