Management of Temozolomide Toxicity by Nurse Practitioners in Neuro-Oncology

Hanneke Zwinkels, RN, MA, ANP, Krista Roon, MD, Frank J.F. Jeurissen, MD, Martin J.B. Taphoorn, MD, Wim C.J. Hop, PhD, and Charles J. Vecht, MD

Purpose/Objectives: To investigate the toxicity of temozolomide (TMZ) in patients with brain tumors and appropriate nursing interventions.

Design: Explorative analysis of prospective data.

Setting: A TMZ clinic led by a nurse practitioner (NP).

Sample: Group A (n = 71) received a standard dose of TMZ daily for five days 200 mg/m² every four weeks; group B (n = 19) received a dose-intense schedule of TMZ daily for 21 days 75 mg/m² every four weeks.

Methods: Toxicities were scored according to National Cancer Institute Common Terminology Criteria, and results in the two groups were compared.

Main Research Variables: Thrombopenia, neutropenia, and lymphopenia; nausea and vomiting; and NP interventions.

Findings: Of observed toxicities during six cycles, grade 3–4 thrombopenia was seen most frequently in group A. Neutropenia and subsequent interventions occurred more frequently in group A than in group B. Subsequent interventions consisted of dose delays and reductions. When patients were treated for a longer duration of time with TMZ, grade 3–4 lymphopenia occurred significantly more often in group B, necessitating *Pneumocystis carinii* pneumonia prophylaxis.

Conclusions: Degree of toxicity using a 5-day 200 mg/m² or 21-day 75 mg/m² schedule every four weeks was similar to that found in other studies.

Implications for Nursing: Through awareness of toxicity in relation to knowledge of brain tumors, NPs can become more effective in active management of TMZ toxicity.

Background

In the Netherlands, the NP is a relatively new role. Reallocation of tasks and responsibilities between nurses and physicians at university hospitals was the conceptual basis of the development of training and education.