Feasibility and tolerability of bevacizumab in children with primary CNS tumors.

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Abstract

BACKGROUND: Bevacizumab, an antibody to the vascular endothelial growth factor, has demonstrated anti-cancer activity in a number of solid tumors. Fear of intratumoral hemorrhage, however, has slowed its introduction into the treatment of central nervous system (CNS) tumors. Currently, only a small number of children with gliomas received bevacizumab.

METHODS: We retrospectively analyzed 30 patients who received bevacizumab between January 2007 and August 2009. The median age at start of bevacizumab treatment was 9.9 years (range: 1.5-18). Most patients had recurrent/progressive disease, 25 high-grade and 5 low-grade tumors. The median dose of bevacizumab was 9.5 mg/kg (range 5-15 mg/kg) every 2-3 weeks. In total, 478 courses were administered (median/patient 15.9, range: 2-52). The median duration of bevacizumab treatment was 10.0 months (range: 1.6-30.4). Twenty-nine of 30 patients received additional therapy concomitant to bevacizumab.

RESULTS: No bevacizumab related intratumoral hemorrhage occurred in any of our 30 patients. Grade III hypertension was seen in two patients. One patient developed nephrotic syndrome requiring cessation of treatment. Grade III and I proteinuria were observed in one and five patients, respectively. New onset lymphopenia occurred in 12/30 and new onset hypothyroidism in 7/30 patients. Impaired wound healing was manageable. No immediate bevacizumab-related cardiotoxicity was observed as evidenced by echocardiography.

CONCLUSIONS: Bevacizumab appears to be safe for children with primary CNS tumors. Adverse effects did occur but were manageable. No treatment-related death occurred. Long-term monitoring is advisable to detect lymphopenia and hypothyroidism. Hypertension occurred less frequently than in adult patients. Further prospective studies including more patients are warranted.

PMID: 20066713 [PubMed - indexed for MEDLINE]