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Sphenopalatine ganglion block for the treatment of post-dural puncture headache in paediatric patients

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Editor—Lumbar puncture is a common clinical procedure, widely used in the diagnosis of CNS infections in children. post-dural puncture headache after lumbar puncture is a relatively frequent complication with a reported incidence rate of 5–6% in paediatric populations.[1] Sphenopalatine ganglion block for the treatment of post-dural puncture headache is minimally invasive, easy to perform and does not appear to be associated with significant adverse events, therefore we suggest it could be considered as a first-line treatment for post-dural puncture headache in children.

Autologous epidural blood patch is a well described treatment of post-dural puncture headache, typically after a trial of conservative therapy has failed. While efficacious in children,[2] epidural blood patch is resource demanding, invasive, and painful. Therefore, children are often anaesthetised for the procedure. Rare, but severe complications, such as meningitis and nerve damage, are associated with epidural blood patch in adults,[3,4] but such complications are not well described in children.

Dural puncture can decrease CSF volume, resulting in a compensatory intracranial vasodilation. Presumably, post-dural puncture headache develops when uncontrolled vasodilation remains after the decrease in CSF volume has been adjusted. Regulation is mediated by parasympathetic activity in the sphenopalatine ganglion.[5] Sphenopalatine ganglion block by a transnasal approach has been reported to be effective in adults with post-dural puncture headache,[6,7] and a recent trial showed a 50% reduction in epidural blood patch rates when using a sphenopalatine ganglion block.[8]

To our knowledge, there is only one report of sphenopalatine ganglion block for post-dural puncture headache in children. The report describes a 12-yr-old boy where a successful sphenopalatine ganglion block was performed with sedation in the operating theatre.[9] Here we describe an 8-yr-old boy with severe symptoms of post-dural puncture headache treated at the bedside with a sphenopalatine ganglion block (reported with the consent of the mother). The patient presented with facial paresis and was admitted to the hospital with suspected Lyme disease, which was confirmed by lumbar puncture. Antibiotic treatment was initiated, and the patient was discharged the same day. Four days later the boy was readmitted to the hospital because of dehydration and severe malaise. He had suffered from orthostatic headache, nausea, and vomiting since discharge. He was unable to stand or sit upright without severe headache and nausea. When lying down symptoms were manageable, but he could not eat and drink sufficiently. The symptoms were compatible with post-dural puncture headache, which he was at increased risk of since the lumbar puncture had been difficult to perform, requiring several attempts with a 22 G sharp tip needle.[10] Specialists recommended conservative treatment with bed rest, fluid therapy and clonidine while expecting spontaneous recovery, with an epidural blood patch considered if no remission occurred.

The parents were interested in other options than epidural blood patch because of the risk of complications and the discomfort for the child in the previous attempts of lumbar puncture. A sphenopalatine ganglion block was suggested and was accepted by both the child and parent. The block was performed bedside without sedation with the patient lying supine in a sniffing position. Two cotton-tipped applicators soaked in a mixture of lidocaine 4%, 0.5 ml and ropivacaine 0.5%, 0.5 ml[8] were inserted parallel to the floor of each nasal cavity until resistance was met at the posterior wall of the nasopharynx where the sphenopalatine ganglion is located. An additional dose each of lidocaine 4%, 0.5 ml and ropivacaine 0.5%, 0.5 ml was injected through the hollow shafts of the applicators. The applicators were left in place for 10 min, and the patient reported minimal discomfort. The patient had immediate relief of symptoms and went home the same day. Symptoms returned ~20 h after the block, and the procedure was repeated. Supplemental treatment with clonidine was started that day and continued for 3 days. The recommended bed rest was not followed. The patient remained symptom free and was able to resume activities and go to school the next day. He presented no further symptoms and was symptom free at follow-up both 1 and 2 weeks later.

Sphenopalatine ganglion block is a simple procedure that can be done bedside. It requires few resources and can be performed without anaesthesia. There are no reports of severe side-effects in adults.[8] We propose that sphenopalatine ganglion blocks are a relevant and minimally invasive procedure that can alleviate symptoms of post-dural puncture headache in children, and in some cases epidural blood patch can be avoided. There is an ongoing study on sphenopalatine ganglion block for migraine in children (NCT03984045) that is not yet published. Further studies are needed to determine the full potential of sphenopalatine ganglion block as treatment for post-dural puncture headache in children.

Declarations of interest

The authors declare that they have no conflicts of interest.

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Sphenopalatine ganglion block: do not give up on it just yet!

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Editor—Post-dural puncture headache (PDPH) continues to be an adverse outcome associated with neuraxial anaesthesia and analgesia. Although the epidural blood patch is the gold-standard treatment for PDPH, patients are sometimes reluctant to undergo this therapeutic option because the procedure to treat the problem is the same procedure that caused the problem. Recently, the sphenopalatine ganglion block for treatment of PDPH has been reported to treat PDPH successfully, but only via case reports.[1,2] We commend Jespersen and colleagues[3,4] on the only RCT evaluating the sphenopalatine ganglion block for the treatment of PDPH. However, their study showed no statistically significant