

Postdural Puncture Headache

CoreNotes by Core Concepts Anesthesia Review, LLC

What You Must Know

1. Postdural puncture headache (PDPH) is believed to result from a loss of cerebrospinal fluid (CSF) into the epidural space.
2. The symptoms of are the result of decreased hydrostatic pressure in the subarachnoid space causing traction on the meninges.
3. Symptoms include:
 - a. Postural headache, which is relieved when the patient is supine
 - b. Nausea
 - c. Diplopia & tinnitus (rare)
4. The incidence is approximately 2%, but is less in older patients.
5. The incidence of PDPH can be minimized with the:
 - a. the use of smaller gauge needles
 - b. orientation of the bevel of the needle with the longitudinal axis
 - c. the use of blunt-point needles (Sprotte, Whitacre)
 - d. the use of fluid, instead of air, for epidural anesthesia using the loss-of-resistance technique
6. Conservative treatment of PDPH consists of bed rest, hydration, caffeine, sumatriptan, and synthetic ACTH.
7. Epidural blood patch (EBP) is considered the definitive treatment of PDPH with a reported success rate of 85%.

PDPH is a relatively frequent complication of dural puncture with an estimated incidence of 2 – 3% after spinal anesthesia, but as high as 70% after inadvertent dural puncture during an epidural anesthetic. Various factors have been associated with an increased incidence of PDPH including: youth, large needle size, the use of cutting (Quincke) needles versus blunt-point needles (Sprotte, Whitacre), the use of air when placing an epidural with the LOR technique and bevel orientation of the needle.

The PDPH is postural in nature, worsened when the patient assumes an upright position. The headache is characteristically bi-frontal and/or occipital and may be associated with nausea, vomiting, diplopia and tinnitus.

Initial therapy consists of conservative treatment as outlined above. If this is unsuccessful an epidural blood patch should be placed. It is believed the clot formed by the EBP seals the dural puncture and the rapid formation of CSF allows for rapid restoration of CSF volume and resolution of the PDPH.

EBP is performed by accessing the epidural space using conventional techniques and injecting 15 – 20 mL of aseptically drawn autologous blood. The patient is usually kept recumbent for the following 1 – 2 hours and then allowed to resume non-strenuous activity. Resolution of the headache is characteristically very prompt.

Additional Reading:

Barash, PG, Cullen, BF, Stoelting, RK, Cahalan, MK, Stock, MC, Ortega, R, Sharar, SR, and Holt, NF. Clinical Anesthesia. Philadelphia: Lippincott Williams & Wilkins, 2017:854, 926