Success with a Comprehensive Shunt "Bundle" to Reduce Infections Rates for Pediatric Shunt Patients

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Introduction

Shunt infection continues to plague most pediatric neurosurgeons.

A spike to 16% in 2010 prompted a mandatory protocol for insertions and revisions using evidence based research. We present our experience over the past five years with a comprehensive shunt bundle including pre, intra, and post operative care.

Methods

Over 300 cases have been reviewed after shunt bundle implementation and compliance with components analyzed as well as quarterly infection rates. Chi square and p values were calculated to perform logistical regression analysis associated with infection rates.

Results

Infection rates have decreased to 3-4% average since bundle implementation. Two main factors impaired full compliance, excess staff in OR (general surgery assisted cases and anesthesia staff) and children rushed to the OR from the ED without full skin cleansing. Compliance was still over 80%. Statistical analysis showed the only factor associated with increased infection rate was discharge before antibiotic postoperative dose completion.

Conclusions

Our protocol is unique in that pre, intra, and postoperative elements are included. Infection rates have remained lower than national averages since implementation, but an effort is being made to simplify it further to increase compliance. Multi-center research is being conducted to reduce infection rates (HCRN), but we share our experience with a comprehensive protocol that has met with success.

Learning Objectives

Identify risk factors for shunt infection.

Describe care elements that can reduce infection.

Identify barriers to compliance with protocols.

References

A standardized protocol to reduce cerebrospinal fluid shunt infections.

Kestle, et al. JNS Pediatrics 8: 22-29, 2011