The big "little problem" with postoperative nausea and vomiting prophylaxis

Sir,

We wish to report a case of severe headache in the immediate post-operative period in 35 years old, 56 kg, smoker, American Society of Anaesthesiologists physical status I, male patient scheduled for

fistulectomy for fistula-in-ano. On patient's request, general anaesthesia (GA) was administered. Anaesthesia was induced with injection fentanyl 60 μg and propofol 100 mg and maintained with isoflurane to achieve an end tidal concentration of 1.5–2% in an oxygen/nitrous oxide mixture. Proseal® laryngeal mask airway was inserted and surgery was conducted under spontaneous respiration. Injection ondansetron 4 mg was administered for prevention of post-operative nausea and vomiting (PONV). Intraoperatively, approximately 500 ml of Ringer lactate solution was administered. Surgery lasted for 20 min and remained uneventful. In post-operative period, patient complained of severe headache which was more in the frontal area and was not positional. Patient gave no such history of headache in the past. Injection diclofenac 75 mg was given as intravenous (IV) infusion and on follow-up, headache subsided completely in 6 h.

Factors that may operate in regard to perioperative headache under GA include cerebral vasodilatation, any history of previous headache and administration of certain drugs. Cerebral vasodilatation may occur due to hypoxia, hypercarbia, dehydration, prolonged fasting period, caffeine withdrawal, hypertension, pre-eclampsia and sepsis.[1] Pre-operative headache and lack of sleep, the previous night are also strong predictors of post-operative headache. None of these factors were present in our patient. Drugs such as antihypertensives (nitrates), steroids, metronidazole, muscle relaxants and 5 HT3 antagonists used in perioperative period can also cause headache in the post-operative period.[1]

On retrospective analysis, we speculated the cause of headache to be ondansetron, a 5 HT3 anatagonist in our patient. The recommended prophylactic dose of ondansetron is 4 mg with number needed to treat (NNT) of six for the prevention of vomiting (0–24 h) and NNT of seven for the antinausea effect.[2] However it may be associated with certain side effects e.g. headache, elevated liver enzymes and constipation etc. Headache following use of ondansetron for PONV prophylaxis has been reported earlier in literature.[3] The exact mechanism of this side effect is not known; however, it could be due to weak 5 HT1 antagonistic action.

Various tools exist to stratify the risk of developing PONV; however, no uniform and standardised approach has been utilised to evaluate and manage PONV in clinical practice.[4] Apfel's simplified risk score includes female sex, prior history of motion sickness or PONV, non-smoking status and the use of post-operative opioids as the independent predictors. The estimated probability of PONV was 10%, 21%, 39%, and 78% with one, two, three, and four risk factors, respectively.[5] Prophylaxis with dexamethasone and serotonin antagonist and use of total IV anaesthetic technique are justified in patients with moderate to high risk (e.g. risk score 2/3/4).[4] However, it may not be warranted in patients at low risk as it may unnecessarily expose the patients to the risk of associated side effects.[6] On retrospective assessment, our patient's baseline risk for PONV was found to be very low; hence, PONV prophylaxis was probably not required.

We emphasize that Apfel scoring system should be used in all patients receiving GA. Drugs for PONV prophylaxis should be used in minimal effective doses only when the patient's individual risk is sufficiently high as we must not forget that each antiemetic has its own side effects.

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