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INTRODUCTION

Patients who undergo vestibular schwannoma (VS) resection are at risk for a prolonged length of stay (LOS) and discharge to a destination other than home given the intensive perioperative care requirements and potential for neurologic complications. Extended hospital stays and discharge to facilities contribute substantially to healthcare costs. Identifying factors that predict these outcomes is critical for guiding interventions that reduce inpatient resource utilization and overall VS treatment cost.

METHODS

Patient Population

Retrospective cohort study

Patients who underwent VS resection at a large urban tertiary care center
2004-2024 (n = 484)

Predictor Variables

Demographics: Age, sex, race, ethnicity, primary language, insurance

Clinical Features: Body Mass Index, Charlson Comorbidity Index, Neurofibromatosis II status, pre-treatment hydrocephalus, preoperative tumor size

Treatment Features: Initial vs. recurrence treatment, ≥ 6 -month observation prior to surgery, surgical approach, operative time, extent of resection

Outcome Variables

Length of Stay (LOS) $>75^{\text{th}}$ percentile and $\leq 75^{\text{th}}$ percentile

Discharge Location (Home vs. Non-home)

Analysis

Predictors with $p \leq 0.20$ on univariate analysis were entered into multivariable logistic regression for extended LOS and non-home discharge; aORs are reported.

RESULTS

Length of Stay $>75^{\text{th}}$ Percentile (23%)

Demographics

- Other Race ($p=0.03$)
- Hispanic/Latino ($p=0.004$)
- Non-English Language ($p=0.008$)
- Medicaid ($p=0.001$)

Clinical Factors

- Hydrocephalus ($p<0.001$)
- Larger Tumor Volume ($p<0.001$)

Treatment Factors

- Longer Operative Time ($p<0.001$)
- Non-Home Discharge ($p<0.001$)

Key Predictors

↑ Hydrocephalus 3.1x

↑ Operative Time 1.82x per hour

Non-Home Discharge (16%)

Demographics

- Older Age ($p<0.001$)
- Medicare ($p<0.001$)

Clinical Factors

- Hydrocephalus ($p<0.001$)
- Larger Tumor Volume ($p<0.001$)
- Higher Charlson Comorbidity Index ($p<0.001$)

Treatment Factors

- Initial treatment (vs recurrence) ($p=0.01$)
- Longer Operative Time ($p<0.001$)
- Longer LOS ($p<0.001$)

Key Predictors

↑ Hydrocephalus 4.0x

↑ Operative Time 1.82x per hour

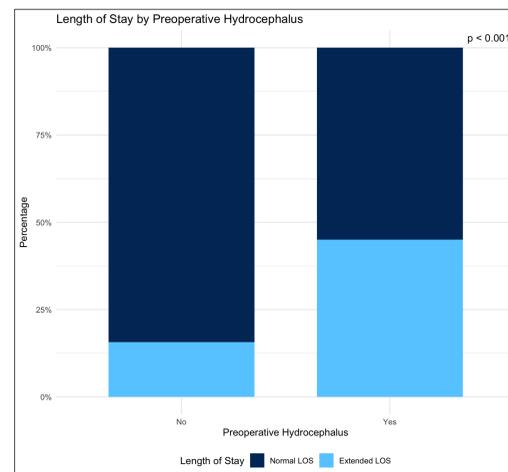


Figure 1. Length of Stay by Preoperative Hydrocephalus
Extended LOS $> 75^{\text{th}}$ percentile (5 days)

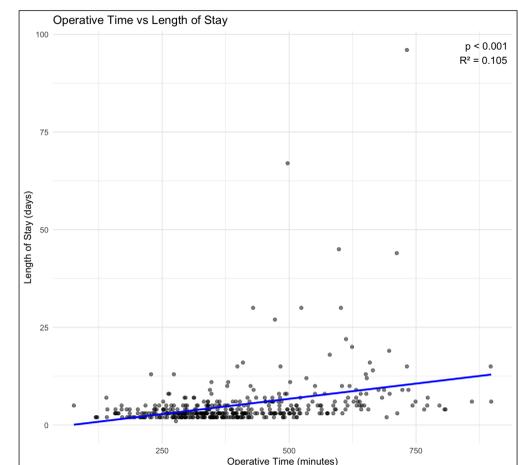


Figure 2. Operative Time (minutes) vs Length of Stay (days)

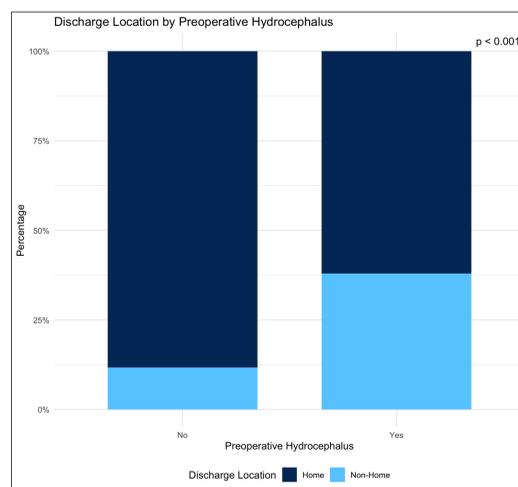


Figure 3. Discharge Location (Home vs. Non-Home) by Preoperative Hydrocephalus

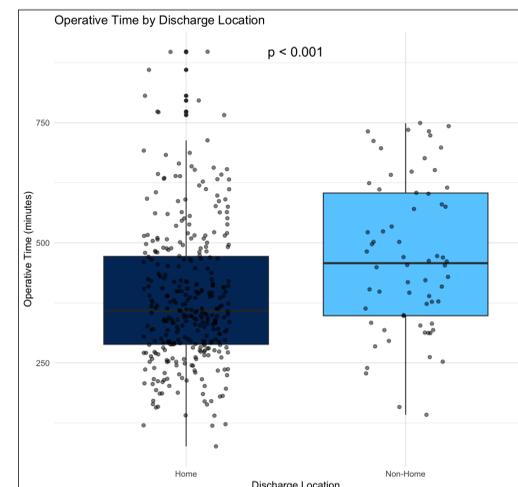


Figure 4. Operative Time (minutes) by Discharge Location (Home vs. Non-Home)

CONCLUSIONS

- Preoperative hydrocephalus and longer operative time are independently associated with prolonged LOS and non-home discharge
- These findings may help identify patients who require more intensive inpatient care and enhanced discharge planning
- Future research should clarify drivers of discharge disposition and prolonged LOS to establish targeted strategies that can reduce morbidity and healthcare utilization