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MGMT gene promoter methylation in pediatric glioblastomas.

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Abstract

PURPOSE: Relatively few studies have been performed on molecular properties of pediatric glioblastoma multiforme (GBM). Methylation of DNA repair gene O(6)-methylguanine-DNA methyltransferase (MGMT) promoter region has been associated with favorable prognosis and prolonged survival in adult GBM patients treated with temozolomide (TMZ). We explored the frequency of MGMT gene promoter methylation in pediatric glioblastomas and compared it with the known molecular alterations in p53. **METHODS:** Twenty pediatric GBM cases were selected. MGMT promoter methylation was assessed by methylation specific PCR. p53 expression was determined by immunohistochemistry. **RESULTS:** MGMT gene promoter methylation was observed in 50% of pediatric glioblastomas. p53 protein expression was detected in 60% of cases. Seventy percent of cases with methylated MGMT promoter were p53 immunopositive. **CONCLUSIONS:** The frequency of MGMT gene promoter methylation in pediatric GBMs was similar to adult GBM patients. The pediatric GBMs should also be investigated for MGMT promoter methylation to identify a subset of patients likely to benefit from TMZ therapy. p53 protein overexpression was more common in pediatric primary GBMs. To the best of our knowledge this is only the second study on MGMT gene promoter methylation status in pediatric GBMs.

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