Treatment of pituitary neoplasms with temozolomide: a review.

Syro LV, Ortiz LD, Scheithauer BW, Lloyd R, Lau Q, Gonzalez R, Uribe H, Cusimano M, Kovacs K, Horvath E.
Department of Neurosurgery, Pablo Tobon Uribe Hospital and Medellin Clinic, Medellin, Colombia.

Abstract
Temozolomide, an orally administered alkylating agent, is used to treat malignant gliomas. Recent reports also have documented its efficacy in the treatment of pituitary adenomas and carcinomas. Temozolomide methylates DNA and thereby exhibits an antitumor effect. O\(^{6}\)-methylguanine-DNA methyltransferase (MGMT), a DNA repair enzyme, removes alkylating adducts induced by temozolomide, counteracting its effects. The authors of this review conducted a Medline database search regarding temozolomide in the treatment of pituitary tumors. Demographic characteristics, tumor types, and therapeutic responses were noted in all patients. Data regarding MGMT immunoexpression, which was documented in some studies, were correlated with information regarding clinical and radiologic responses. To date, there have been 19 reported cases of adenohypophyseal tumors treated with temozolomide, including 13 adenomas and 6 carcinomas. Ten of those 13 adenomas responded favorably, and 2 nonresponsive tumors had high-level MGMT immunoexpression. All 6 carcinomas responded to therapy, but data regarding MGMT expression were available for only 3 patients, and each had low MGMT expression. In 2 adenomas, morphologic studies were performed both before and after the patients received temozolomide. The responsive tumor had necrosis, hemorrhage, fibrosis, and neuronal differentiation. The nonresponsive tumor had no changes. There have been no reported complications attributable to temozolomide. The current results indicated that temozolomide is efficacious in the treatment of aggressive pituitary adenomas and pituitary carcinomas. Evidence indicated that low-level MGMT immunoexpression is correlated with a favorable response. A significant proportion of pituitary adenomas and carcinomas had low MGMT immunoexpression.

Copyright © 2010 American Cancer Society.

PMID: 20845485 [PubMed - indexed for MEDLINE]