Predictors of seizure freedom after resection of supratentorial low-grade gliomas.

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Abstract
Object Seizures are the most frequent presenting symptom in patients with low-grade gliomas (LGGs), and significantly influence quality of life if they are uncontrolled. Achieving freedom from seizures is of utmost importance in surgical planning, but the factors associated with seizure control remain incompletely understood. Methods The authors performed a systematic literature review of seizure outcomes after resection of LGGs causing seizures, examining 773 patients across 20 published series. Rates of seizure freedom were stratified across 7 variables: patient age, tumor location, preoperative seizure control with medication, seizure semiology, epilepsy duration, extent of resection, and the use of intraoperative electrocorticography (ECoG). Results Gross-total resection was most predictive of complete seizure freedom, when compared with subtotal resection (OR 3.41, 95% CI 2.36-4.93). Other predictors of seizure freedom included preoperative seizure control on antiepileptic medication (OR 2.12, 95% CI 1.33-3.38) and duration of seizures of ≤ 1 year (OR 1.85, 95% CI 1.22-2.79). Patients with simple partial seizure semiology achieved seizure freedom less often than those with complex partial, generalized, or mixed seizure types (OR 0.46, 95% CI 0.26-0.80). No significant differences in seizure outcome were observed between adults versus children, patients with temporal lobe versus extratemporal tumors, or with the use of intraoperative ECoG. Conclusions Seizure control is one of the most important considerations in planning surgery for low-grade brain tumors. Gross-total resection is a critical factor in achieving seizure freedom.

PMID: 21529134 [PubMed - as supplied by publisher]