

Introduction

There is extensive debate on the role of fixed pressure shunts in the adult population. Most studies available assessing fixed pressure valves are dated and do not consider the potential for changes in technique and management of shunts. We sought to examine the natural history of fixed pressure shunts in a modern cohort.

Methods

We conducted a retrospective chart review of all patients undergoing shunt placement by the senior author (DW) from January 2000 to March 2017. Patient demographic and outcome data was acquired. The etiology of shunt placement and shunt failure was assessed for each patient. The financial data from April 2013 to November 2016 was available and used to compare costs between the cohort in question and patients receiving programmable valves from other providers.

Results

One hundred twenty-six patients underwent initial shunt placement by the senior author during this time period. Thirty-three (26.2%) patients required at least one shunt revision during follow-up. The most common cause of first time revision was mechanical shunt malfunction (13, 39.4%), followed by infection (7, 21.2%), and shunt migration (6, 18.2%). Three patients (9.1%) required revision due to misplaced catheters. Underdrainage or overdrainage of shunts each resulted in revisions for 2 (6.1%) patients. The mean follow-up length was 28.1 ± 6.1 months. Programmable valve shunts were found to be more expensive than fixed valve shunts. (\$3307 vs. \$772, respectively).

Conclusions

Fixed pressure shunt revision occurred most commonly in patients developing hydrocephalus as a result of hemorrhage or NPH, with mechanical shunt malfunction being the primary reason for failure. The overall failure rate between these two groups was proportionally equivalent. Either overdrainage or underdrainage were found to be rare indications for revision. The costs associated with programmable shunt placement were greater than in fixed pressure valves.

Learning Objectives

Understand the historical concerns regarding fixed pressure shunts

Examine the data in a modern cohort regarding complication rates for fixed pressure shunts

Consider the financial implications between fixed and variable pressure valve shunts

References

Uncategorized References

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