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# Update on molecular findings, management and outcome in low-grade gliomas.

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## Abstract

Low-grade infiltrating gliomas in adults include diffuse astrocytoma, oligoastrocytoma and oligodendroglioma. The current gold standard diagnosis of these tumors relies on histological classification; however, emerging molecular abnormalities discovered in these tumors are playing an increasingly prominent part in the process of tumor diagnosis and, consequently, patient management. The frequency and clinical importance of tumor protein p53 (TP53) abnormalities, deletions involving chromosomes 1p and 19q, O(6)-methylguanine-DNA methyltransferase (MGMT) promoter methylation status, abnormalities in the PTEN tumor suppressor gene and the BRAF oncogene, and isocitrate dehydrogenase (IDH) mutations have become better defined. Molecular markers have not, historically, had an important role in determining the course of treatment for patients with low-grade gliomas, but ongoing phase III clinical trials incorporate 1p deletion or 1p19q codeletion status-and future trials plan to incorporate MGMT promoter methylation status-as stratification factors. Future trials will need to incorporate IDH mutational status in addition to these factors. Ultimately, molecular marker assessment will, hopefully, improve the accuracy of tumor diagnosis and enhance the effectiveness of treatment to achieve improved patient outcomes.

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