approach of interscalene block with its proximity to neural structures.

**Declaration of interest**

None declared.

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**Acupuncture for treatment of therapy-resistant post-dural puncture headache: a retrospective case series**

Editor—Post-dural puncture headache (PDPH) is a severe iatrogenic complication after epidural anaesthesia, spinal anaesthesia, or lumbar puncture. Current empirically based therapies of PDPH often provide insufficient pain reduction. Untreated or therapy-resistant PDPH may seriously reduce the quality of patients’ life and lead to recurrent hospital admissions.

We describe five consecutive female patients with PDPH, where acupuncture was successfully used to treat the headache. Two patients developed PDPH after spinal block for foot surgery and three parturients after accidental dural puncture during epidural anaesthesia. Standard conservative therapy included recumbency, fluid infusion, and systemic analgesia (for details, see Table 1). In all these cases, standard conservative therapy of PDPH failed to improve the symptoms. The patients were all asked if they wanted to try acupuncture before epidural blood patch was considered. All patients gave their informed consent before treatment with acupuncture and the local ethic commission approved this investigation.

Stainless steel disposable acupuncture needles with a diameter of 0.25 mm and length 25 mm were inserted bilaterally (if appropriate) to a depth of 1–2 cm depending on the underlying anatomical structures and were not manipulated. After insertion, the needles remained in place for 25–30 min. Acupuncture points where chosen from the list: BL 2, BL 10, BL 60, BL 62, GB 20, LI 4 LR3, and SI 3 (Fig. 1), which was recommended for treatment of headache by the experts. For auricular acupuncture, the needles were inserted bilaterally at points MA-TF1, MA-AH9, and MA-AT1.

All patients reported more than 50% reduction in PDPH intensity immediately after the acupuncture treatment (Table 1). In three cases, acupuncture was repeated on the next day. In all cases, the analgesics were stopped or their dose was decreased in the hours following acupuncture treatment. None of the patients required treatment with a blood patch. After acupuncture, the patients returned to normal daily activities and were discharged home without further delay.

Our observation supports two previous case series, where six out of eight parturients with PDPH due to accidental dural puncture during application of epidural anaesthesia were successfully treated with acupuncture and thus avoided more aggressive therapy like epidural blood patch. The resolution of headache after acupuncture in all these cases, including five patients from our report, could have been due to: (i) specific effects of acupuncture; (ii) non-specific (including non-specific physiological and psychological–placebo) effects; or (iii) the natural course of the disorder that resolves spontaneously between 1 week and 6 months. Three patients reported relapse of the headache after a first application of the needles, which allow the assumption that the condition was not spontaneously resolving at that time-point. Unfortunately, we did not perform the 6 month follow-up in order to reveal the potential late recurrence of PDPH, which should be done in future investigations.

It seems that acupuncture has the potential of an easy to apply, low-risk therapeutic alternative before escalation to invasive blood patching. Randomized trial using acupuncture as
an add-on to standard therapy would help evaluate the role of acupuncture as an option for PDPH treatment.

**Declaration of interest**
None declared.

**Table 1** Clinical features of five patients, who received acupuncture to treat therapy-resistant PDPH after neuraxial block. NB, neuraxial block; SpA, spinal anaesthesia; EDA, epidural anaesthesia; PDPH, post-dural puncture headache; A, acupuncture

<table>
<thead>
<tr>
<th>No.</th>
<th>Age (yr)</th>
<th>Medical condition</th>
<th>NB (day 0)</th>
<th>PDPH onset (Day after NB)</th>
<th>PDPH intensity (NRS-11)</th>
<th>Analgesics (daily doses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>39</td>
<td>Hallux valgus correction</td>
<td>SpA</td>
<td>1</td>
<td>5</td>
<td>9, 1</td>
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<tr>
<td>2</td>
<td>42</td>
<td>Club foot surgery</td>
<td>SpA</td>
<td>1</td>
<td>4, 5, 6</td>
<td>9, 8, 1, 2, 1, 0</td>
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<tr>
<td>3</td>
<td>30</td>
<td>Delivery and episiotomy</td>
<td>EDA</td>
<td>2</td>
<td>6</td>
<td>9, 1</td>
</tr>
<tr>
<td>4</td>
<td>25</td>
<td>Delivery and episiotomy</td>
<td>EDA</td>
<td>2</td>
<td>5, 6</td>
<td>8, 2, 2</td>
</tr>
<tr>
<td>5</td>
<td>23</td>
<td>Caesarean section</td>
<td>SpA</td>
<td>4</td>
<td>4, 5</td>
<td>6–7, 6–7</td>
</tr>
</tbody>
</table>

**Fig 1** Acupuncture points used for treatment of therapy-resistant PDPH. For precise anatomical localization, see references (4) and (5).

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