



A STUDY OF A COMPARATIVE STUDY OF ONDANSETRON AND GRANISETRON FOR PREVENTION OF NAUSEA AND VOMITING FOLLOWING LAPAROSCOPIC SURGERIES IN A TERTIARY CARE HOSPITAL IN KANCHIPURAM

Dr. Shereen Suresh*

MBBS Postgraduate, Department of Anesthesiology, Meenakshi Medical College And Research Institute, Kanchipuram, Tamilnadu. *Corresponding Author

Dr. Rachel Sharon Ambrose

MBBS Postgraduate, Department of Anesthesiology, Meenakshi Medical College And Research Institute, Kanchipuram, Tamilnadu.

Dr. P. S. Shanmugam

MBBS, MD, DA, Professor, Department Of Anesthesiology, Meenakshi Medical College And Research Institute, Kanchipuram, Tamilnadu.

ABSTRACT

BACKGROUND: Laparoscopic surgeries are usually associated with higher rates of post-operative nausea and vomiting. This study was designed to compare the effectiveness of Ondansetron with that of Granisetron for prevention of PONV after laparoscopic surgery.

AIMS

1. The efficacy of prophylactic administration of 4mg Ondansetron i.v. with that of 2mg Granisetron i.v. administered at the end of the surgery in preventing post-operative nausea and vomiting in patients undergoing laparoscopic surgeries.
2. The side effects of Inj Ondansetron and Inj Granisetron

MATERIALS AND METHODS:

60 Patients who were posted for laparoscopic surgery were selected and were divided randomly into two groups (30 in each group) A and B. Group A was given Ondansetron 4mg and Group B was given Granisetron 2mg intravenously post-surgery. Perioperative anaesthetic care was standardized in all patients. Patients were then observed 24 hours after administration of the study drug.

SPSS 24 was used for statistical analysis.

RESULTS:

Complete response (defined as no PONV and no need for another rescue antiemetic) was attained in 75% of the patients given ondansetron and 86% of the patients given granisetron with ($P < 0.05\%$).

CONCLUSION:

This study concludes that the prophylactic intravenous administration of Granisetron is more effective drug than ondansetron for controlling postoperative nausea and vomiting with less incidence of side effects.

KEYWORDS : Anaesthesia : PONV; laparoscopic surgery; Ondansetron; Granisetron

INTRODUCTION:

Post-operative nausea and vomiting are the most common distressing symptoms occurring after surgery. These factors prevent patients returning home at the end of the day, after surgery and necessitating readmission to the hospital.^{1,2} Postoperative nausea and vomiting are more common in female patients. Vomiting leads to dehydration and electrolyte imbalance which affects the duration of treatment so effective anti-emetic therapy is always needed in post-operative care.³

Ondansetron is selective 5-hydroxy tryptamine receptor antagonist possess property of superior antiemetic prophylaxis⁴. Granisetron is a 5-hydroxy tryptamine receptor antagonist, with stronger 5HT₃ binding.⁵ It is more potent and longer acting antiemetic agent compared to Ondansetron against emesis associated with chemotherapy, and have been found to be very effective for preventing PONV after laparoscopic surgery. Granisetron has less incidence of side effects.

Need for the study:

1. It highlights the importance of selection of best suitable anti emetic for post-operative nausea and vomiting
2. Scarcity of studies on comparison of Ondansetron and Granisetron in post-operative patients in sub urban population.

AIMS & OBJECTIVES OF THE STUDY:

To study the efficacy of prophylactic administration of 4mg Ondansetron i.v. with that of 2mg Granisetron i.v.

administered at the end of the surgery in preventing post-operative nausea and vomiting in patients undergoing laparoscopic surgeries in a tertiary care hospital in a sub urban population and The side effects of Injection Ondansetron and Injection Granisetron.

MATERIALS AND METHODS:

This was a randomized ,prospective study. After getting necessary permission, 60 patient's subjected to laparoscopic surgery in surgery department of Meenakshi medical college and research institute were observed .All patients included in the study were divided randomly into two groups A and B(30 in each group). Group A was given Ondansetron 4mg and Group B was given Granisetron 2mg intravenously post-surgery and observed for episodes of post-operative nausea and vomiting. Statistical analysis was done using SPSS24 in this study.

RESULTS:

Table – 1 Age Distribution Of Patients

Range	Ondansetron	Granisetron
18-30	24 (80%)	20 (66%)
31-40	3 (10%)	5 (17%)
41-50	3 (10%)	5 (17%)
Mean Age \pm SD	28.63 \pm 7.62	30.23 \pm 9.49

Table I- shows the socio demographic data of the patients screened in laparoscopic surgery and out of the 60 patients observed majority of patients belonged to 18 to 30 years group in group A 24 patients and 20 patients in group B . least were seen in 41- 50 years group with 3 patients in group A and 5 in

group B . Among the 60 patients 7(23%) were males in group A and 5(17%) were males in group B. 23(77 %) were females in group A and 25(83%) were females in group B

Table – 2 Weight Distribution Of Patients

Weight Range (in kgs)	Ondasetron	Granisetron
45-60	20 (67%)	23 (77%)
61-70	10 (33%)	7(23%)
Mean weight ±SD	56.93±10.62	50.86±10.85

Table II- In our study there was no much difference in weight distribution in both groups.

Table – 3 Incidence Of Nausea

Duration	Ondansetron (n=30)	Granisetron (n=30)
0-4hr	**4 (14%)	**2 (7%)
4-12hr	*2(7%)	*1 (4%)
12-24hr	1(4%)	0 (0%)

Table Iii – In our study it was observed that Occurrence of nausea in Ondansetron group and Granisetron group showed that incidence of nausea in 0-4 hours were 4 cases (14%)in Ondansetron group as compared to 2 cases (7%) in Granisetron group(P<0.01).

Incidence of nausea in 4-12 hours were 2 cases (7%)in Ondansetron group as compared to 1 cases (4%) in Granisetron group(P<0.05). Incidence of nausea in 12-24 hours was only 1 case (4%)in Ondansetron group as compared to 0 cases (0%) in Granisetron group.The incidence of nausea was maximum during the first four hours and it was more in the Ondansetron group.

Table – 4 Incidence Of Vomiting

Duration	Ondansetron (n =30)	Granisetron (n=30)
0-4hr	**4 (14%)	**2 (7%)
4-12hr	*3 (10%)	*1 (4%)
12-24hr	0 (0%)	0

Table IV- Incidence of vomiting episodes in Ondansetron group were 4 cases (14%) as compared to 2 cases (7%) in granisetron group in 0-4 hours(P<0.01). In 4-12 hours ondansetron group had 3 cases(10%) of incidence of vomiting as compared to 1 case (4%) in granisetron group (P<0.05). Again the incidence of vomiting was maximum during first four hours and no patient in any group vomited from 12 hours onwards.

Table – 5 Comparison Of Side Effects

Side effects	Ondansetron (n =30)	Granisetron (n=30)
Headache	*6(20%)	*4 (13 %)
Constipation	*4(13%)	*2 (7 %)
Dizziness	*4 (13%)	*2 (7 %)

Table V- The number of patients who suffered side effects were more in Ondansetron group.

DISCUSSION:

The study population included data of the patients who were undergoing laparoscopic surgery. Our study was done 60 patients who were randomly selected and divided into two group A (patients given Ondansetron) and B(patients given Granisetron) . Incidence of nausea in our study group was 25% in Ondansetron group, 11% in Granisetron group. Present study shows highly significant difference in first 0-4hr (P < 0.05). similar findings were seen in study done by Pueyo⁶. Vomiting in the present study group was 24% in Ondansetron, 11%in the Granisetron group. In our study group incidence of vomiting was highly significant in first 4hrs (P<0.01) similar finding were seen in study done by Bhattacharya⁷ . So our study shows the importance of Granisetron above ondansetron . Incidence of side effects was significant in our

study groups. Incidence of headache was 20% in Ondansetron group while it was 12% in Granisetron group , similar findings were seen in studies done by Vittoria⁸.

This study highlights the importance of delivery of early management for nausea and vomiting associated with post-surgery period . It helps in faster recovery and lesser hospital stay of the patient

Limitations:

1. Small sample size
2. Study period was very short .

CONCLUSION:.

Our study concludes that the prophylactic intravenous administration of

- Granisetron is more effective drug than Ondansetron for controlling postoperative nausea and vomiting with less incidence of side effects.
- Safety profile is more with Granisetron and it is more potent than Ondansetron.

So we observed minimal emetic and nauseating episodes in postoperative period in patients who had received i.v. Granisetron in comparison to i.v. Ondansetron, undergoing laparoscopic surgery under general anaesthesia.

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