International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Clinical Audit on Management of Post Operative Nausea and Vomiting Department of Anaesthesia, Peerless Hospital and BK Roy Research Centre

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Abstract

Postoperative nausea and vomiting (PONV) are common complications following surgery, affecting up to 30% of patients despite advances in anaesthesia and surgical techniques. It can be distressing for patients and may lead to complications such as dehydration, electrolyte imbalances, wound dehiscence, and delayed recovery.

Several factors contribute to PONV, including patient-related factors (such as age, gender, history of motion sickness, and smoking), anaesthesia-related factors (type and duration of anaesthesia, use of volatile anaesthetics, opioids, and muscle relaxants), and surgical factors (type and duration of surgery, intraoperative hypotension, and use of certain drugs like opioids and nitrous oxide). It can be determined by APFEL score which says that female sex, non-smokers, history of motion sickness and post operative use of opioids have high chances of PONV. Although PONV is a very detrimental disorder, it can last for several hours to days.

Not only it depends on the anaesthetic factors it is also affected by surgical stress. PONV is said to the most important factor resulting to delayed recovery and prolonged hospital stay.

Introduction

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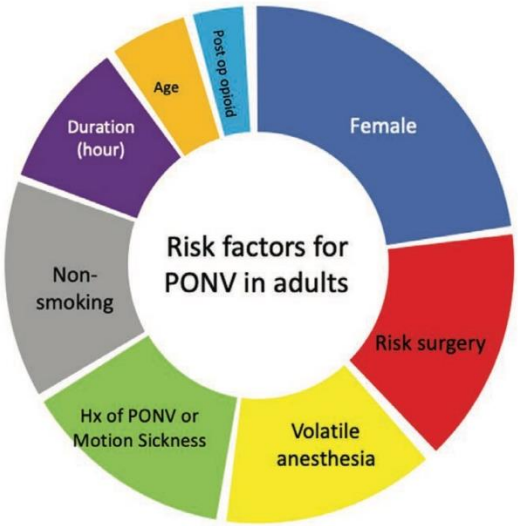


Figure 1. PONV risk factor summary. Intraoperative and postoperative risk factors of PONV in adults; the size of each segment is proportional to the odds ratios of PONV associated with each risk factors.[35] PONV indicates postoperative nausea and vomiting. Figure reused with permission from the American Society for Enhanced Recovery. For permission requests, contact info@aserhq.org.

Available antiemetics

Antiemetics can be broadly classified in a large group. The most used antiemetics used in regular day to day purpose are as below:

1. 5 HT3 receptor antagonist (Inj. Ondansetron 8 mg)
2. Corticosteroids (Inj. Dexamethasone 8mg)
3. Phenothiazines (Inj. Prochlorperazine 12.5 mg)
4. D2 receptor agonist (Inj. Metoclopramide 10 mg
5. Butyrophenones (Inj. Haloperidol 0.5 mg)
6. Anticholinergics (Scopolamine patch)
7. Vasopressors (Inj ephedrine)
8. Antihistamines (Diphenhydramine)

Reference Guideline:

Indian Society of Anaesthesia (SEPTEMBER 2016) has published a guideline for the management of post operative nausea and vomiting.

Risk factors	Points
Female gender	1
Nonsmoker	1
History of PONV	1
Postoperative opioids	1
Total	0-4

PONV: Postoperative nausea and vomiting

	TIVA preferred	Rescue antiemetic	1 risk factor	2 risk factor	3 risk factor	4 risk factors
Inpatients	yes	Ondansetron	dexamethasone	+TIVA	+D2 RECEPTOR ANTAGONIST +ONDANSETRON	+APREPITANT
	no	Ondansetron	dexamethasone	+D2 RECEPTOR ANTAGONIST + ONDANSETRON	+APREPITANT	+TIVA

Inclusion Criteria

All patients receiving general anaesthesia
Patients whose age belongs from 18-65 years
ASA 1 and 2

Exclusion Criteria

Patients not willing to take part in the audit
Patients having allergy to the drugs used
Pregnancy

Duration of Treatment

All the patients who were extubated was shifted to the post operative room and those patients who developed PONV were started on antiemetics.

METHODOLOGY

We selected ASA 1 and 2 patients who gave consent for the audit. Only the patients receiving general anaesthesia undergoing any kind of surgery were selected in this study. A total of 100 cases were taken for this audit from the month of January to March 2024. We selected only inpatients in whom TIVA is preferred.

Group A- Having only 1 risk factor according to Apfel score
Group B-Having 2 risk factors according to Apfel score
Group C-Having 3 risk factors according to Apfel score
Group D-Having 4 risk factors according to Apfel score

DATA COLLECTION

Data were collected from the record section of our hospital. Data about PONV were done in the month of January to march 2024 and were collected from the available documents i.e. BHT, medicine card, nursing record sheets etc.

RESULTS

A total of 100 cases were done on the patients undergoing general anaesthesia

PRE MEDICATION

Inj glycopyrrolate(0.2mg) + Inj. Midazolam 1 mg

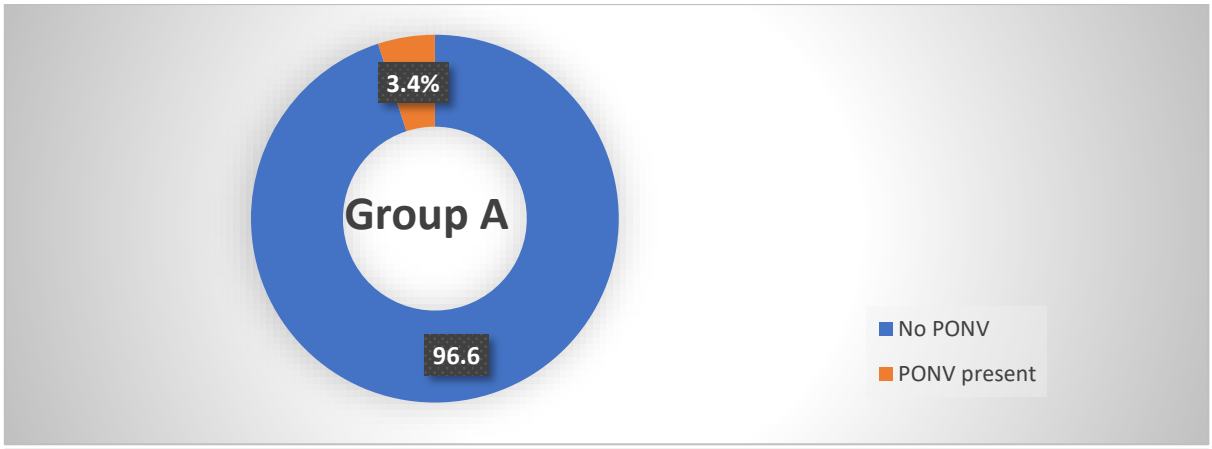
INDUCTION

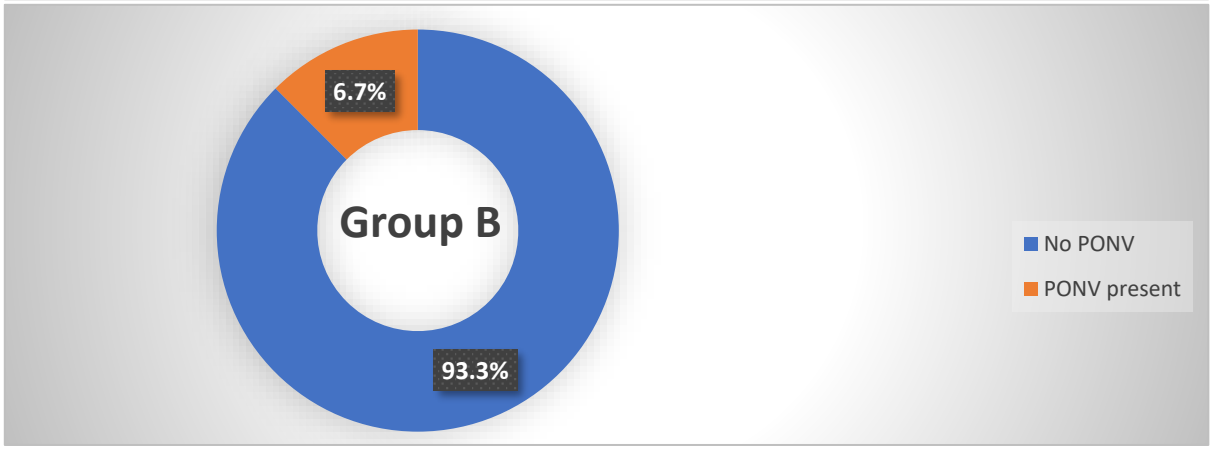
Inj propofol 10mg/kg was given slowly with 1mcg/kg inj. fentanyl

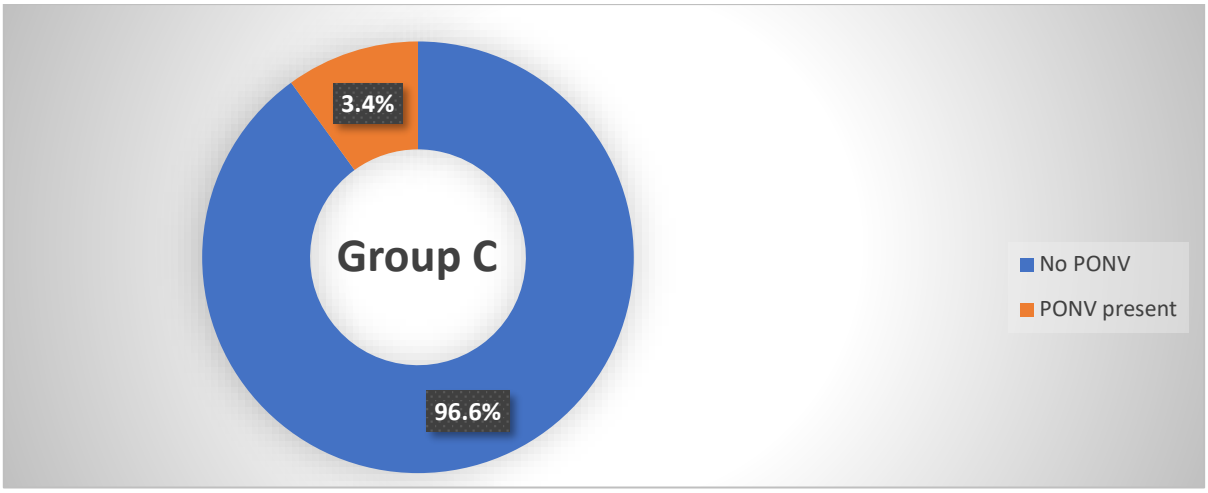
MUSCLE RELAXANT

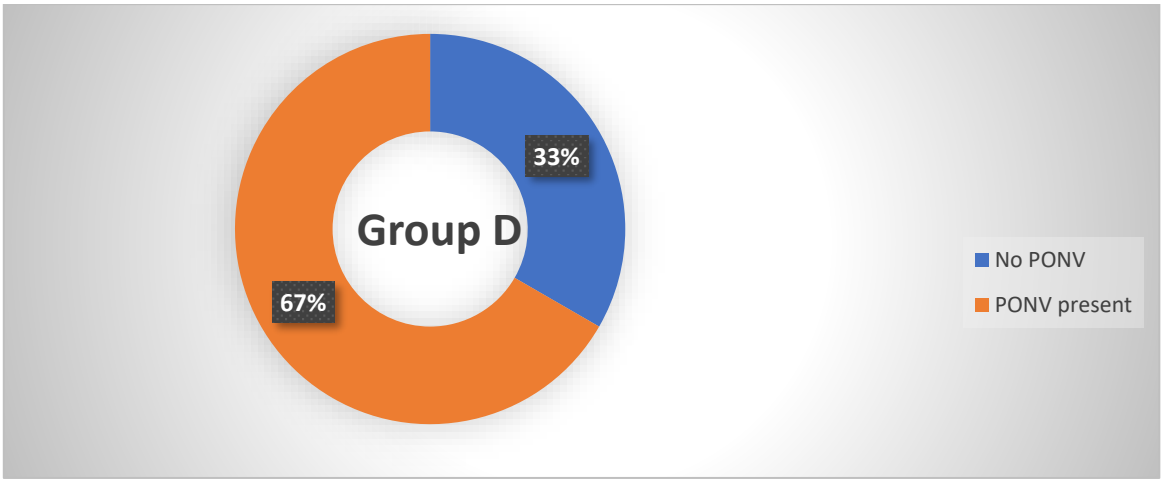
Inj succinyl choline(1mg/kg) and inj Rocuronium bromide(0.6mg/kg) was given with sevoflurane(1%) nitrous oxide and oxygen.

A total of 30 patients were included in each Group A, B and C. while Group D had only 10 patients. Below are the results of the above audit









Interpretations

In this audit we have selected a total of 100 patients. A total of 30 patients were selected for each Group A, B and C. while 10 for group D. Now from the above data we see that in

Group A where there is only 1 risk factor for PONV, 96% patients (29) benefitted from the prophylaxis

Group B where there are 2 risk factors for PONV, 93.3% patients (28) did not have PONV

Group C where there are 3 risk factors for PONV, 96.6% patients (29) benefitted and did not have PONV

Group D where there are 4 risk factors for PONV, 60% patients (18) developed PONV.

We can see from the above data in Group A, B and C, most of the patients benefitted from the guideline suggested by ISA thus proving it to be compliant. But in Group D patients, majority patients developed PONV. This occurred due to the unavailability of the above-mentioned drug(aprepitant) in the pharmacy. But interestingly it can be seen that the remaining patients although they had risk factors for PONV, the use of TIVA helped in preventing the incidence of PONV.

RECOMMENDATIONS

Future protocols should consider the efficacy of multimodal anti emetics to overcome post operative nausea and vomiting. Regular auditing of anti emetic efficacy and patient feedback can further refine PONV management strategies.

CONCLUSION

The updated PONV consensus guidelines are designed to provide comprehensive evidence based clinical recommendations on the management of PONV in adults and children. Prevention of PONV should be considered an integral part of anaesthesia, achieved through risk assessment, baseline risk prevention as well as pharmacoprophylaxis. One of the major change in this iteration of the guideline is that multimodal PONV prophylaxis in patients with 1 or 2 risk factors, in an attempt to reduce risk of inadequate prophylaxis based on patients and surgical factors.

The newly advanced form of anaesthesia that is TIVA using TCI PUMPS has become a new model thereby decreasing the incidence of PONV. It thereby decreases the use of inhalational anaesthetics and the perioperative use of opioids. Since the perioperative use of opioids has high chance of PONV, multimodal analgesia with multimodal antiemetic prophylaxis has become a rising concept in decreasing the use of intravenous opioids.

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