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Research Article

**RELATION OF PROPOFOL ANAESTHESIA AND
POSTOPERATIVE NAUSEA AND VOMITING**Dr Samar Razia Maqsood Arif¹, Dr Arslan Saeed², Dr Rana Faisal Shahzad³¹Faisalabad Medical University, ²Islamic International Medical College, Rawalpindi.**Article Received:** October 2020 **Accepted:** November 2020 **Published:** December 2020**Abstract:****Introduction:** Postoperative nausea and vomiting (PONV) is distressful common side effects following surgery.**Objectives:** The main objective of the study is to analyse the relation of propofol anaesthesia and postoperative nausea and vomiting.**Material and methods:** This descriptive analysis was conducted in Faisalabad Medical University during January 2019 to June 2019. The data was collected from 100 patients of general surgery. Before anesthesia, patients with a risk factor of PONV, or with a prior history of motion sickness or PONV and also administration of an antiemetic before surgery, patients with a history of drug or alcohol abuse, and patients with body mass index (BMI) >30 kg/m² were not included.**Results:** The data was collected from 100 patients. The mean age for group A was 45.6 ± 5.89, Group B 49.07 ± 2.1 and for Group C 49.9 ± 2.6 years. The demographic values of patients were presented in table 01.**Conclusion:** It is concluded that propofol 2 mg/kg/h is as effective as dexamethasone for the prevention of PONV during the first 24 hours after anesthesia in patients undergoing surgery.**Corresponding author:****Dr Samar Razia Maqsood Arif**

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INTRODUCTION:

Postoperative nausea and vomiting (PONV) is distressful common side effects following surgery. The reported incidence of PONV is 46–72% in patients undergoing surgery if prophylactic antiemetic is not given. As an anesthetic agent, propofol is highly effective drug preventing PONV; thus it has been used by a number of anesthesiologists [1]. It was demonstrated that continuous infusion of subhypnotic propofol prevents PONV in female patients receiving intravenous patient-controlled analgesia. Glucocorticoids have analgesic, anti-inflammatory, immune-modulating, and antiemetic effects. But, their effect mechanisms are not fully clarified [2]. Dexamethasone is a glucocorticoid and has been used as an antiemetic drug in patients receiving chemotherapy for more than 25 years [3]. Several prospective studies have shown that severity of PONV associated with LC is reduced by dexamethasone.

PONV can cause severe discomfort amongst patients and is probably related to several factors, which include age, sex, operation type, and anesthesia-related factors.[4] Other factors, including obesity, a history of motion sickness and/or a history of previous postoperative emesis, and also preoperative volume loading may have an important role in PONV. The data on the efficacy of specific antiemetics and their combination are still lacking, so definitive conclusions are difficult to make at present [5]. On the other hand, while the efficacy of Propofol is presently not clear, Metoclopramide, a popular antiemetic for decades, was found to have limited efficacy at the lower traditional dosage [6].

The incidence of postoperative nausea and vomiting (PONV) is higher in patients receiving volatile anesthetics than those receiving total intravenous anesthesia (TIVA) with propofol. However, it is unclear whether its incidence is increased when a low concentration of sevoflurane is used in combination with propofol [7].

Objectives:

The main objective of the study is to analyse the relation of propofol anaesthesia and postoperative nausea and vomiting.

MATERIAL AND METHODS:

This descriptive analysis was conducted in Faisalabad Medical University during January 2019 to June 2019. The data was collected from 100 patients of general surgery. Before anesthesia, patients with a risk factor of PONV, or with a prior history of motion sickness or PONV and also administration of an antiemetic before surgery, patients with a history of drug or alcohol abuse, and patients with body mass index (BMI) >30 kg/m² were not included.

The data was divided into three groups:

Group A: Propofol 20 mg

Group B: Propofol 30 mg

Group C: Control group

The baseline heart rate (HR), SBP, diastolic blood pressure (DBP), and mean arterial pressure (MAP), and also SaO₂ were recorded every 15 min during the entire anesthesia period and also every 15 min during the recovery period. No premedication was given to the patients. In all groups, induction of anesthesia was carried out with sodium thiopental 6 mg/kg, Fentanyl 2 mic/kg, Morphine 0.15 mg/kg, and Atracurium 0.6 mg/kg and then trachea was intubated. Maintenance of anesthesia was performed with 50% N₂O and O₂, and also, 1 minimum alveolar concentration (MAC) of Isoflurane with controlled ventilation. Mechanically controlled ventilation was adjusted to maintain an end-tidal CO₂ concentration between 35 and 45 mm Hg throughout the surgery. The incidence and severity of PONV and the side effects of the antiemetic during the first 24- h period after the surgery were recorded. These variables were assessed by the investigators unaware of the group identities and subdivided into three time periods, 0-6 h, 6-12 h, and 12-24 h, postoperatively. Duration of surgery (min) and also duration of the recovery period (min) were recorded.

The data was collected and analysed using SPSS version 19. All the values were expressed in mean and standard deviation.

RESULTS:

The data was collected from 100 patients. The mean age for group A was 45.6 ± 5.89, Group B 49.07 ± 2.1 and for Group C 49.9 ± 2.6 years. The demographic values of patients were presented in table 01.

Table 01: Demographic characteristics of selected patients

	Group A	Group B	Group C
Age (years)	45.6 ± 5.89	49.07 ± 2.1	49.9 ± 2.6
Weight (kg)	64.5 ± 10.3	72.2 ± 11.9	65.9 ± 13.5
Sex (M/F)	23/17	24/16	5/15
Smokers	11	10	12
Duration of surgery (min.)	68.5 ± 10.2	67 ± 13.9	70.2 ± 14.4
Duration of anesthesia (min.)	100.8 ± 9.5	99.8 ± 10.5	96.7 ± 10.6
Fentanyl administered (g)	163.1 ± 55.2	165.3 ± 55.8	165.6 ± 53.9
Awakening time (min.)	5.9 ± 1.24	6.2 ± 1.21	6.1 ± 1.2

Table 02 represent the incidence of nausea and vomiting in all three study groups.

Table 02: Analysis of incidence of nausea and vomiting in study groups

	Group A	Group B	Group C
Scale of PONV 0–12 hours			
none	24	27	12
Nausea	10	6	6
Nausea with request for antiemetics	6	4	1
Vomiting	0	2	1
Total PONV (%)	12 (30%)	12 (30%)	10
Scale of PONV 12–24 hours			
None	36	31	2
Nausea	4	7	16
Nausea with request for antiemetics	0	1	0
Vomiting	0	0	2
Total PONV (, %)	4	8	1

DISCUSSION:

Lower abdominal surgeries are associated with a relatively higher incidence of PONV. It can be problematic, particularly after lower abdominal surgeries since it can lead to complications such as wound dehiscence, prolonged recovery stay and also prolonged hospital stay, and moreover, increased cost [7]. Therefore, PONV is the anesthetic complication of greatest concern for patients and continues to be a significant concern for anesthesiologists. Propofol is a short-acting intravenous hypnotic agent used for induction and maintenance of general anesthesia and sedation for surgical operation and mechanical ventilation in adults [8]. Furthermore, Propofol has been reported to be an effective antiemetic in patients who had undergone various surgeries.

Borgeat et al. [9] demonstrated that propofol in subhypnotic doses (10 mg) possesses direct antiemetic properties in the context of minor elective surgery. Furthermore, the use of propofol for maintenance of anesthesia has a positive effect on PONV reduction [1]. Area postrema has the highest concentration of the 5 HT3 receptors in the brain. Possible stimulation of the 5 HT3 receptors in the area postrema with propofol may cause antiemetic effect. The authors found that

the levels of serotonin were reduced in the area postrema and cerebrospinal fluid in propofol administered rats. Thus, antiemetic properties of propofol may be attributed to its weak serotonin antagonistic effect [10].

CONCLUSION:

It is concluded that propofol 2 mg/kg/h is as effective as dexamethasone for the prevention of PONV during the first 24 hours after anesthesia in patients undergoing surgery. We suggest similar studies comparing the effects of type of anesthesia or other types of surgeries and different injection time periods of subhypnotic dose of propofol on PONV.

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