



Posterior fossa meningiomas: perioperative predictors of extent of resection, overall survival and progression-free survival

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BACKGROUND: Posterior fossa meningiomas (PFMs) often represent surgical challenges due to their proximity to neurovascular structures. Factors predicting the extent of resection (EOR), overall survival (OS), and progression-free survival (PFS) were identified and integrated in a prediction tool to offer evidence-based personalized therapeutic strategies.

METHODS: All meningiomas managed surgically from 1990 to 2010 from a single-center were reviewed. A classification tree was created using the classification and regression tree recursive partitioning analysis that incorporated patient and tumor data available before surgery in order to predict the rates of gross total resection (GTR).

RESULTS: A total of 198 patients were identified (female-to-male ratio, 2.7; mean age, 59.1 years) and compared with 1271 supratentorial meningiomas (STMs) operated in the same institution during the same time period. GTR was achieved less often (59.6% versus 81.9%; $p < 0.01$) in PFMs than STMs. Preoperative neurological symptoms were predictive of higher Simpson grades (OR, 2.19 [1.05; 4.58]; $p = 0.04$). Age was associated with reduced OS (OR, 1.08 [1.04;1.12]; $p < 0.001$). A KPS ≥ 70 was associated with higher survival rates (OR, 2.70 [2.19;2.92]; $p = 0.02$). Higher WHO grades were associated with reduced OS (OR, 3.56 [1.02;12.47]; $p = 0.05$). The GTR rate varies from 80% in patients without a preoperative deficit to 40% patients with a preoperative deficit, younger than 60 years old, and with adjacent bone invasion.

CONCLUSIONS: This study provides a classification tree of the predictors of EOR in PFMs, based upon preoperative demographic, clinical, and radiological variables. An evidence-based management protocol with estimated EORs may guide the decision-making process in PFMs.

Résumé en anglais

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