Postoperative nausea and vomiting

The problem associated with Postoperative nausea and vomiting remains topical in neurosurgery.

Epidemiology

After neurosurgery, the estimated frequency of nausea is around 50% and around 39% for vomiting.

Risk factors

After neurosurgery; PONV risk factors are female sex and infratentorial surgery. Children older than two years are at higher risk for PONV [1].

Prevention

The current approaches are not absolutely effective for the prevention of POTV, whose rate ranges between 10.5 and 68% depending on surgery location. Further studies focused on the administration of NK-1 receptor antagonists and electrical stimulation of the median nerve are needed to enhance the effectiveness of POTV prevention [2].

Tsutsumi et al. investigated the preventive effects on PONV in a randomized study by comparing patients who had been administered fosaprepitant, a NK1 receptor antagonist, or ondansetron intravenously. Sixty-four patients undergoing craniotomy were randomly allocated to receive fosaprepitant 150 mg i.v. (NK1 group, n = 32) or ondansetron 4 mg i.v. (ONS group, n = 32) before anesthesia. The incidence of vomiting was significantly less in the NK1 group, where 2 of 32 (6%) patients experienced vomiting compared to 16 of 32 (50%) patients in the ONS group during the first 24 and 48 hours following surgery. Additionally, the incidence of complete response (no vomiting and no rescue antiemetic use) was significantly higher in the NK1 group than in the ONS group, and was 66% versus 41%, respectively, during the first 24 hours, and 63% versus 38%, respectively, during the first 48 hours. In patients undergoing craniotomy, fosaprepitant is more effective than ondansetron in increasing the rate of complete response and decreasing the incidence of vomiting at 24 and 48 hours postoperatively [3].

To reduce baseline risk factors, it is recommended to use propofol for induction and maintenance of anesthesia, to avoid nitrous oxide, and to use hydration (20 ml/kg of crystalloids before induction). For PONV prophylaxis, ondansetron and droperidol may be given, using one drug for a moderate-risk patient and both drugs for a high-risk patient. Droperidol should not be used in children as a first-choice therapy because of an increased risk of extrapyramidal symptoms. Dexamethasone has not been evaluated after neurosurgery. Metoclopramide has no clinically relevant effect on PONV.

Especially in neurosurgery, after the occurrence of PONV, it is recommended to rule out a possible triggering factor that should need specific treatment. Global management of PONV is proposed, based on the administration of the same drugs given at half the doses used for prophylaxis [4].

[1] , [4]
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[3]
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