

## ABSTRACT

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Current Considerations in the Treatment of Grade 3 Gliomas.

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Treatment recommendations for grade 3 gliomas are guided by their histopathologic and molecular phenotype. In the 2021 WHO classification, these tumors are categorized into two types, grade 3 IDH mutant (IDHmt), 1p/19q codeleted oligodendroglioma and IDH mutant astrocytoma. Treatment consists of maximal safe surgery, followed by radiation therapy (RT) and alkylating agent-based chemotherapy. Based on the updated CATNON result, RT followed by temozolomide improves outcome in patients with non-codeleted grade 3 IDHmt astrocytoma. In patients with IDHmt, codeleted oligodendroglioma, the addition of procarbazine, CCNU, and vincristine regimen is the recommended treatment, based on large randomized controlled trials. These current treatments prolong the overall survival to up to 10 years in patients with grade 3 IDHmt astrocytoma and 14 years in grade 3 IDHmt codeleted oligodendroglioma. Treatment options at recurrence include re-resection, re-irradiation, and other cytotoxic chemotherapy; however, these are of limited benefit. Novel agents targeting IDH mutation and its metabolic effects are currently under investigation to improve the outcome of these patients.

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