

Prevention and Treatment of Headaches after a Dural Puncture Can be achieved by Internal or External Hyperlordosis of the Lumbar Spine

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LETTER TO THE EDITOR

We were interested to read the article by Gimenez, *et al.* on a retrospective study investigating whether the insertion of an intrathecal catheter (ITC) after accidental dural puncture (ADP) can reduce the prevalence of post-dural puncture headache (PDPH) in obstetric patients [Moreno Giménez, G. *et al.*, 2024]. Of 35 patients with ADP, 16 had received ITP for 24 hours after the puncture, while 19 received an epidural re-siting [Moreno Giménez, G. *et al.*, 2024]. No significant difference in the incidence of PDPH was found between those who received ITC and those who underwent epidural re-siting [Moreno Giménez, G. *et al.*, 2024]. The study found that there was a trend in favour of ITC use [Moreno Giménez, G. *et al.*, 2024]. The study is noteworthy, but some points should be discussed.

The first point is the retrospective design of the study [Moreno Giménez, G. *et al.*, 2024]. The retrospective design has several disadvantages. Like many observational studies, retrospective cohort studies carry a high risk of numerous research errors. They are particularly prone to recall error and observer error because they rely on electronic data, recall and self-report [Talari, K. *et al.*, 2020]. Since retrospective cohort studies are not a particularly strong independent method that can hardly prove causality, and they have low internal and external validity [Talari, K. *et al.*, 2020]. Another drawback is the considerable variability in the measurement of risk factors and outcomes, as most patients have been cared for by different healthcare professionals over their lifetime [Talari, K. *et al.*, 2020].

The second issue is that the follow-up was conducted by telephone rather than on-site [Moreno Giménez, G. *et al.*, 2024]. Telephone follow-up has several disadvantages. It is difficult to assess whether the addressee is actually the person who is on the phone, the accuracy of

responses cannot be easily verified, phone calls may be perceived as telemarketing and therefore negatively received by respondents, which may affect the response rate, and not all patients of interest may be reachable by phone.

The third point is that the insertion of an ITP for continuous spinal anesthesia is not a causal therapy for the leak, but at best reduces the headache. The headache in patients with PDPH is due to a CSF low pressure syndrome resulting from the discrepancy between CSF production and leakage due to the iatrogenic leak, as more CSF is lost than is produced. The most important symptom is orthostatic headache, i.e. headache that starts immediately after changing to a more upright position (from lying to standing or from lying to sitting) and improves rapidly after lying down. A more causative treatment for PDPH is to close the leak or increase CSF production. Various techniques can be used to close the leak, e.g. injection of autologous blood, a pressure bandage or surgical closure of the entire leak. However, the simplest method to prevent continuous CSF leakage is to apply pressure to the puncture site by consistently positioning the patient in hyperlordosis. This can be achieved by supine positioning on a bolster, prone positioning or deliberate hyperlordosis of the lumbar spine as long as the patient is awake and remembers.

The fourth point is that the conclusion drawn from the results of the study is not reasonable. Since there was no difference between the two methods of treating ADP, one cannot conclude that one method is better than the other in treating PDPH.

Finally, the group sizes were small, which prevents reliable conclusions.

To summarize, this interesting study has limitations that put the results and their interpretation into perspective. Addressing these

limitations could strengthen the conclusions and support the message of the study. Prevention and treatment of headache after lumbar puncture can be most easily achieved by internal or external hyperlordosis of the lumbar spine.

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