The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynyk and Fineout-Overholt (2011).

I  Evidence obtained from a systematic review of all relevant randomised control trials.

II Evidence obtained from at least one well designed randomised control trial.

III Evidence obtained from well-designed controlled trials without randomisation.

IV Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case-series

V Evidence obtained from systematic reviews of descriptive and qualitative studies

VI Evidence obtained from single descriptive and qualitative studies

VII Expert opinion from clinicians, authorities and/or reports of expert committees or based on physiology


<table>
<thead>
<tr>
<th>Reference (include title, author, journal title, year of publication, volume and issue, pages)</th>
<th>Evidence level (I-VII)</th>
<th>Key findings, outcomes or recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Adelson, P., et al. (2003). <em>Intracranial pressure monitoring</em>. Paediatric Critical Care, 4(3) (suppl.):S28–S30</td>
<td>VII</td>
<td>ICP monitoring is accurately done via external ventricular catheters or from catheter tip pressure transducers. Overall safe practice, clinically significant complications occur infrequently,</td>
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<tr>
<td>2. Bisnaire, D., Robinson, L. (1997). <em>Accuracy of Leveling Intraventricular Collection Drainage Systems</em>. Journal of Neuroscience Nurses 29(4):261–268</td>
<td>VII</td>
<td>Studies found that nurses were unable to accurately level an evd using visual means only, use of a tool such as a carpenter’s level/ laser level improved accuracy dramatically. Laser level for EVD height improved patient safety.</td>
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<tr>
<td>4. Institute for healthcare Improvement. (2012). <em>IHI central Line Bundle: Chlorhexidine Skin Antisepsis</em>.</td>
<td>VII</td>
<td>Using chlorhexidine solution use a back and forth friction scrub at least 30 seconds, and allow the solution time to dry completely, can take up to 2 minutes</td>
</tr>
<tr>
<td>5. Pope, W. (2007). <em>External Ventriculostomy: a practical application for the acute care nurse</em>. American Association of Neurosciences Nurses 30(3):185–195</td>
<td>VII</td>
<td>EVD’s are catheters placed into the ventricular space, used to drain off excess CSF that causes issues such as hydrocephalus and ICP, causes of hydrocephalus include tumors, hemorrhage. Nursing aims when nursing patient with an EVD need to monitor for infection, bleeding, and document hourly drainage, colour, dressing appearance.</td>
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VII

Common indications for raised ICP include head injury, subarachnoid haemorrhage, posterior fossa tumours, acute hydrocephalus and meningitis. Ventricular system anatomy included, flow of CSF, secretion and amount discussed. Signs and Symptoms of raised ICP for infants and Children discussed. Procedure documentation with rationale, sampling of CSF from an EVD.

7. Royal Children’s Hospital. (2008). Central venous access device insertion and management. Royal Children’s Hospital, Hospital Clinical Guidelines: 1-7

VII

RCH hospital guideline on Central Venous Access Device Insertion and Management, evidence of cleaning practice relates to principles used in cleaning practice of an EVD, and sampling.


VII

Discussions on prevention of infection and the strict adherence to aseptic technique required. No specific studies on the cleaning of evd access ports; research is needed on this topic, this literature states the best evidence/data supporting cleaning of EVD ports are from CVAD literature. Lumbar drain devices, equipment and patient assessment.


VII

Documentation on setup and priming of EVD systems, how to zero evd, with transducer, transporting and positioning of patient. Codman express monitors and its use in ICP monitoring.


VII

Collection of CSF from a Ventricular Drain, practice and equipment required, cleaning product chlorhexidine 0.5% in alcohol 70% used, to clean access ports on EVD’s


VII

For assessment and Care the Neuroscience nurse needs to be able to recognize signs of infection, in children with shunts. Most frequent organisms found from shunt related infections include gram positive (staphylococcus epidermis and staphylococcus aurous.)
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<td>VII</td>
<td>Resuscitation priorities of a traumatic brain injury cases.</td>
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