ORIGINAL RESEARCH

Ondansetron and Palonosetron for Prevention of Nausea and Vomiting Following Upper Abdominal Surgeries under General Anaesthesia

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ABSTRACT
Background: Any nausea, retching, or vomiting that happens in the post-anesthesia care unit (PACU) or within 24 hours after surgery is referred to as postoperative nausea and vomiting (PONV). The present study was conducted to compare Ondansetron and Palonosetron for prevention of nausea and vomiting following upper abdominal surgeries under general anaesthesia. **Materials & Methods:** 50 patients between 18 to 65 years of age scheduled for abdominal surgeries under general anaesthesia of both genders were divided into 2 groups of 25 each. Group I received ondansetron 2 mL (4 mg), and group II received 0.075 mg of palonosetron. Duration of anaesthesia, duration of surgery, type of surgery, incidence of nausea and retching etc. was noted. **Results:** Group I had 12 male and 13 females and group II had 11 males and 14 females. In group I and group II, duration of anaesthesia was 120.1 minutes and 132.1 minutes, duration of surgery was 124.2 minutes and 131.5 minutes. Open surgery was performed in 15 and 14 and laparoscopic surgery in 10and 11 patients. Nausea was seen in 17 and 3 and retching in 14 and 2 patients respectively. The difference was significant (P< 0.05). **Conclusion:** When it comes to preventing PONV, palonosetron at a dose of 0.075 mg is safe, has fewer side effects, and works better than ondansetron 4 mg.

Keywords: nausea, Palonosetron, retching

INTRODUCTION

Any nausea, retching, or vomiting that happens in the post-anesthesia care unit (PACU) or within 24 hours after surgery is referred to as postoperative nausea and vomiting (PONV). PONV is a prevalent issue with both general and regional anesthesia, and it is a major contributor to postoperative hospitalization and delayed discharge.[1] The incidence is 30% overall, but it can reach 80% in some high-risk people. Numerous studies that have already been conducted indicate that the overall incidence varies widely.[2,3] Abdominal surgery frequently involves PONV. Therefore, using a strong antiemetic becomes crucial for its effective treatment.[4]

According to Hasler WL and Chey WD's study, vomiting is defined as predetermined motor and autonomic reaction events that cause a violent evacuation of stomach contents through the mouth. According to Hasler WL and Chey WD's study[5], retching is the word used to characterize the laborious, rhythmic respiratory activity and contractions of the abdominal muscles that typically occur prior to vomiting.[6] Vomiting is defined as retching combined with the release of stomach contents. A second-generation antagonist of the serotonin 5HT3 receptor is palonosetron. Palonosetron bound to the 5HT3 receptor allostery. Additionally, it inhibits the neurokinin-1 receptor and has antiemetic effects.The present study was conducted to compare Ondansetron and Palonosetron for prevention of nausea and vomiting following upper abdominal surgeries under general anaesthesia.

MATERIALS & METHODS

The study was carried out on 50 patients between 18 to 65 years of agescheduled for abdominal surgeries under general anaesthesia of both genders. All gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 25 each. Group I received ondansetron 2 mL (4 mg), and group II received 0.075mg of palonosetron. Duration of anaesthesia, duration of surgery, type of surgery, incidence of nausea and retching etc. was noted. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	ondansetron 2 mL (4 mg)	0.075 mg of palonosetron
M:F	12:13	11:14

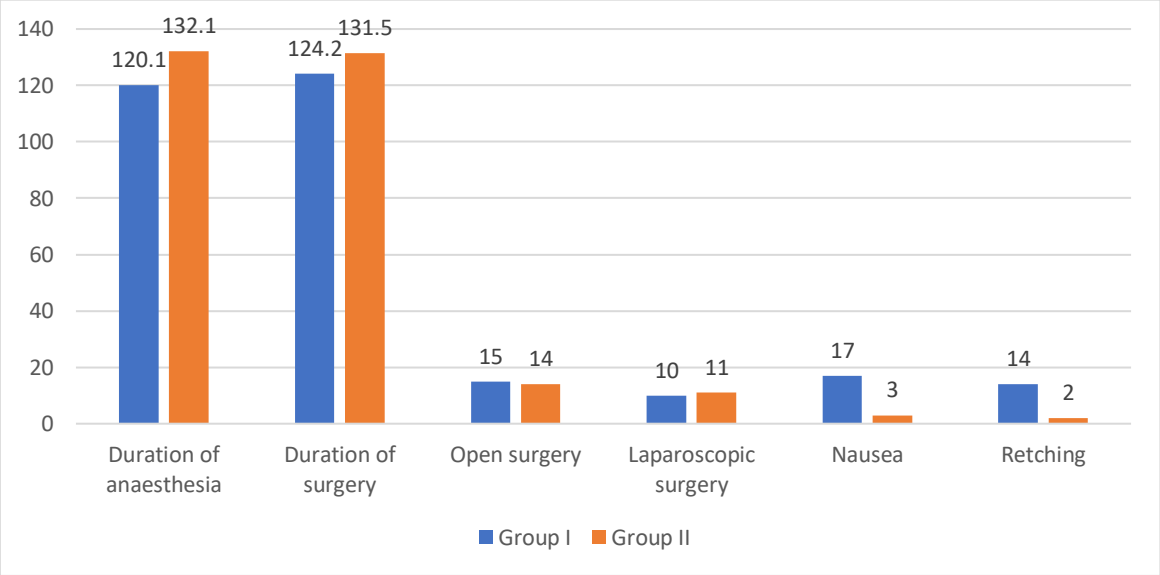
Table I shows that group I had 12 male and 13 females and group II had 11 males and 14 females.

Table II Assessment of parameters

Variables	Group I	Group II	P value
Duration of anaesthesia	120.1	132.1	0.91
Duration of surgery	124.2	131.5	
Open surgery	15	14	0.64
Laparoscopic surgery	10	11	
Nausea	17	3	0.01
Retching	14	2	0.02

Table II, graph I shows that in group I and group II, duration of anaesthesia was 120.1minutes and 132.1minutes, duration of surgery was 124.2minutes and 131.5minutes. Open surgery was performed in 15 and 14 and laparoscopic surgery in 10 and 11 patients. Nausea was seen in 17 and 3 and retching in 14 and 2patients respectively. The difference was significant (P< 0.05).

Graph I Assessment of parameters



DISCUSSION

Postoperative nausea and vomiting (PONV) is the most common complication of surgery and anaesthesia, leading to adverse consequences including patient dissatisfaction, unexpected hospital admission, and delayed recovery and return to work.[8] PONV is less commonly associated with more serious postsurgical complications such as wound dehiscence and surgical site bleeding.[9,10] The incidence of PONV can reach 80% in high-risk patients, underlining the importance of prevention and control by anaesthetists.[11]The present study was conducted to compare Ondansetron and Palonosetron for prevention of nausea and vomiting following upper abdominal surgeries under general anaesthesia.

We found that group I had 12 male and 13 females and group II had 11 males and 14 females. Gupta et al[12]compared the effectiveness of ondansetron and palonosetron for the prevention of PONV following upper abdominal surgeries. This prospective single-blind study included 120 patients randomly assigned to the palonosetron group (n=60) or the ondansetron

group (n=60). The incidence of nausea, vomiting and use of rescue antiemetic was significantly less in palonosetron group as compared to ondansetron group.

We found that in group I and group II, duration of anaesthesia was 120.1 minutes and 132.1 minutes, duration of surgery was 124.2 minutes and 131.5 minutes. Open surgery was performed in 15 and 14 and laparoscopic surgery in 10and 11 patients. Nausea was seen in 17 and 3 and retching in 14 and 2 patients respectively. Sharma et al[13]compared the efficacy of palonosetron and ondansetron in preventing PONV after middle ear surgeries.One hundred patients of ASA class 1 or 2, aged 18 years and above, weighing between 40 and 90 kg scheduled for elective middle ear surgeries were randomly assigned into palonosetron group (n = 50) and ondansetron group (n = 50). Palonosetron was administered in dose of 1 mcg/kg maximum up to 75 mcg and ondansetron in dose of 0.1 mg/kg maximum up to 8 mg. Intraoperative monitoring of QTc interval was also done to see any significant change after the antiemetic administration. The incidence of nausea, vomiting, and side effects were recorded over 2, 12, and 24 hours postoperatively. All parameters were compared between the two groups as mean ± standard deviation and as count (%).The incidence of PONV (P = 0.002), nausea (P = 0.0002) and vomiting (P = 0.006) was significantly lower in palonosetron group than in ondansetron group in 2- to 12-hour period. QTc interval prolongation, a known side effect of ondansetron was not found in palonosetron group intraoperatively.

Park et al[14]evaluated the relative efficacy of palonosetron (a new, selective 5-hydroxytryptamine type 3 [5-HT(3)] receptor antagonist) and ondansetron in preventing postoperative nausea and vomiting (PONV) in patients undergoing gynaecological laparoscopic surgery. Patients received either palonosetron 0.075 mg (n = 45) or ondansetron 8 mg (n = 45), intravenously, immediately before induction of general anaesthesia. The occurrence of nausea and vomiting and the severity of nausea according to a visual analogue scale were monitored immediately after the end of surgery and during the following 24 h. The incidence of PONV was significantly lower in the palonosetron group compared with the ondansetron group (42.2% vs 66.7%, respectively). There were no significant statistical differences in the visual analogue scale for nausea. In conclusion, palonosetron 0.075 mg was more effective than ondansetron 8 mg in preventing PONV.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that when it comes to preventing PONV, palonosetron at a dose of 0.075 mg is safe, has fewer side effects, and works better than ondansetron 4 mg.

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