

A Model for Early Prediction of Facial Nerve Recovery After Vestibular Schwannoma Surgery.

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Source

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Abstract

OBJECTIVE: To identify early predictors of long-term facial nerve function after vestibular schwannoma resection.

STUDY DESIGN: Retrospective chart review.

SETTING: Tertiary referral center.

PATIENTS: Subjects with facial nerve weakness despite anatomic preservation of the nerve after removal of vestibular schwannoma.

INTERVENTION: Surgical resection of vestibular schwannoma.

MAIN OUTCOME MEASURE: Facial function after 1 postoperative year. Independent variables included patient demographics, presenting symptoms, tumor size and location, and serial postoperative function within the first year.

RESULTS: Among 281 patients with postoperative facial weakness, 81% improved to a House-Brackmann (HB) III or better (good outcome) after 12 months of recovery, whereas 12% remained HB IV or worse (poor outcome). For patients starting with HB V or VI function, recovery rate was the most reliable predictor of poor outcome after 1 year. The resulting predictive model using rate of functional improvement as the independent variable was found to anticipate poor outcome before 1 year in more than 50% of cases with 97% sensitivity and 97% specificity. Although associated with facial nerve outcome, tumor size, tumor vascularity, preoperative facial function, age at surgery, and ability to stimulate the nerve intraoperatively did not contribute significantly to the predictive model.

CONCLUSION: The rate of recovery within the first postoperative year serves as a useful early predictor of long-term facial nerve function. We present a novel predictive model using rate of recovery that can be used to select candidates for reanimation surgery sooner than the traditional waiting period of 1 year, potentially improving the outcome of this intervention.