



## Cancer

Early View (Articles online in advance of print)

Published Online: 3 Oct 2006

Copyright © 2006 American Cancer Society

### Original Article

## Phase II study of oxaliplatin in children with recurrent or refractory medulloblastoma, supratentorial primitive neuroectodermal tumors, and atypical teratoid rhabdoid tumors<sup>†</sup>

A pediatric brain tumor consortium study

Maryam Fouladi, MD<sup>1,†</sup>, Susan M. Blaney, MD<sup>2</sup>, Tina Young Poussaint, MD<sup>3</sup>, Burgess B. Freeman III, PharmD<sup>1</sup>, Roger McLendon, MD<sup>4</sup>, Christine Fuller, MD<sup>1</sup>, Adekunle M. Adesina, MD<sup>2</sup>, Michael L. Hancock, MS<sup>5</sup>, Mary K. Danks, PhD<sup>1</sup>, Clinton Stewart, PharmD<sup>1</sup>, James M. Boyett, PhD<sup>5</sup>, Amar Gajjar, MD<sup>1</sup>

<sup>1</sup>St. Jude Children's Research Hospital, Memphis, Tennessee

<sup>2</sup>Texas Children's Cancer Center/Baylor College of Medicine, Houston, Texas

<sup>3</sup>Children's Hospital Boston, Boston, Massachusetts

<sup>4</sup>Duke University Medical Center, Durham, North Carolina

<sup>5</sup>Operations and Biostatistics Center, Pediatric Brain Tumor Consortium; Memphis, Tennessee

**email:** Maryam Fouladi ([maryam.fouladi@stjude.org](mailto:maryam.fouladi@stjude.org))

\*Correspondence to Maryam Fouladi, Department of Hematology-Oncology, St. Jude Children's Research Hospital, 332 North Lauderdale, Memphis, TN 38105-2794

<sup>†</sup>The following are Pediatric Brain Tumor Consortium Member Institutions: Baylor College of Medicine, Houston, TX (Susan Blaney, Principal Investigator); Children's Hospital of Philadelphia, Philadelphia, PA (Peter Phillips, Principal Investigator); Children's Hospital of Pittsburgh, Pittsburgh, PA (Ian Pollack, Principal Investigator); Children's National Medical Center, Washington, DC (Roger Packer, Principal Investigator); Children's Memorial Hospital, Chicago, IL (Stewart Goldman, Principal Investigator); Children's Hospital and Regional Medical Center, Seattle, WA (J. Russell Geyer, Principal Investigator); Dana-Farber Cancer Institute/Massachusetts General Hospital, Boston, MA (Mark Kieran, Principal Investigator); Duke University Medical Center, Durham, NC (Henry Friedman, Principal Investigator); St. Jude Children's Research Hospital, Memphis, TN (Larry Kun, Principal Investigator); University of California at San Francisco, San Francisco, CA (Michael Prados, Principal Investigator); and National Institutes of Health, Neuro-Oncology Branch, Bethesda, MD (Howard Fine, Principal Investigator).

<sup>‡</sup>Fax: (901) 521-9005

#### Funded by:

- National Cancer Institute; Grant Number: 5 U01 CA081457

#### Keywords

recurrent medulloblastoma • oxaliplatin • phase II trial

## BACKGROUND.

An open-label Phase II study of oxaliplatin was conducted to evaluate its safety and efficacy in children with recurrent or refractory medulloblastoma (MB), supratentorial primitive neuroectodermal tumors (SPNET), and atypical teratoid rhabdoid tumor (ATRT).

## METHODS.

Patients were stratified as follows: stratum IA, first recurrence MB with measurable disease; IB, recurrent MB with only cerebral spinal fluid (CSF) positivity or linear leptomeningeal disease (LLD); IC, MB  $\geq$  second recurrence; stratum II, recurrent SPNET; stratum III, recurrent ATRT. Patients received oxaliplatin, 130 mg/m<sup>2</sup> intravenously over 2 hours every 3 weeks. The primary objective was to estimate the sustained response rate in stratum IA. Plasma ultrafiltrate platinum pharmacokinetics were evaluated.

## RESULTS.

A total of 43 patients with a median age of 8.5 years (range, 0.6-18.9 years) were enrolled. In stratum IA, 2 of 15 had partial responses (PRs, 1 sustained PR). No responses were observed in other strata. The most frequent Grade 3 and 4 toxicities included thrombocytopenia (25.6%), neutropenia (16.3%), leukopenia (12%), increase in serum alanine transaminase (ALT) (7%), vomiting (4.7%), and sensory neuropathy (4.7%). No severe ototoxicity or nephrotoxicity was reported. Plasma ultrafiltrate platinum pharmacokinetic parameters were similar to adults, with a median clearance of 12.2 L/hr (range, 4.4-30 L/hr) and median area under the curve (AUC<sub>0-∞</sub>) of 9.4  $\mu$ g/mL/hr (range, 6.2-13.9  $\mu$ g/mL/hr).

## CONCLUSIONS.

Oxaliplatin was well tolerated in children but has limited activity in children with recurrent CNS embryonal tumors previously treated with platinum compounds. Cancer 2006. © 2006 American Cancer Society.

---

Received: 29 June 2006; Revised: 7 August 2006; Accepted: 8 August 2006

[Digital Object Identifier \(DOI\)](#)