

PERIOPERATIVE HEADACHE

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Headache is common in the perioperative period (up to 54% patients). Predisposing factors include a history of regular headache and high caffeine intake. Preoperative headache is a strong predictor for postoperative headache. Headache is reported more frequently by females.

General points

- History is more important than examination. Neurological signs warrant thorough investigation.
- Investigations must be tailored to the presumed cause
- Specific treatment must be directed to correct the underlying cause.
- First line should include reassurance and simple analgesia where appropriate.

Causes of headache specific to perioperative period

- **Hypoxia/Hypercapnia.** Both induce cerebral vasodilatation. Hypoventilation is commonly the cause of opioid related headache.
- **Dehydration/prolonged preoperative fast/caffeine withdrawal.** Dehydration causes traction on venous sinuses; hypoglycaemia leads to cerebral vasodilatation; caffeine normally induces vasoconstriction, acute withdrawal in those with high daily intake will cause rebound vasodilatation and headache. Prophylactic caffeine in such patients may reduce incidence of headache or simply try a cup of coffee in the postoperative period if not fasting.
- **Hypertension/Pre-eclampsia.** Cerebral vaso-dilatation and oedema in severe cases.
- **Pharmacological.** Nitrates and other anti-hypertensives frequently cause headache. Exogenous vasopressors (including ergotamine) can cause severe headache. Acute alcohol withdrawal (hangover) is common in trauma cases. Withdrawal of regularly taken analgesics may cause headache. Combination 'over the counter' analgesics (often containing ergotamine or caffeine and not disclosed) are the most frequent problem, although headache has been reported on cessation of other analgesics. Headache occurs more frequently in women and typically worsens on withdrawal of analgesics, for example whilst using alternative analgesia such as an epidural. Amitriptyline (25mg bd) and reassurance may be effective - concurrent depression is common. Steroids, 5HT antagonists such as ondansetron, metronidazole, acetazolamide and muscle relaxants also may precipitate headache.
- **Sepsis.** Any cause of fever leads to systemic vasodilatation.
- **Meningitis.** Increased vigilance after ENT, neurosurgical and maxillofacial surgery. Neck stiffness, altered conscious level or photophobia suggestive. Rash less likely than in community.

- **Traumatic.** Approximately one third of patients, after significant head injury, will develop persisting or recurring headache with no structural abnormality. Exclude serious causes with examination and definitive imaging.

- **Raised Intracranial Pressure.** Direct stimulation of pain-sensitive structures (meninges, vessels) by traction, distension or dilatation. Pain worse on lying, coughing and straining. Highly significant if headache wakes patient. Nausea/vomiting suggestive of increased ICP. Papill-oedema and loss of retinal venous pulsation are useful signs, although not in acute rises of ICP. Consider extradural collection in acute trauma; subdural in older trauma (especially elderly, alcoholics and patients taking anticoagulants); cerebral abscess post ENT procedures (swinging fever, decreased conscious level); undiagnosed brain primary or metastatic tumour (may be slow to wake post GA).

Post Dural Puncture Headache (see Update in Anaesthesia - No. 13)

This occurs either after spinal anaesthesia or following an unintended lumbar puncture during epidural anaesthesia. Young patients are especially at risk. Postural variation (headache usually diminishes significantly on lying flat) is crucial to the diagnosis. May appear hours or days post dural puncture. Typically bifrontal, dull pain associated with nausea and photophobia. Neck stiffness can occur but no fever present.

The headache is thought to originate from traction on the dura because of leakage of CSF.

Initial therapy consists of reassurance, hydration (if necessary by the intravenous route), simple analgesics, bed rest and caffeine either by tablets or encouraging coffee intake. Many will resolve over the next 24-48 hours.

If the headache persists over 48 hrs or is incapacitating then an epidural blood patch can be performed after discussion with the patient. This is effective in treating 90% of cases. It should be performed by 2 anaesthetists aseptically

Causes of headache exacerbated in perioperative period

- **Tension Headache.** The most frequent cause. Common in stress and anxiety (increased perioperatively). Described as a "tight band". Usually worsens over the day. Previous attacks common. If simple measures fail, try anxiolytics or antidepressants.
- **Migraine.** Classically a visual aura (zigzag lines/flashing lights highly predictive) followed by unilateral throbbing headache. Nausea/light intolerance may accompany. Patient takes to bed. Focal signs may be present. Usually prior attacks or positive family history. 5HT₁ agonists are specific therapy e.g. sumatriptan (Imigran(r)) 50mg PO, 6mg S/C, 20mg intranasally. Avoid in ischaemic heart disease, uncontrolled hypertension or

pregnancy. Take as soon after start of attack as possible. Rapid relief indicates correct diagnosis. Often paracetamol or metoclopramide suffice.

- **Cluster Headache.** Consider in middle-aged men who smoke. Severe unilateral peri-orbital pain often starting at night, lasting 20-120min. Reassure and seek expert opinion.

- **Cranial Arteritis.** Consider in all over 55 years especially if associated visual symptoms/raised ESR. Ask about jaw claudication. Early treatment with steroids important. Biopsy can be taken up to 48hr post dose.

- **Cervicogenic Headache.** Typically unilateral, posterior headache that can be precipitated mechanically. Often coexists with cervical spondylosis. Physiotherapy is the best treatment.

- **Subarachnoid Haemorrhage.** Sudden onset occipital headache with or without collapse, vomiting, altered conscious level or focal signs. CT scan and liaise with neurosurgeons. Can occur anytime.

Further reading

Fennelly M. Is caffeine withdrawal the mechanism of postoperative headache. *Anesthesia and Analgesia*. 1991;**72**:449-53
