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Comments: New approach to treat an old problem: Mannitol for post dural puncture headache

Sir,

We read with great interest the article, 'New approach to treat an old problem: Mannitol for post-dural puncture headache (PDPH)'.^[1]

PDPH is a low pressure headache. The role of cerebrospinal fluid (CSF) leak and lowering CSF pressure are the causes for the headache. Two theories are postulated in this regard.^[2,3] First, decrease in CSF pressure leading to the traction on the pain sensitive parietal dura and intracranial structures leading to the headache. The second theory is based on the Monro Kellie doctrine^[2] which states that the sum of volume of brain, CSF and intracranial blood is kept constant; loss of CSF leads to increase in the blood volume due to venodilatation. This venodilatation is attributed as the cause of the headache.

As rightly mentioned in the article, there is no evidence suggesting a role for use of mannitol in relieving PDPH which is a low pressure headache. Mannitol is a drug commonly used for lowering high intracranial pressure (ICP). The mechanism leading to reduction in PDPH may be explained as below: ICP reduction can be due to two mechanisms, the early reduction being due to plasma expansion and late, due to diuresis.^[4] Plasma expansion reduces the blood viscosity and increases the cerebral blood flow and oxygenation. This eventually leads to a probable reduction in the headache due to cerebral vasoconstriction as a compensatory mechanism. This may be cited as the reason behind the improvement of the headache. As far as the osmotic action of mannitol is concerned, an intact blood brain barrier is a prerequisite, and frequent dosing would cause dyselectrolytaemia and dehydration which would worsen the situation.^[4]

Another theory can be related to the rebound increase in ICP that can occur after the initial reduction because of the eventual passage of mannitol into the brain. This rebound phenomenon^[4,5] is particularly associated with mannitol administration in a patient without an intact blood brain barrier which is possibly the case here. But utilising this disadvantage of mannitol to get relief from a self-limiting headache which is expected to resolve in 50% of the patients in 3–4 days^[2] and as well as subjecting them to the risk of dehydration and electrolyte imbalance may not be acceptable.

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