

Morbidity and Mortality Following Acoustic Neuroma Excision in the United States: Analysis of Racial Disparities During a Decade in the Radiosurgery Era

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Introduction

Acoustic neuromas present a challenging problem, with the major treatment modalities involving operative excision, stereotactic radiosurgery, observation, and fractionated stereotactic radiotherapy. The morbidity/mortality following excision may differ by patient race. To address this concern, the morbidity of acoustic neuroma excision was assessed on a nationwide level.

Methods

The Nationwide Inpatient Sample from 1994-2003 was used for analysis. Only patients admitted for acoustic neuroma excision were included (ICD-9-CM=225.1; primary procedure code=04.01). Analysis was adjusted for several variables including patient age, race, sex, primary payer for care, income in ZIP code of residence, surgeon caseload, and hospital caseload.

Results

Multivariate analyses revealed that postoperative mortality following acoustic neuroma excision was 0.5%, with adverse discharge disposition of 6.1%. The odds ratio for mortality in African-Americans compared to Caucasians was 8.82 (95% CI=1.85-41.9, $p=0.006$). Patients with high-caseload surgeons (more than two excisions/year), private insurance, and younger age had decreased mortality, better discharge disposition, and lower overall morbidity ($p<0.04$). Neither hospital caseload nor median income were predictive factors.

Conclusions

High surgeon caseload, private insurance, and younger patient age independently predict improved postoperative outcomes following acoustic neuroma excision. African-Americans were nine times more likely to die following surgery than Caucasians over a decade-long analysis. Given the relatively benign natural history of acoustic neuroma and the alarmingly increased mortality rate following surgical excision among older patients, African-Americans, and patients receiving care from low-caseload surgeons, acoustic neuromas in these patient populations may be best managed by more minimally invasive modalities such as observation, fractionated stereotactic radiotherapy, or stereotactic radiosurgery.

Learning Objectives

1. To understand the postoperative mortality following acoustic neuroma surgical excision
2. To understand the differences in mortality between African-Americans and Caucasians undergoing surgery for acoustic neuroma excision
3. To understand the impact of surgeon caseload, private insurance and patient age on mortality following acoustic neuroma surgical excision.

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