

EVIDENCE BASED MANAGEMENT OF POST DURAL PUNCTURE HEADACHE

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BEARs are the summary of the evidences pertaining to a specific clinical dilemma encountered in the day today anaesthetic practice. They are not the systematic reviews but rather contain the best evidence (highest level) available to any practicing anaesthesiologist. The search strategies adopted will not be discussed in detail.

Each BEAR is based on a clinical scenario and ends with a clinical bottom line that indicates, in the light of the evidences found, what one should do or how one should respond if he/she encounters similar clinical situation again.

Post Dural Puncture Headache (PDPH) continues to be a common morbidity following subarachnoid block (SAB) even today, despite several innovations in the gadgets used and also the techniques of performing the SAB. Majority of the times, PDPH is mild in intensity, brief in duration and can also be self limiting with or without available treatment. At times, patients of PDPH suffer badly confining them to bed for a prolonged period of time resulting in the extension of their hospital stay. There are reports of PDPH symptoms lasting for months or years.¹ There are reports available in literature of untreated PDPH leading to cranial nerve palsies and even subdural haematoma.^{2,3,4}

Clinical scenario

A 29 year old female undergoes emergency appendectomy under SAB uneventfully. After 24 hours in the post operative period she develops severe PDPH with typical symptoms of headache, photophobia, vomiting etc. All the available modalities of treatment of PDPH including epidural blood patch are exhausted to provide permanent relief. Symptoms recurred after a transient positive response ranging up to 48 hours and symptoms are getting worse even after nine days of active treatment. The anaesthesiologist resorts to the practice of Evidence Based Anaesthesia.

Pertinent Focused Answerable question

What is the optimal and recent treatment for a recurrent PDPH in a 29 years old female who is refractory to the time tested management?

Keywords

Management, Recurrent, Post dural puncture headache.

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Search Strategy : Medline 1966 till present, Embase 1988 till present, using ovid interphase, using the above said keywords, were searched and also the standard text and reference books were referred for answering the question.

The opinions of senior anaesthesiologists in anaesthesia were also sought and integrated into the evidence. Search yielded two opposing kinds of evidential informations.

A wide range of popular therapies, both invasive and noninvasive, are available for the practicing anaesthesiologist for management of PDPH, but very few are supported by the best evidences. It is also true that like any other topic of anaesthesia, one cannot expect well controlled RCTs for deciding the best treatment of PDPH and again like any other topic related to anaesthesia the best treatment has to be arrived at based on isolated case reports, observational studies, current patho physiological understanding of PDPH and personal experience.

Available Evidences

Non invasive methods

1. **Bed rest :** Though it is a time tested therapy, recent literature provides evidences against it. Bed rest after dural puncture did not reduce the risk of the occurrence PDPH, but rather there was trend towards enhanced headache in patients placed at bed rest. Hence early ambulation after dural puncture is advisable and patients who have already developed PDPH should also be encouraged to ambulate as much as they can.⁵
2. **Hydration status :** No evidence exists to show that adequate/enthusiastic hydration reduces incidence and severity of PDPH.⁵
3. **Position :** Though the personal experience supports the common practice of giving prone position to patients of PDPH, no clinical study is available to support that this position relieves PDPH. Hence it is left to the judgement of the treating anaesthesiologist to decide whether to give this posture or not based on the surgical incision.
4. **Abdominal binder:** A single study of 1975 is available to support the fact that abdominal binder prevents PDPH, which like prone position may not be feasible in patients with abdominal incision.⁶
5. **Analgesics :** Though any of the available analgesics offer symptomatic pain relief in PDPH patients, no evidence is available in support of any of the analgesic in preference to the other.

6. Other Pharmacological agents

- i) Intravenous Caffeine (500 mg) has been shown to be beneficial in relieving PDPH in an ill controlled study with inadequate sample size.⁷ Non availability of IV caffeine in many hospitals led to its oral use and a double blind, placebo controlled study claimed definite advantages of 300 mg of oral caffeine in PDPH patients.⁸
- ii) Another study inferred that oral Theophylline relieved symptoms of PDPH probably through its cerebral vasoconstrictive effects.⁹
- iii) Two controversial studies providing evidence, one for and the other against the usage of cerebral vasoconstrictor, serotonin agonist, Sumatriptan for the treatment of PDPH are available.^{10,11}
- iv) Isolated evidential reports are available on the beneficial effects of steroids and ACTH in PDPH patients but no RCTs have ever been conducted.^{12,13}

Invasive methods

- i) Epidural Blood Patch (EBP): Though considered as gold standard treatment for PDPH since long, recent Cochrane Review suggested that it is not so and its success rate can be as low as 65% and not 95% as claimed earlier. EBP may not be successful in severe and persistent cases and a repeat EBP can be successful in cases of recurrence of PDPH. Failure of repeat EBP indicates search for other possible causes of headache.^{14,15}

Again, the beneficial effects of prophylactic EBP were though, supported by earlier reports, recent reports indicate that the beneficial effects of earlier studies were overstated.¹⁶

- ii) Epidural Dextran and Epidural Saline though advocated with marginal success, for patients who can not receive EBP because of fever or refuse EBP on religious grounds, are not supported by valid evidences through prospective studies. They may provide symptomatic relief until the dural hole spontaneously heals.^{17,18}

Bottom line

Even after one century of description of PDPH by August Bier the question of the optimal management of PDPH remains unanswered. In view of the threat of ever of hanging sword of consumer redressal forum act, of recent times, the anaesthesiologist should not leave any stone unturned to prevent PDPH, by optimizing those controllable factors like needle size and shape or referring to and implementing all the available recent prevention strategies for PDPH.¹⁹ The evidential practice of management of PDPH has to be based on both the best documentary

evidence available from literature (external evidence) as well as non documentary evidences from personal experience (internal evidence).

Our patient had satisfactory, sustained and quick relief of all symptoms of PDPH for the repeat EBP after 10 days and the following active ambulation thereafter.

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