Low incidence of pseudoprogression by imaging in newly diagnosed glioblastoma patients treated with cediranib in combination with chemoradiation.


Abstract

BACKGROUND: Chemoradiation (CRT) can significantly modify the radiographic appearance of malignant gliomas, especially within the immediate post-CRT period. Pseudoprogression (PsP) is an increasingly recognized phenomenon in this setting, and is thought to be secondary to increased permeability as a byproduct of the complex process of radiation-induced tissue injury, possibly enhanced by temozolomide. We sought to determine whether the addition of a vascular endothelial growth factor (VEGF) signaling inhibitor (cediranib) to conventional CRT had an impact on the frequency of PsP, by comparing two groups of patients with newly diagnosed glioblastoma before, during, and after CRT.

METHODS: All patients underwent serial magnetic resonance imaging as part of institutional review board-approved clinical studies. Eleven patients in the control group received only chemoradiation, whereas 29 patients in the study group received chemoradiation and cediranib until disease progression or toxicity. Response assessment was defined according to Response Assessment in Neuro-Oncology criteria, and patients with enlarging lesions were classified into true tumor progressions (TTP) or PsP, based on serial radiographic follow-up.

RESULTS: Two patients in the study group (7%) showed signs of apparent early tumor progression, and both were subsequently classified as TTP. Six patients in the control group (54%) showed signs of apparent early tumor progression, and three were subsequently classified as TTP and three as PsP. The frequency of PsP was significantly higher in the control group.

CONCLUSION: Administration of a VEGF inhibitor during and after CRT modifies the expression of PsP by imaging.

KEYWORDS: Cediranib, Glioblastoma, Pseudoprogression, Vascular endothelial growth factor

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