Methylation status of the MGMT gene promoter fails to predict the clinical outcome of glioblastoma patients treated with ACNU plus cisplatin.


Department of Neurosurgery, Seoul National University College of Medicine, Seoul National University, Seoul, Korea.

We analyzed the methylation status of the O6-methylguanine-DNA methyltransferase (MGMT) promoter using a methylation-specific polymerase chain reaction (MSP) in glioblastoma patients treated with 1-(4-amino-2-methyl-5-pyrimidinyl)methyl-3-(2-chloroethyl)-3-nitrosoureia (ACNU) plus cisplatin followed by radiation therapy. Forty-eight patients with interpretable MSP results were included in this study. The MGMT promoter was methylated in 26 patients (54.2%, methylated group) and unmethylated in 22 patients (45.8%, unmethylated group). Comparison of clinical outcomes between the two groups revealed that the methylation status of the MGMT gene promoter was not a prognostic factor for overall survival (P = 0.516) or a predictive factor for radiological response to ACNU plus cisplatin treatment (P = 0.529). The most noteworthy explanation for the result is that the synergistic antitumor effects of ACNU and cisplatin resulting from inactivation of MGMT by cisplatin in MGMT active tumors offset the drug resistance.

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