Post-Dural Puncture Headache in a Pediatric Patient with Pseduotumor Cerebri

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POST-DURAL PUNCTURE HEADACHES (PDPH)

Difference in incidence of PDPH in adult versus pediatric population thought to be due to CSF pressure being less and CSF production rate being greater in pediatric population.

<table>
<thead>
<tr>
<th>Adult</th>
<th>Pediatric</th>
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<tbody>
<tr>
<td>INCIDENCE OF PDPH AFTER LP</td>
<td>10-30%</td>
</tr>
<tr>
<td>CSF PRESSURE</td>
<td>10-25 cmH2O</td>
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<tr>
<td>CSF PRODUCTION RATE</td>
<td>20 cc/hour</td>
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</tbody>
</table>

MANAGEMENT OF PDPH IN PEDIATRICS

CONSERVATIVE MANAGEMENT

- Bed rest, supine position
- Impractical in active child
- IV fluids if cannot tolerate PO
- Caffeine—limited studies in pediatric population
- Side effects: restless, nervous, insomnia
- Pain management (NSAIDs, APAP, Opioids)
- 24-48 hours: patients may not tolerate this

CONSIDERATIONS FOR EBP

- GA vs. sedation?
- Ketamine sedation used successfully
- Autologous blood volume 0.2-0.3 cc/kg
- Limited studies for maximum volume in pediatric population
- In Pedi-Onc population risk introducing malignant cells to the CSF
- Risk of metabolic acidosis (Acetazolamide, topiramate)

DISCUSSION

PTC is a rare pediatric condition without any identifiable pathology. This patient has PTC causing papilledema requiring serial LP in addition to medical treatment with acetazolamide. Paradoxically, he develops low pressure PDPH after therapeutic LP. Decision points include treatment options to use for conservative therapy, as well as whether to provide EBP under general anesthesia versus sedation. If pursuing EBP, there is a chance that intervention may worsen persistent hydrocephalus and papilledema, a finding that has not been discussed in the pediatric literature. There are many case reports of EBP after placement of lumbo-ventral shunt (LPS) in adult patients with pseudotumor cerebri, as well as in pediatric patients without diopthac ic intracranial hypertension. If PDPH occurs after surgery such as LPS or ventrico-peritoneal shunt (VPS), proceeding with EBP would provide symptomatic relief and theoretically reduce the risk of worsening PTC. Preventive measures such as using smaller gauge and pencil point needles have been shown to decrease risk of developing PDPH. However, in cases of therapeutic LP specifically for CSF drainage, smaller gauge needles may not be the best option as they will slow down the rate of drainage, prolonging the procedure. This case exemplifies the need to develop a system for patients with this ailment that decreases the risk of PDPH after treatment for their underlying condition.