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## 13th World Congress on Advances in Oncology

**Individual adjuvant therapy for malignant gliomas based on O6-methylguanine-DNA methyltransferase messenger RNA quantitation by real-time reverse-transcription polymerase chain-reaction**

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**Abstract:**

A new adjuvant therapy, individual adjuvant therapy (IAT), which is individualized according to the results of real-time reverse-transcription polymerase chain-reaction (RT-PCR) for O6-methylguanine-DNA methyltransferase (MGMT), was used to treat malignant gliomas. Immediately after the operation, mRNA expression for drug-resistance genes was investigated in frozen samples of malignant gliomas from 55 patients (30 glioblastoma multiformes, 20 anaplastic astrocytomas and 5 anaplastic oligodendroglial tumors) by real-time quantitative RT-PCR with specific primers for MGMT. Forty-two patients were treated with 1-(4-amino-2-methyl-5-pyrimidinyl) methyl-3-(2-chloroethyl)-3-nitrosourea hydrochloride (ACNU)-based chemotherapies since the relative quantitation value (RQV) of MGMT in real-time RT-PCR with SYBR-Green I was <1.0 or the absolute value of MGMT mRNA as measured by Taq Man probe methods normalized to the level of glyceraldehyde-3-phosphate dehydrogenase (GAPDH) was <6.0x10<sup>3</sup> copies/μg RNA. Thirteen patients, whose tumors had an RQV of >1.0 or who had an absolute value of MGMT of >6.0x10<sup>3</sup> copies/μg RNA, were treated by platinum-based chemotherapy using cisplatin or carboplatin. The response rate was 40.9% for glioblastoma multiformes, 60.0% for anaplastic astrocytomas and 80.0% for anaplastic oligodendroglial tumors. The median survival period of 30 patients with glioblastoma treated by IAT was 21.7 months. The 2-year survival rate of glioblastoma patients treated by IAT was 70.9%. Our IAT, based on the results of real-time RT-PCR, may lead to a beneficial glioma therapy.

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