Weak evidence supports treatment of post-dural puncture headache with an epidural blood patch

Clinical Problem: A 35-year-old man presents with a 5-day history of a typical post-lumbar puncture headache which has been refractory to conservative treatment with bedrest.

Clinical Question: How effective is the epidural blood patch (EBP) for the treatment of post-lumbar puncture headaches? What are the side-effects of treatment?


Clinical Bottom Lines:
1. In a small randomized trial of 12 patients, epidural blood patch was more effective than placebo. NNT 1.2 (0.9, 1.9)
2. Epidural blood patch was more effective than epidural saline infusion. NNT 2.5 (1.6, 6.6).
3. In two case series, epidural blood patch was effective in 90% of cases in the short term (hours to days) and 61% of cases at 4 weeks.
4. The most common side effect in all studies was back pain. Overall side effects occurred in 25 to 100% of cases. NNT 1.2 (0.9, 1.9)
5. There are no large randomized controlled trials.

The Evidence:
1) Randomized blinded controlled trial of 12 patients with more than a 4-day history of post-dural puncture headache secondary to spinal anaesthetic or myelography. Treatment consisted of 10 to 20 ml of EBP. Outcome was complete headache resolution at 24 hours and 15 days.
2) Randomized non-blinded controlled trial of 43 obstetrical patients with post-dural puncture headache secondary to spinal or epidural anaesthesia. Treatment consisted of 30 ml of epidural saline or 10 ml of EBP. Outcome assessment occurred at 24 hours. Results were reported for 25 and 17 gauge needles.
3) Prospective case series of 81 patients treated with EBP. Patients were randomized to 10 or 15 ml of EBP. No difference was found between groups.
4) Prospective case series of 118 patients treated with EBP.

Data:
Reference 1: Epidural Blood Patch (EBP) vs. Placebo (Skin puncture only)

<table>
<thead>
<tr>
<th></th>
<th>Rate of Effective Treatment in EBP Group n = 6</th>
<th>Rate of Effective Treatment in Placebo Group n = 6</th>
<th>ARR</th>
<th>NNT</th>
<th>95% C.I. (NNT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache Resolution</td>
<td>0.83</td>
<td>0.0</td>
<td>0.83</td>
<td>1.2</td>
<td>0.9 to 1.9</td>
</tr>
<tr>
<td>Side Effects</td>
<td>1.00</td>
<td>0.17</td>
<td>0.83</td>
<td>1.2</td>
<td>0.9 to 1.9</td>
</tr>
</tbody>
</table>

Reference 2: EBP vs. Epidural Saline

<table>
<thead>
<tr>
<th>Size of Dural Puncture Needle</th>
<th>Rate of Effective Treatment in EBP Group</th>
<th>Rate of Effective Treatment in Saline Group</th>
<th>ARR</th>
<th>NNT</th>
<th>95% C.I. (NNT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 gauge</td>
<td>1.0 (11/11)</td>
<td>0.60 (9/15)</td>
<td>0.40</td>
<td>2.5</td>
<td>1.6 to 6.6</td>
</tr>
<tr>
<td>17 gauge</td>
<td>0.73 (8/11)</td>
<td>0.0 (0/6)</td>
<td>0.73</td>
<td>1.4</td>
<td>1.0 to 2.1</td>
</tr>
</tbody>
</table>

Reference 3: Case Series of 81 patients with post-dural puncture headache

Results: at 4 hours - 91% complete relief
          at 4 weeks - 61% complete relief
Side Effects: backache - 25%, dizziness - 3%, auditory disturbances - 3%, fatigue - 1%, nausea - 1%, cold legs - 1%

Reference 4: Case Series of 118 patients with post-dural puncture headache
Results: 89% complete relief with first EBP
97.5% complete relief with first or second EBP
Side Effects: - during procedure: backache - 2%, paraesthesia - 1%, neckache 1%, dural puncture - 1%
- post procedure: backache - 42%, transient fever - 5%, neckache -1%

Comments:
Study 1: randomized, blinded including sham procedure; applicable to our patients; side effects quantified; very small numbers; no concealment of randomisation.
Study 2: randomisation method explained; moderate numbers; not blinded; no side effects quantified; unknown duration of symptoms.
Studies 3 and 4: prospective; side effects reported; long follow up in #3; no placebo; unknown natural history.

References:

Key Words: headache, lumbar puncture, treatment

Appraiser: Mary Jenkins and the UWO Evidence Based Neurology Group

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