Promising Survival Outcomes for Primary CNS Lymphoma Patients Treated with Rituximab, Chemotherapy, and Radiation

Phase I and II Study of Induction Chemotherapy with Methotrexate, Rituximab, and Temozolomide, Followed by Whole-Brain Radiotherapy and Postirradiation Temozolomide for Primary CNS Lymphoma

Philadelphia, PA—Primary central nervous system (CNS) lymphoma is an uncommon brain tumor, and premature death results for a high percentage of patients diagnosed with this type of tumor. The Radiation Therapy Oncology Group (RTOG), now conducting research as NRG Oncology, initiated the trial RTOG 0227 (A Phase I and II Study of Induction Chemotherapy with Methotrexate, Rituximab, and Temozolomide, Followed by Whole-Brain Radiotherapy and Postirradiation Temozolomide for Primary CNS Lymphoma) to examine the 2-year survival rate in this patient population. The clinical trial results, published online May 10th in the Journal of Clinical Oncology, confirms that the regimen was determined to be safe and highly effective.

“This is the first prospective cooperative group study to report the use of rituximab and temozolomide in conjunction with methotrexate followed by hyperfractionated whole-brain radiotherapy for the primary treatment of this disease,” says the trial’s lead author Jon Glass, M.D., from the Department of Neurological Surgery at Thomas Jefferson University. “Our study clearly supports the hypothesis that this regimen is active in primary CNS lymphoma showing promising survival and progression-free survival rates and supports further Phase III testing.”

Thirteen patients were enrolled in Phase I of the study which increased temozolomide (TMZ) doses from 100 to 150 to 200 mg/m². Patients were treated with rituximab 375 mg/m² 3 days before cycle 1; methotrexate 3.5 g/m² with leucovorin on weeks 1, 3, 5, 7, and 9; TMZ daily for 5 days on weeks 4 and 8; hyperfractionated whole-brain radiotherapy (hWBRT) 1.2 Gy twice-daily on weeks 11 to 13 (36 Gy); and TMZ 200 mg/m² daily for 5 days every 28 days on weeks 14 to 50.

In Phase II of the study, 53 patients were treated. The median follow-up was 3.6 years, and 2-year overall survival and progression-free survival rates were 80.8 percent and 63.6 percent, respectively. The objective response rate in Phase II was 85.7 percent. The authors reported that 66 percent of the patients had grade 3 and 4 toxicities attributable to therapy. Cognitive function and quality of life improved or stabilized after therapy.

“This study achieved the best 2-year overall survival and progression-free survival rates in any RTOG primary CNS lymphoma trial,” says Walter J. Curran, Jr., M.D., an NRG Oncology Group Chair and Executive Director of the Winship Cancer Institute of Emory University in Atlanta. “This is a testament to the exemplary efforts of NRG Oncology to define a new standard of care for patients with primary CNS lymphoma. Congratulations to the research team and participating sites for their successes.”
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NRG Oncology conducts practice-changing, multi-institutional clinical and translational research to improve the lives of patients with cancer. Founded in 2012, NRG Oncology is a Pennsylvania-based nonprofit corporation that integrates the research of the National Surgical Adjuvant Breast and Bowel Project, the Radiation Therapy Oncology Group, and the Gynecologic Oncology Group. The research organization seeks to carry out clinical trials with emphases on gender-specific malignancies, including gynecologic, breast, and prostate cancers, and on localized or locally advanced cancers of all types. NRG Oncology’s extensive research organization comprises multidisciplinary investigators, including medical oncologists, radiation oncologists, surgeons, physicists, pathologists, and statisticians, and encompasses more than 1300 research sites located world-wide with predominance in the United States and Canada. NRG Oncology is supported primarily through grants from the National Cancer Institute (NCI) and is one of five research groups in the NCI’s National Clinical Trials Network.