



Combined Immunochemotherapy With Reduced Whole-Brain Radiotherapy for Newly Diagnosed Primary CNS Lymphoma

Gaurav D. Shah, Joachim Yahalom, Denise D. Correa, Rose K. Lai, Jeffrey J. Raizer, David Schiff, Renato LaRocca, Barbara Grant, Lisa M. DeAngelis, Lauren E. Abrey

From the Memorial-Sloan Kettering Cancer Center, New York, NY; Northwestern University, Feinberg School of Medicine, Chicago, IL; Department of Neurology, University of Virginia Health Science Center, Charlottesville, VA; Kentuckiana Cancer Institute, Louisville, KY; and the University of Vermont, Burlington, VT

Address reprint requests to Lauren E. Abrey, MD, Department of Neurology, Memorial Sloan-Kettering Cancer Center, 1275 York Ave, New York, NY 10021; e-mail: abreyl@mskcc.org

Purpose: Our goals were to evaluate the safety of adding rituximab to methotrexate (MTX)-based chemotherapy for primary CNS lymphoma, determine whether additional cycles of induction chemotherapy improve the complete response (CR) rate, and examine effectiveness and toxicity of reduced-dose whole-brain radiotherapy (WBRT) after CR.

Patients and Methods: Thirty patients (17 women; median age, 57 years; median Karnofsky performance score, 70) were treated with five to seven cycles of induction chemotherapy (rituximab, MTX, procarbazine, and vincristine [R-MPV]) as follows: day 1, rituximab 500 mg/m²; day 2, MTX 3.5 gm/m² and vincristine 1.4 mg/m². Procarbazine 100 mg/m²/d was administered for 7 days with odd-numbered cycles. Patients achieving CR received dose-reduced WBRT (23.4 Gy), and all others received standard WBRT (45 Gy). Two cycles of high-dose cytarabine were administered after WBRT. CSF levels of rituximab were assessed in selected patients, and prospective neurocognitive evaluations were performed.

Results: With a median follow-up of 37 months, 2-year overall and progression-free survival was 67% and 57%, respectively. Forty-four percent of patients achieved a CR after five or fewer cycles, and 78% after seven cycles. The overall response rate was 93%. Nineteen of 21 CR patients received the planned 23.4 Gy WBRT. The most commonly observed grade 3 to 4 toxicities included neutropenia (43%), thrombocytopenia (36%), and leukopenia (23%). No treatment-related neurotoxicity has been observed.

Conclusion: The addition of rituximab to MPV increased the risk of significant neutropenia requiring routine growth factor support. Additional cycles of R-MPV nearly doubled the CR rate. Reduced-dose WBRT was not associated with neurocognitive decline, and disease control to date is excellent.

Supported in part by Genentech Inc.

Presented in part at the 40th Annual Meeting of the American Society of Clinical Oncology, June 5-8, 2004, New Orleans, LA; International Society for Neuro-Oncology/European Association for

<http://jco.ascopubs.org/cgi/content/abstract/25/30/4730>

<http://www.brainlife.org/>

NeuroOncology Conference, May 5-8, 2005, Edinburgh, United Kingdom; and the 48th Annual Meeting of the American Society for Therapeutic Radiation and Oncology, November 5-9, 2006, Philadelphia, PA.

Authors' disclosures of potential conflicts of interest and author contributions are found at the end of this article.