Evidence-based Protocol Implementation to Prevent External Ventricular Drain Infection – 5-year Experience

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Introduction

• External Ventricular Drain (EVD)
  - monitoring of intracranial pressure (ICP)
  - drainage of cerebral spinal fluid (CSF)
• EVD associated ventriculitis are causes of significant morbidity and mortality
• Implementation of an evidence-based protocol to prevent EVD infection since 1 January 2014
• Objective:
  - to target a zero EVD infection
  - to review the result after 5-year implementation
Methodology

The protocol includes 3 parts:

1. **EVD Insertion** – peri-operative antibiotics, 2% Chlorhexidine in alcohol as disinfectant, fixation of EVD

2. **Dressing** – Strict aseptic technique. Chlorhexidine gluconate patch is applied to the EVD exit site

3. **EVD Manipulation** – Strict aseptic technique. 2% Chlorhexidine in alcohol as disinfectant.

   Avoid unnecessary manipulation

   • Both plain and antibiotic-impregnated catheters were used
   • Other than the peri-operative antibiotics given, no routine prophylactic antibiotics during the course of CSF drainage
Results

- Data from 1 January 2014 to 31 December 2018
- 628 EVDs in 551 patients, with 5518 catheter-days
- Duration of EVD placement from 1 to 34 days
- Primary diagnoses including intracerebral haemorrhage, subarachnoid haemorrhage, traumatic brain injury and brain tumour
- Exclusion: Pre-existing central nervous system (CNS) infection & those with cranial-facial and cranial-nasal pathology which is known to have association with CNS infection
- One case of ventriculitis has been identified
Conclusion

• By implementing the evidence-based protocol, EVD related CNS infection has been effectively minimized
• The objective of the protocol is achieved
• Continue the practice so as to provide the safest and best care to our patients