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# A COMPARISON STUDY OF THE EFFICACY OF ORAL APREPITANT VERSUS INTRAVENOUSONDANSETRON IN THE PREVENTION/REDUCTION OF POST-OPERATIVE NAUSEA AND VOMITING AFTER ELECTIVE SURGERIES DONE UNDER GENERAL ANAESTHESIA

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## Abstract

**Background**: Postoperative nausea and vomiting (PONV) are distressing complications for patients undergoing surgeries under general anesthesia. This study compares the efficacy of oral Aprepitant and intravenous Ondansetron in preventing PONV.

**Methods**: A randomized control trial was conducted with 80 patients undergoing elective surgeries under general anesthesia, divided into two groups receiving either oral Aprepitant or intravenous Ondansetron. The primary outcomes measured were the incidence of nausea, vomiting, need for rescue antiemetics, patient satisfaction, and side effects.

**Results**: The Aprepitant group demonstrated significantly lower incidences of nausea (67.5% vs. 42.5%, P=0.019) and a reduced need for rescue antiemetics (22.5% vs. 52.5%, P=0.011) compared to the Ondansetron group. Patient satisfaction was higher in the Aprepitant group. Additionally, the incidence of headache as a side effect was lower in the Aprepitant group (25.0% vs. 55.0%, P=0.006).

**Conclusion**: Oral Aprepitant is more effective than intravenous Ondansetron in managing PONV post-elective surgeries under general anesthesia. Its use is associated with higher patient satisfaction and fewer side effects, suggesting it should be considered a preferred option for PONV prophylaxis in such clinical settings.

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**Keywords**: Postoperative Nausea and Vomiting, Aprepitant, Ondansetron, Elective Surgery, General Anesthesia, Patient Satisfaction.

## Introduction

Postoperative nausea and vomiting (PONV) remain two of the most common and distressing complications following surgeries conducted under general anesthesia, with an incidence rate reported to be as high as 30% in some patient populations [1]. These symptoms not only result in significant patient discomfort but also have implications for healthcare costs and resources, as they can lead to prolonged hospital stays and additional treatments [2]. Consequently, effective prophylaxis and management of PONV are pivotal in modern perioperative care.

Ondansetron, a serotonin 5-HT3 receptor antagonist, has been a mainstay in the prophylaxis and treatment of PONV. Its efficacy has been well-documented in numerous clinical trials and meta-analyses [3]. Aprepitant, a relatively newer agent, is a neurokinin-1 (NK1) receptor antagonist. It has demonstrated efficacy in the prevention of chemotherapy-induced nausea and vomiting (CINV) and has recently been explored for its potential in managing PONV [4].

The objective of this study is to compare the antiemetic efficacy of intravenous ondansetron and oral aprepitant in the prevention of postoperative nausea and vomiting in patients undergoing elective surgeries under general anesthesia. Additionally, this study aims to evaluate the side effects associated with these two medications. Understanding the comparative effectiveness and safety profiles of these antiemetics can significantly impact clinical decision-making in perioperative care.

PONV is a multifactorial phenomenon, with risk factors including patient-related factors (such as female gender, nonsmoking status, and history of motion sickness or PONV), type and duration of surgery, and anesthetic techniques [5]. The incidence of PONV varies but can

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affect up to 70-80% of high-risk patients [6]. The consequences of PONV extend beyond patient discomfort; it can lead to serious complications such as electrolyte imbalance, wound dehiscence, and increased risk of aspiration [7].

Current strategies for managing PONV include risk stratification and prophylactic administration of antiemetics. Ondansetron, a well-established 5-HT3 antagonist, is frequently used due to its proven efficacy and favorable side effect profile [8]. However, the emergence of tolerance and variability in patient response necessitates exploration of alternative or adjunctive therapies [9].

Aprepitant, acting on the NK1 receptor, represents a novel approach in PONV prophylaxis. Its mechanism of action, which differs from that of ondansetron, provides a theoretical basis for its use as a single agent or in combination with other antiemetics [10]. The exploration of oral aprepitant in the surgical setting is relatively recent, and its efficacy and safety profile in comparison to established agents like ondansetron warrant thorough investigation.

Several studies have compared the efficacy of ondansetron and aprepitant in PONV prevention. A meta-analysis by Singh et al. highlighted the potential of aprepitant as a superior agent in certain patient subsets [11]. However, direct comparisons in the context of elective surgeries under general anesthesia are less common, making this an area ripe for research.

The effectiveness of these drugs is not only measured by the incidence of PONV but also by patient satisfaction, the duration of hospital stay, and the need for rescue antiemetics [12]. Furthermore, the differential impact of these drugs in various surgical and patient contexts is an important consideration.

The safety profile and side effects of ondansetron and aprepitant are critical components of their overall utility. Ondansetron is generally well-tolerated but has been associated with

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headaches, constipation, and, rarely, QT prolongation [13]. Aprepitant is also well-tolerated, with the most common side effects being fatigue, hiccups, and, in some cases, mild liver enzyme elevations [14].

The comparison of oral aprepitant and intravenous ondansetron in the context of PONV after elective surgeries is not only about establishing efficacy but also about enhancing patient care through tailored treatment strategies. This study aims to contribute to the growing body of evidence in this domain, potentially influencing clinical guidelines and patient outcomes in the perioperative setting.

**Aims and Objectives**

The primary aim of this study was to compare the antiemetic efficacy of intravenous ondansetron and oral aprepitant in the prevention of postoperative nausea and vomiting (PONV) in patients undergoing elective surgeries under general anesthesia. The secondary objective was to evaluate the side effects associated with the use of oral aprepitant and intravenous ondansetron in this clinical setting.

**Materials and Methods**

The study was designed as a randomized control trial conducted at the Mandya Institute of Medical Sciences and Teaching Hospital, Mandya. It spanned a period of 12 months, from July 2021 to June 2022. The sample size, calculated based on a previous study by Gan et al. [10], consisted of 40 participants. This calculation was derived using the formula $N = [2(Z\alpha/2+Z\beta)^2 \times p \times q ]/ d^2$, where $Z\alpha/2$ was 1.96, $Z\beta$ was 0.84, p (the pooled probability) was 9, q was 91, and d (the effect size) was 18, resulting in N = 39.6, which was rounded to 40.

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Patients selected for the study were those undergoing elective surgeries under general anesthesia at the hospital. The inclusion criteria encompassed patients belonging to the American Society of Anesthesiologists Physical Status grade I and II, aged between 18 to 60 years, who were willing to give informed consent. Patients were excluded if they had known hypersensitivity or contraindications to the study drugs, had received antiemetic drugs or drugs with antiemetic properties 24 hours before anesthesia, had a history of motion sickness, had a Body Mass Index of more than 30, or had a history of gastro-esophageal reflux disease.

Data collection involved patients who met the study inclusion criteria over a year. These patients were randomly allocated into two groups of 40 each by a random number table prepared by an anesthetist not otherwise involved in the study. Group A received an oral dose of 80mg Aprepitant, while Group O received an intravenous dose of 4mg Ondansetron. Both groups were preloaded with 10ml/kg/hr Ringer lactate solution half an hour before surgery.

Standard anesthetic monitoring techniques were employed, including non-invasive blood pressure, peripheral oxygen saturation, temperature, and electrocardiography. Baseline blood pressure, mean arterial pressure, SpO2, and heart rate were noted. Premedication included Inj.glycopyrrolate, Inj.midazolam, Inj.Fentanyl, and Inj.Lignocaine. Anesthesia was induced using Propofol and facilitated with Vecuronium bromide, and maintained with IPPV using a mixture of oxygen and nitrous oxide and isoflurane.

Postoperative procedures included the administration of Inj.Neostigmine and Inj.Glycopyrrolate for reversal of neuromuscular blockade, and Inj.Paracetamol for analgesia. Patients were advised to rest for the first 24 hours postoperatively, avoiding other emetogenic analgesics and drugs. The assessment of nausea, retching, vomiting, and side effects was conducted over a 24-hour period postoperatively, with intervals at 0 to 2 hours, 2 to 6 hours,

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and 6 to 24 hours. Vomiting and nausea were defined clinically, and Inj. Metoclopramide was used as a rescue antiemetic. Adverse effects and patient satisfaction were also recorded.

The primary outcome measure was the incidence of early (0-2 hours) and delayed (2-24 hours) nausea and vomiting in the first 24 hours following anesthesia. Secondary outcome measures included the severity of nausea, the need for rescue medication, patient satisfaction, and the incidence of adverse effects.

Data analysis was conducted using Microsoft Excel and the Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics such as percentages, proportions, mean, and standard deviation were used for data analysis. Inferential statistics, including the Chi-square test and T-test, were applied to assess the association and differences between groups. The Mc Nemar test was utilized to determine the association of antiemetics with PONV, with significance set at 5% ($p<0.05$).

**Results**

The study's analysis revealed significant findings in the comparison of the efficacy of oral Aprepitant (Group A) versus intravenous Ondansetron (Group O) in the prevention of postoperative nausea and vomiting (PONV). The demographic and clinical characteristics of the participants in both groups were comparable. The mean age in Group O was 36.43 years (SD ± 14.175), and in Group A, it was 38.80 years (SD ± 16.354), with a P value of 0.490, indicating no significant difference. In terms of sex distribution, Group O consisted of 40.0% males and 60.0% females, while Group A comprised 50.0% males and 50.0% females, yielding a P value of 0.369. The ASA grading was also similar between the two groups, with P values of 0.820 for Grade 1 and non-significant for Grade 2.

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Heart rate measurements over various timepoints showed some differences between the groups. Preoperative heart rates were comparable (P = 0.683). However, there was a significant difference at 1 hour post-operation, where Group O had a mean heart rate of 86.90 bpm (SD ± 11.476) compared to Group A's 82.00 bpm (SD ± 9.814), with a P value of 0.043. The heart rate at 4 hours post-operation was also significantly different (P = 0.050), with Group O exhibiting a higher mean rate.

Respiratory rate measurements demonstrated significant differences postoperatively. At 1 hour post-operation, Group O had a mean respiratory rate of 13.55 breaths/min (SD ± 1.632), while Group A had a lower rate of 12.70 breaths/min (SD ± 1.924), resulting in a P value of 0.036. A similar significant difference was observed at 4 hours post-operation (P = 0.045).

SPO2 levels remained high and comparable in both groups during the perioperative period. A notable difference was observed at 1 hour post-operation (P = 0.004) and 4 hours post-operation (P = 0.020), with Group O maintaining slightly higher SPO2 levels.

Blood pressure measurements revealed some significant differences. While the systolic blood pressure (SBP) preoperatively and during surgery did not differ significantly, the SBP at 1 hour and 4 hours post-operation showed significant differences with P values of 0.031 and 0.033, respectively. Diastolic blood pressure (DBP) also exhibited a significant difference at 1 hour post-operation (P = 0.037) and 4 hours post-operation (P = 0.047).

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The analysis of PONV revealed notable differences. In the mild nausea category, significant differences were observed at 0-1 hour (P = 0.042) and 3-4 hours (P = 0.040) post-operation, with Group A showing a lower incidence. No significant differences were observed in the moderate and severe categories at different time points.

The grading of nausea showed a significant difference with Group A having a higher percentage of patients with no nausea (67.5% vs. 42.5% in Group O, P = 0.019). Episodes of emesis in the mild category showed no significant differences, while in the moderate category, a significant difference was observed at 0-1 hour and 3-4 hours post-operation (P = 0.040 and P = 0.025, respectively).

The requirement for rescue antiemetics was significantly higher in Group O, with 52.5% of patients needing them, compared to 22.5% in Group A (P = 0.011). The first episode of vomiting and first use of rescue antiemetics were significantly earlier in Group O.

Satisfaction with the control of PONV was higher in Group A, with 67.5% of patients rating it the highest, compared to 47.5% in Group O (P = 0.020). The verbal rating score for nausea also showed significant differences, with 80.0% of Group A patients reporting no nausea compared to 47.5% in Group O (P = 0.015).

Lastly, the incidence of headache as a side effect was significantly higher in Group O, with 55.0% of patients experiencing it, compared to 25.0% in Group A (P = 0.006).

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In summary, the study demonstrated that oral Aprepitant was more effective than intravenous Ondansetron in controlling PONV, with patients in Group A experiencing less nausea, vomiting, and fewer side effects such as headaches. Additionally, patient satisfaction regarding PONV control was higher in the Aprepitant group.

**Table 1: Demographic and Clinical Characteristics**

| Characteristic | Group O (n=40) | Group A (n=40) | P value |
|---|---|---|---|
| Age (years) - Mean ± SD | 36.43 ± 14.175 | 38.80 ± 16.354 | 0.490 |
| Sex - Male (%) | 16 (40.0) | 20 (50.0) | 0.369 |
| Sex - Female (%) | 24 (60.0) | 20 (50.0) | - |
| ASA Grading - Grade 1 (%) | 24 (60.0) | 23 (57.5) | 0.820 |
| ASA Grading - Grade 2 (%) | 16 (40.0) | 17 (42.5) | - |

**Table 2: Heart Rate Measurements Over Time**

| Timepoint | Group O Mean ± SD (bpm) | Group A Mean ± SD (bpm) | P value |
|---|---|---|---|
| Pre OP | 84.30 ± 10.929 | 83.43 ± 7.955 | 0.683 |
| Intra OP during induction | 85.30 ± 11.097 | 82.23 ± 9.225 | 0.182 |
| Intra OP during surgery | 85.43 ± 9.690 | 82.18 ± 8.183 | 0.109 |
| Post OP 1hr | 86.90 ± 11.476 | 82.00 ± 9.814 | 0.043 |
| Post OP 2hr | 85.60 ± 13.447 | 85.10 ± 10.107 | 0.851 |
| Post OP 3hr | 85.93 ± 13.667 | 84.74 ± 8.347 | 0.645 |
| Post OP 4hr | 89.95 ± 16.326 | 83.80 ± 10.844 | 0.050 |
| Post OP 24hr | 86.83 ± 13.122 | 85.23 ± 11.114 | 0.558 |

**Table 3: Respiratory Rate Measurements Over Time**

| Timepoint | Group O Mean ± SD (breaths/min) | Group A Mean ± SD (breaths/min) | P value |
|---|---|---|---|
| Pre OP | 12.75 ± 0.954 | 12.55 ± 0.846 | 0.324 |
| Intra OP during induction | 13.25 ± 1.214 | 12.83 ± 0.747 | 0.063 |
| Intra OP during surgery | 13.25 ± 1.335 | 12.88 ± 1.436 | 0.230 |
| Post OP 1hr | 13.55 ± 1.632 | 12.70 ± 1.924 | 0.036 |
| Post OP 2hr | 14.03 ± 2.130 | 13.35 ± 1.902 | 0.139 |
| Post OP 3hr | 13.63 ± 1.890 | 13.10 ± 1.411 | 0.163 |
| Post OP 4hr | 13.90 ± 2.028 | 13.08 ± 1.551 | 0.045 |
| Post OP 24hr | 13.25 ± 1.335 | 13.23 ± 1.656 | 0.941 |

**Table 4: SPO2 Measurements Over Time**

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| Timepoint | Group O Mean ± SD (%) | Group A Mean ± SD (%) | P value |
|---|---|---|---|
| Pre OP | 99.80 ± 0.332 | 99.68 ± 0.428 | 0.165 |
| Intra OP during induction | 99.96 ± 0.302 | 99.00 ± 0.321 | 0.567 |
| Intra OP during surgery | 99.92 ± 0.254 | 99.00 ± 0.324 | 0.222 |
| Post OP 1hr | 98.93 ± 0.267 | 98.63 ± 0.586 | 0.004 |
| Post OP 2hr | 98.88 ± 0.335 | 98.80 ± 0.464 | 0.410 |
| Post OP 3hr | 98.85 ± 0.427 | 98.68 ± 0.616 | 0.143 |
| Post OP 4hr | 98.90 ± 0.304 | 98.63 ± 0.667 | 0.020 |
| Post OP 24hr | 98.93 ± 0.267 | 98.88 ± 0.404 | 0.516 |

**Table 5: Blood Pressure Measurements Over Time**

| Timepoint | Measurement | Group O Mean ± SD (mmHg) | Group A Mean ± SD (mmHg) | P value |
|---|---|---|---|---|
| Pre OP | SBP | 125.00 ± 10.008 | 121.53 ± 9.182 | 0.110 |
| Intra OP during induction | SBP | 111.45 ± 8.829 | 112.43 ± 7.136 | 0.589 |
| Intra OP during surgery | SBP | 118.00 ± 8.803 | 117.40 ± 15.238 | 0.830 |
| Post OP 1hr | SBP | 122.75 ± 12.264 | 117.23 ± 10.179 | 0.031 |
| Post OP 2hr | SBP | 119.98 ± 10.783 | 122.48 ± 11.422 | 0.317 |
| Post OP 3hr | SBP | 122.05 ± 10.799 | 122.43 ± 12.287 | 0.885 |
| Post OP 4hr | SBP | 125.05 ± 11.996 | 119.08 ± 12.676 | 0.033 |
| Post OP 24hr | SBP | 123.38 ± 11.151 | 119.55 ± 9.708 | 0.106 |
| Pre OP | DBP | 75.98 ± 8.499 | 77.05 ± 12.270 | 0.651 |
| Intra OP during induction | DBP | 69.55 ± 8.638 | 70.80 ± 8.882 | 0.525 |
| Intra OP during surgery | DBP | 72.55 ± 7.609 | 70.13 ± 10.219 | 0.235 |
| Post OP 1hr | DBP | 78.75 ± 8.199 | 74.55 ± 9.476 | 0.037 |
| Post OP 2hr | DBP | 76.28 ± 8.497 | 74.75 ± 10.317 | 0.473 |
| Post OP 3hr | DBP | 87.20 ± 8.864 | 77.00 ± 9.207 | 0.275 |
| Post OP 4hr | DBP | 84.97 ± 9.695 | 80.63 ± 9.543 | 0.047 |
| Post OP 24hr | DBP | 80.25 ± 8.596 | 79.05 ± 7.971 | 0.519 |

**Table 6: Episodes of Nausea**

| Severity | Timepoint | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|---|
| Mild | 0-1hr | 8 (20.0) | 2 (5.0) | 0.042 |
| Mild | 1-2hr | 4 (10.0) | 3 (7.5) | 0.692 |
| Mild | 2-3hr | 1 (2.5) | 0 (0.0) | 0.314 |
| Mild | 3-4hr | 4 (10.0) | 0 (0.0) | 0.040 |
| Mild | 4-24hr | 1 (2.5) | 0 (0.0) | 0.314 |
| Moderate | 0-1hr | 2 (5.0) | 1 (2.5) | 0.556 |
| Moderate | 1-2hr | 3 (7.5) | 1 (2.5) | 0.305 |
| Moderate | 2-3hr | 6 (15.0) | 2 (5.0) | 0.136 |

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| Severity | Timepoint | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|---|
| Moderate | 3-4hr | 5 (12.5) | 3 (7.5) | 0.456 |
| Moderate | 4-24hr | 1 (2.5) | 1 (2.5) | 1.000 |
| Severe | 0-1hr | 1 (2.5) | 0 (0.0) | 0.314 |
| Severe | 1-2hr | 2 (5.0) | 0 (0.0) | 0.152 |
| Severe | 2-3hr | 4 (10.0) | 3 (7.5) | 0.692 |
| Severe | 3-4hr | 6 (15.0) | 5 (12.5) | 0.745 |
| Severe | 4-24hr | 3 (7.5) | 2 (5.0) | 0.644 |

**Table 7: Grading of Nausea**

| Grading | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|
| No | 17 (42.5) | 27 (67.5) | 0.019 |
| Mild | 10 (25.0) | 5 (12.5) | 0.080 |
| Moderate | 9 (22.5) | 8 (20.0) | 0.400 |
| Severe | 4 (10.0) | 0 (0.0) | - |

**Table 8: Episodes of Emesis**

| Severity | Timepoint | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|---|
| Mild | 0-1hr | 3 (7.5) | 1 (2.5) | 0.304 |
| Mild | 1-2hr | 2 (5.0) | 1 (2.5) | 0.152 |
| Mild | 2-3hr | 2 (5.0) | 1 (2.5) | 0.152 |
| Mild | 3-4hr | 1 (2.5) | 1 (2.5) | 1.000 |
| Mild | 4-24hr | 1 (2.5) | 0 (0.0) | 0.314 |
| Moderate | 0-1hr | 4 (10.0) | 0 (0.0) | 0.040 |
| Moderate | 1-2hr | 3 (7.5) | 4 (10.0) | 0.305 |
| Moderate | 2-3hr | 5 (12.5) | 3 (7.5) | 0.288 |
| Moderate | 3-4hr | 7 (17.5) | 1 (2.5) | 0.025 |
| Moderate | 4-24hr | 2 (5.0) | 1 (2.5) | 0.152 |
| Severe | 0-1hr | 0 (0.0) | 0 (0.0) | - |
| Severe | 1-2hr | 0 (0.0) | 0 (0.0) | - |
| Severe | 2-3hr | 0 (0.0) | 0 (0.0) | - |
| Severe | 3-4hr | 0 (0.0) | 0 (0.0) | - |
| Severe | 4-24hr | 0 (0.0) | 0 (0.0) | - |

**Table 9: Grading of Emesis**

| Grading | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|
| No | 10 (25.0) | 27 (67.5) | 0.005 |
| Mild | 9 (22.5) | 4 (10.0) | 0.160 |
| Moderate | 21 (52.5) | 9 (22.5) | 0.020 |
| Severe | 0 (0.0) | 0 (0.0) | - |

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**Table 10: Use of Rescue Antiemetic**

| Status | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|
| Given | 21 (52.5) | 9 (22.5) | 0.011 |
| Not given | 19 (47.5) | 31 (77.5) | - |

**Table 11: First Episode of Vomiting**

| Timeframe | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|
| 0 – 1hr | 16 (40.0) | 4 (10.0) | 0.070 |
| 1 - 2 hr | 0 (0.0) | 0 (0.0) | - |
| 2 - 3 hr | 0 (0.0) | 0 (0.0) | - |
| 3 - 4 hr | 10 (25.0) | 1 (2.5) | 0.006 |
| 4 - 6 hr | 0 (0.0) | 0 (0.0) | - |
| 6 - 24 hr | 0 (0.0) | 0 (0.0) | - |

**Table 12: First Use of Rescue Antiemetic**

| Timeframe | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|
| 0 – 1hr | 7 (18.0) | 1 (2.5) | 0.033 |
| 1 - 2 hr | 0 (0.0) | 0 (0.0) | - |
| 2 - 3 hr | 0 (0.0) | 0 (0.0) | - |
| 3 - 4 hr | 10 (25.0) | 2 (5.0) | 0.020 |
| 4 - 6 hr | 0 (0.0) | 0 (0.0) | - |
| 6 - 24 hr | 0 (0.0) | 0 (0.0) | - |

**Table 13: Satisfaction with Control of PONV**

| Satisfaction Level | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|
| 1 | 0 (0.0) | 0 (0.0) | 0.020 |
| 2 | 0 (0.0) | 0 (0.0) | - |
| 3 | 9 (22.5) | 1 (2.5) | - |
| 4 | 12 (30.0) | 12 (30.0) | - |
| 5 | 19 (47.5) | 27 (67.5) | - |

**Table 14: Verbal Rating Score**

| Score | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|
| 0 | 19 (47.5) | 32 (80.0) | 0.015 |
| 1 | 3 (7.5) | 3 (7.5) | - |
| 2 | 2 (5.0) | 2 (5.0) | - |
| 3 | 0 (0.0) | 0 (0.0) | - |
| 4 | 8 (20.0) | 0 (0.0) | - |

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| Score | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|
| 5 | 3 (7.5) | 2 (5.0) | - |
| 6 | 0 (0.0) | 0 (0.0) | - |
| 7 | 0 (0.0) | 0 (0.0) | - |
| 8 | 5 (12.5) | 1 (2.5) | - |
| 9 | 0 (0.0) | 0 (0.0) | - |
| 10 | 0 (0.0) | 0 (0.0) | - |

**Table 15: Incidence of Headache**

| Status | Group O COUNT (%) | Group A COUNT (%) | P value |
|---|---|---|---|
| Present | 22 (55.0) | 10 (25.0) | 0.006 |
| Absent | 18 (45.0) | 30 (75.0) | - |

## Discussion

The comparative efficacy of oral Aprepitant and intravenous Ondansetron in the management of postoperative nausea and vomiting (PONV) has been a subject of considerable interest in the field of anesthesiology. The results of our study align with and contribute to the existing body of literature on this topic.

Our findings that oral Aprepitant was more effective in controlling PONV than intravenous Ondansetron are consistent with the results of a study by Diemunsch et al. [15]. They reported a higher rate of complete response (no PONV and no need for rescue medication) with Aprepitant compared to Ondansetron. Similarly, Singh et al.'s meta-analysis [16] concluded that Aprepitant had a higher overall efficacy in preventing PONV, particularly in high-risk patients, which complements our observations of lower nausea scores and reduced need for rescue antiemetics in the Aprepitant group.

In terms of the incidence of headache as a side effect, our results mirror those found by Hesketh et al. [17], who reported a lower incidence of headache with Aprepitant compared to Ondansetron. This could be attributed to the different mechanisms of action of the two drugs,

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with Aprepitant targeting the neurokinin-1 receptor and Ondansetron blocking the serotonin 5-HT3 receptors.

The significant differences in heart rate and blood pressure observed in our study, particularly in the postoperative period, are noteworthy. These findings are similar to those of a study by Charbit et al. [18], where variations in hemodynamic parameters were noted with the use of Ondansetron. The differences could be attributed to the vagolytic effect of Ondansetron, which may result in higher heart rates and blood pressure values.

Regarding patient satisfaction with PONV control, our study's findings are in agreement with those of Gan et al. [19], who emphasized the importance of patient satisfaction as an outcome measure in PONV studies. The higher satisfaction rates in the Aprepitant group in our study could be attributed to its superior efficacy in controlling nausea and vomiting.

However, our study had certain limitations. The sample size, although calculated based on previous studies, was relatively small. Larger studies are needed to validate our findings further. Additionally, the study was conducted at a single center, which may limit the generalizability of the results.

Our study supports the growing evidence that oral Aprepitant is more effective than intravenous Ondansetron in preventing PONV, particularly in terms of reducing the incidence of nausea, the need for rescue antiemetics, and improving patient satisfaction. These findings have significant implications for clinical practice, suggesting that Aprepitant should be considered a viable option in PONV prophylaxis, especially in patients at high risk for this complication.

**Conclusion**

The study conducted at Mandya Institute of Medical Sciences and Teaching Hospital provides substantial evidence favoring the use of oral Aprepitant over intravenous

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Ondansetron for the management of postoperative nausea and vomiting (PONV) in patients undergoing elective surgeries under general anesthesia. The key findings indicate that Aprepitant is more effective in reducing the incidence of PONV with a significantly lower number of patients experiencing nausea (67.5% in Aprepitant group vs. 42.5% in Ondansetron group, P=0.019) and requiring rescue antiemetics (22.5% in Aprepitant group vs. 52.5% in Ondansetron group, P=0.011). Additionally, the Aprepitant group reported higher patient satisfaction levels and lower incidences of headache as a side effect. These results are pivotal as they not only enhance patient comfort and satisfaction but also potentially reduce hospital stay and resource utilization.

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