



Anaesthesiology

COMPARISON OF ONDANSETRON AND METOCLOPRAMIDE IN THE PREVENTION OF POSTOPERATIVE NAUSEA AND VOMITING IN GENERAL ANAESTHESIA – A PROSPECTIVE COHORT STUDY

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ABSTRACT Post operative nausea and vomiting is one of the most commonly encountered adverse events after surgery and anesthesia. It is distressing for the patient and can lead to further postoperative complications. Antiemetic drugs with different mechanisms of action should be administered prophylactically to patients with moderate to high risk of developing PONV. Apart from utilizing prophylactic antiemetic drugs, the management of perioperative pain using opioid-sparing multimodal analgesic techniques is critically important for achieving an enhanced recovery after surgery.

KEYWORDS : PONV , Ondansetron , Metoclopramide

INTRODUCTION

Postoperative nausea and vomiting (PONV) is one of the complex and significant problems in anesthesia practice. PONV is influenced by multiple factors which are related to the patient, surgery, and pre-, intra-, and post-operative anesthesia factors(1).

Post-operative nausea and vomiting usually defined as nausea, retching or vomiting within 24 hours of surgery and affects 20-30% of patients. The term nausea refers to a subjective feeling of the urge to vomit. Vomiting or emesis is the actual oral expulsion of gastrointestinal contents resulting from the contractions of the gut and the thoraco-abdominal wall musculature. Retching is the term used to describe the muscular events of vomiting without expulsion of gastric contents(2).

Complex physiological processes lies at the root cause of PONV involves the chemoreceptor trigger zone (CTZ), and the nucleus tractus solitarius (NTS). The CTZ is outside the blood-brain barrier and can be affected by opioids, anaesthetics and neurotransmitters (e.g. 5-hydroxytryptamine [5-HT]) that may be released during surgery(3).

The treatment of PONV is most effective with a combination of agents and prevention is more effective than initiating therapy after the onset of symptoms. Agents used as antiemetics include serotonin antagonists (5-HT₃ antagonists) such as ondansetron, antidopaminergic agents such as Droperidol, antihistamines such as dimenhydrinate, and the anticholinergic transdermal medication scopolamine (best applied preoperatively). Additionally, low doses of the steroid dexamethasone are commonly given as a first or second-line treatment, and new medication aprepitant (NK1 antagonist) has proven particularly useful for prevention of PONV when given in the preoperative period. Metoclopramide, in addition to decreasing aspiration risk through increasing lower oesophageal sphincter tone and enhancing gastric emptying, also has antiemetic effects.(4).

Both ondansetron and metoclopramide have their own side effects and advantages and differ from each other in terms of efficacy and side effects. Hence the present study is to compare the effect of ondansetron 4mg and metoclopramide 10mg in patients undergoing general anaesthesia.

OBJECTIVES

Primary Objective

- To compare Ondansetron and Metoclopramide in the prevention of postoperative nausea and vomiting in general anaesthesia.

Secondary Objective

- To study incidence of nausea alone with metoclopramide and ondansetron.
- To study incidence of nausea and vomiting with metoclopramide and ondansetron.

METHODS

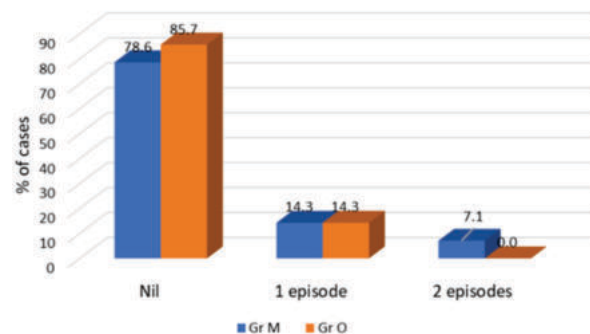
A prospective cohort study was conducted in a total of 56 patients of ASA I/II undergoing surgery under general anaesthesia. In group O, Ondansetron 4mg was given along with premedication before

induction of anaesthesia. In group M, metoclopramide 10mg was given along with premedication before induction of anaesthesia. Patients were then observed and interviewed postoperatively at immediate post operative period, at 2 hours and at 6 hours and the need for rescue antiemetic was noted. Statistical analysis: Results are presented as Mean $\pm$ SD and range values for quantitative data and frequencies as number & percentages. Unpaired t test was used to compare the means of two groups. Chi-square test (Test of association) was used for analyzing categorical data. A P value of 0.05 or less was considered for statistical significance. SPSS (Version 22, IBM) was used for data analysis.

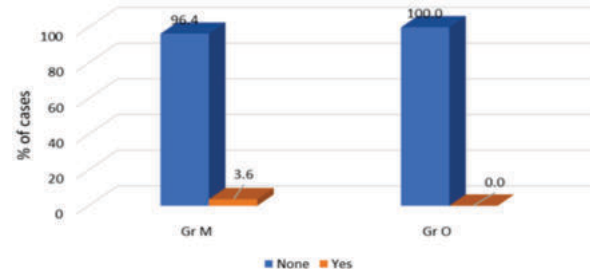
RESULT

Incidence of nausea alone and nausea with vomiting were lower in ondansetron group rather than metoclopramide. But this is statistically insignificant

Comparison Of Incidence Of Nausea & Vomitting Episodes Observed Post Op.2-6 Hrs.period In Two Groups



Comparison Of Incidence Of Nausea Alone Observed Between 2 – 6 Hrs Period In Two Groups



Comparison Between Overall Incidence Of Nausea Alone In Two Groups

	GROUP M		GROUP O		Total	
	No	%	No	%	No	%
Nausea alone	3	10.71	2	7.14	5	17.85
Nil	25	89.28	26	92.85	51	91.07
Total	28	100	28	100	56	100

Comparison Between Overall Incidence Of Nausea And Vomiting In Two Group

Incidence	GROUP M		GROUP O		Total	
	No	%	No	%	No	%
nausea and vomiting	13	46.4	8	28.6	21	37.5
Nil	15	53.6	20	71.4	35	62.5
Total	28	100	28	100	56	100

$\chi^2=1.91$, $P=0.17$, not significant

DISCUSSION

Postoperative nausea and vomiting can be prevented by various antiemetics. In our study, two different antiemetics were given to a total of 56 patients, 28 in each group, in Government Medical College, Thrissur. The patients in group O received ondansetron 4mg and those in group M received Metoclopramide.

Demographic data of group O and group M were comparable. The mean age in years in group O was 46.4. Whereas in group M mean was 40.6. The p value was 0.08 which was not statistically significant. The mean weight in kilogram in group O was 50.29 and mean weight in kilogram in group M was 48.50. The p value being 0.12 which was not statistically significant. Gender and ASA grade distribution were also comparable between two groups. Duration of surgery between two groups were also comparable, mean in group O was 2.45 Hours. Mean in group M was 2.45 Hours. P value was 0.36 which was not statistically significant.

In group M 60.7% received thiopentone sodium and 39.3% received propofol as induction agent. In group O 64.3% received thiopentone sodium and 35.7% received propofol. As p value 0.78, 2 groups are comparable in terms of induction agents.

In group M who received Thiopentone sodium 32.1% developed nausea and vomiting but only 14.3% develop nausea and vomiting in those who received propofol. In group O patients who received thiopentone sodium, 25% have nausea and vomiting, but only 3.6% of patients who received propofol developed nausea and vomiting.

There is no incidence of nausea alone in immediate postoperative period in both groups. Incidence of nausea alone in within 2 hours is 7.1% in both groups. There is no patient who have nausea alone in group O between 2-6 hours, but group M have 3.6% incidence of nausea alone between 2-6 hours, which is not statistically significant with P value 0.31.

Incidence of nausea and vomiting in immediate postoperative period in group M is 7.1% and group O is 3.6%, which is not statistically significant with p value 0.55. Incidence of nausea and vomiting within 2 hours in group M is 7.2% and group O is 7.1% with P value of 0.51.

Incidence of nausea and vomiting between 2-6 hours is 21.4% in group M and 14.3% in group O. As P value is 0.35, this is statistically insignificant.

Overall incidence of nausea and vomiting is higher in group M (46.4%) than group O (28.6%) with p value of 0.17 which is statistically insignificant.

CONCLUSION

Both metoclopramide and ondansetron are effective for prevention of PONV and there is no statistically significant difference between the 2 groups.

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