ABSTRACT

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Safety of temozolomide use in adult patients with renal dysfunction.

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PURPOSE: Temozolomide (TMZ), a cytotoxic DNA alkylating agent, is the main chemotherapy used for the treatment of high grade astrocytomas. The active alkylator, methylhydrazine, is not recovered in urine and thus renal function is not expected to affect clearance. Prescribing information for TMZ states pharmacokinetics have not been studied in adults with poor renal function, eGFR < 36 mL/min/1.73 m2. We reviewed our clinical experience with TMZ in patients with impaired renal function to evaluate safety of administering full dose TMZ.

METHODS: The primary endpoint was to characterize the incidence and severity of thrombocytopenia in patients with eGFR < 60 mL/min/1.73 m2 who received TMZ for treatment of high grade gliomas (HGG) or primary CNS lymphoma (PCNSL). Secondary endpoints included incidence and severity of neutropenia, lymphopenia hepatotoxicity, and number of TMZ cycles administered. Medical records of patients with HGG or PCNSL treated with TMZ from October 1, 2016-September 30, 2019 were accessed to identify cases for this study.

RESULTS: Thirty-two patients were eligible for this study. Of the seven patients with eGFR < 36 mL/min/1.73m2, 38/39 cycles (97%) were completed without grade 3-4 thrombocytopenia. No patients experienced grade 3-4 neutropenia, and grade 3-4 lymphopenia occurred in 5 cycles (15%). One patient discontinued TMZ 7 days prior to completion of radiation due to thrombocytopenia.

CONCLUSION: Hematologic toxicity in patients with severe renal dysfunction, eGFR < 36 mL/min/1.73m2, is similar to that of patients with normal renal function. Severe renal impairment does not preclude use of temozolomide, but cautious monitoring of blood counts is warranted.

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