

Introduction

The purpose of this study was to determine factors that predict poor surgical outcome following ventricular shunting (VS) for normal pressure hydrocephalus (NPH) in a large, privately insured healthcare network.

Methods

Complication rates and outcomes for adults undergoing VS for NPH were determined using de-identified insurance claims from a private healthcare network from 2007-2014 (OptumInsight). Cases of NPH, surgical procedures, complications, and outcomes were identified using ICD and CPT codes. The primary outcome variable was poor surgical outcome, defined as any major perioperative complication code or readmission within 30 days.

Results

There were 974 patients with NPH who underwent VS. The 30-day readmission rate was 7.29%. The perioperative complication rate was 21.15% and the highest complication rates were for intraparenchymal hemorrhage (5.85%) and subdural or epidural hematoma (5.54%). The overall rate of poor surgical outcome (30-day readmission or major complication code) was 25.15%. Multivariate modeling was performed using the following preoperative comorbidities as predictors of poor surgical outcome: age at time of surgery, myocardial infarction, congestive heart failure, peripheral vascular disease, cerebrovascular disease, chronic obstructive pulmonary disease, dementia, paralysis, diabetes, diabetes with complications, renal disease, mild liver disease, moderate/severe liver disease, peptic ulcer disease, rheumatologic disease, AIDS, and hypertension. The results demonstrated that the preoperative comorbidities independently associated with poor surgical outcome were myocardial infarction within one year (OR = 3.984, 95% CI = 1.105-14.368); existing cerebrovascular disease (OR = 2.206, 95% CI = 1.544-3.152); and moderate/severe renal disease (OR = 2.000, 95% CI = 1.155-3.464).

Conclusions

The rate of complications or readmission after VS for NPH is high (25.5%) and this should be communicated to patients during pre-operative counseling. Preoperative comorbidities of myocardial infarction within one year, cerebrovascular disease, and moderate/severe renal disease are independent risk factors for poor surgical outcome.

Learning Objectives

By the conclusion of this session, participants should be able to

- 1) Identify the major risk factors for poor surgical outcome after ventricular shunting for normal pressure hydrocephalus; and
- 2) Understand how to counsel patients pre-operatively on their perioperative complication and readmission risk following ventricular shunting for normal pressure hydrocephalus.

[Default Poster]