

Is it necessary to use prophylactics for preventing PONV?

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Postoperative nausea and vomiting (PONV) are common and distressing postsurgical symptoms [1] which continue to be a significant concern for anesthesiologists. PONV occurs in 20% to 30% of the general population underwent surgery and in up to 70% to 80% of high risk patients [2,3].

PONV is a complex physiologic phenomenon involving multiple neurophysiologic pathways with both central and peripheral receptor mechanisms. A variety of factors have been associated with an increased incidence of postoperative nausea and vomiting. The most frequently described patient-specific risk factors for PONV are female gender, non-smokers, types of surgery such as laparoscopic surgery [4,5] or head and neck surgery, previous history of PONV or motion sickness, and use of intra-operative or postoperative opioids [3]. Postoperative analgesia with opioids is associated with an incidence of PONV of over 30% [6].

Thyroidectomy is also associated with a relatively high incidence of PONV. The incidence of PONV after thyroidectomy has a reporting rate of 60–76% according to previous study [7]. PONV after thyroidectomy surgery might be the main source of discomfort, and it may be perceived as the most unpleasant aspect of postoperative recovery [8]. Being able to identify patient-specific risk factors should help clinicians determine appropriate prophylactic treatment for PONV.

Many clinicians have used different types of anti-emetics such as anticholinergic drug, 5-hydroxytryptamine 3 (5-HT₃) antagonist or NK-1 antagonist for the treatment of PONV. Ramosetron is a newly developed 5-HT₃ receptors antagonist with a more potent and longer receptor antagonizing effect compared with other 5-HT₃ receptors antagonists [9].

In this issue of the Korean Journal of Anesthesiology, Lee

et al. [10] report on the antiemetic effect of ramosetron with thyroidectomy for PONV. This clinical trial demonstrates the preventative effect of ramosetron for PONV in women undergoing total thyroidectomy with propofol-based total intravenous anesthesia (TIVA). The authors concluded that ramosetron was effective at reducing the incidence and severity of postoperative nausea in women that underwent total thyroidectomy with propofol-based TIVA during first 6 hours postoperatively. Nevertheless there are some debatable points in this paper.

The incidences of postoperative nausea in the control and the ramosetron groups were 29% and 12% during first 6 postoperative hours respectively. From a statistical point of view, ramosetron is obviously more effective than control during first 6 postoperative hours ($P = 0.029$). But there were no differences between ramosetron and control (saline) after 6 hours postoperatively. Also postoperative vomiting was not different all time periods on both groups. The incidence of PONV on the control group was not that high and widely different compared to the ramosetron group in this study as the authors mentioned. While many practitioners believe that 5-HT₃ antagonists are relatively safe medications, it is uncertain whether the antiemetic effects of 5-HT₃ antagonists are better than inexpensive drugs such as droperidol or metoclopramide clinically. There is also uncertainty about benefit of ramosetron in patients undergoing TIVA.

Cost-effective management is often referred to as an important medical issue. Recently, medical budgets are not sufficient for medical services of all patients in our country. Therefore, we need to be concerned about reduction of medical costs. In Korea, ramosetron (approximately US \$55 for 0.3 mg) is much more expensive than other commonly used antiemetics,

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such as metoclopramide.

Many risk scoring systems for predicting PONV have been mentioned at present [3]. An evaluation of these risk factors allows clinicians to appropriately plan for prophylaxis and treatment of PONV. Eberhart suggests the use of simplified algorithms that could lead to a benefit for a larger proportion of patients [11]. Clearly, such a risk score-adapted preventive strategy for PONV may be viewed as an efficient method for PONV treatment.

The first strategy in reducing the incidence of postoperative nausea and vomiting is to reduce the baseline risk factors for each patient. Patients with a low risk of PONV generally do not require prophylactic medication. Patients at moderate or high risk should receive antiemetic therapy with high cost-effective drugs.

Additionally, inexpensive and comprehensive multimodal managements for preventing PONV should be considered perioperatively. The use of propofol and the avoidance of nitrous oxide add to reductions of the incidence of PONV [12,13]. Other simple methods such as maintaining adequate hydration, minimizing the use of opioid analgesics for preventing postoperative pain in high risk patients, and P-6 acupoint stimulation [14] are also available.

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