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A COMPARATIVE STUDY OF ONDANSETRON AND GRANISETRON WITH DEXAMETHASONE IN PROPHYLAXIS OF POST OPERATIVE NAUSEA AND VOMITING

Anaesthesiology

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ABSTRACT

Background: The most common and distress in gsymptomisnausea and vomiting after surgery (PONV). The prevalence of PONV is 20-30 % in general anaesthesia1,2. It is more in ocular, middle ear, gynecological surgeries and laproscopicprocedures2. PONV causes harm to surgical site sutures,anastomosis3.Itincreasesintraocular,intra-cranialpressureandmay also cause tachycardia, electrolyte imbalance, wound dehiscence, oesophageal tears and aspiration pneumonitis.The goal of this study was to compare the 5HT3 receptor antagonists Granisetron and Ondansetron with Dexamethasone in the prevention of PONV in patients undergoing laparoscopic surgeries undergeneralanaesthesia. **Materials And Methods:** After approval from theASRAMS Institutional Ethics Committee, the procedurewas clearly explained to patients and informed written consent was obtained. The study was conducted during the period, April 2023- March 2024 at ASRAM General and Super-Specialty Hospital, Eluru, Andhra Pradesh. Patients were randomly allocated into 2groups, each containing40 members, Patients of Group A will receive Ondansetron 4mg IV with dexamethasone 8mg IVand patients ofGroup BreceiveGranisetron2mg IV withdexamethasone 8mg IV. With in the event of 1 or more episodes of vomiting, rescue antiemetic Inj. Metoclopramide 10 mg IV was given. **Results:** There was a statistically significant difference between ondansetron,dexamathasone group and granisetron,dexamethasone group inincidence of nausea, retching, vomiting, and the requirement for rescue antiemetic also.Granisetron in combination with dexamethasone prevents PONV better than Ondansetronwithdexamethasone **Conclusion:** Consistentwiththefindingsofthisstudy,Granisetronatanintravenousdoseof 2mgtogetherwithDexamethasone8mgissaferandmoreeffectivethan4mg intravenous Ondansetron together with Dexamethasone 8 mg for antiemetic prophylaxis in surgeries done under general anaesthesia

KEYWORDS

Ondansetron, Granisetron, Dexamethasone, Laparoscopic surgeries

INTRODUCTION

Nauseais the subjective sensation of experiencing an urge to vomit, in the absence of expulsive muscula rmovements; whensevere, it is associated with increased salivary secretion, vasomotor disturbances, and sweating.Nausea is described as a painless unpleasant feeling that vomiting is imminent[6,7].

Vomitingis defined as the expulsion of contents of the gastrointestinal tract through the oral cavity.This force fulexpulsion of gastro in test in alcontents is the end product of contraction of the upper gastrointestinal musculature and synchronous contraction of the muscles of the thoracoabdominal wall. PONV isdescribedas"the biglittle problem"that complicatespostoperative recovery.

Advances in the field of anaesthesia with better techniques in addition to development of newer anti-emetics and shorter acting anaesthetics decreasedtheoverallincidenceofPONVinthefirst24hours. However high-risk patients have an incidence of up to 80% following surgery. These risk factors can be divided in to 4 categories.

1. patient Related Risk Factors:
- Young age
- Female gender
- Non smoker
- History of previous postoperative emesis
- History of motion sickness

2. Anaesthesia Related Risk Factors:
- General Anaesthesia>Epidural>SAB>PNB
- Drugs: Opipods,Volatile agents,Nitrous oxide

3. High Risk Surgical Procedures:
- Strabismussurgery
- Ear surgery
- Laparoscopy
- Orchidopexy
- Tonsillectomy
- Breast surgery

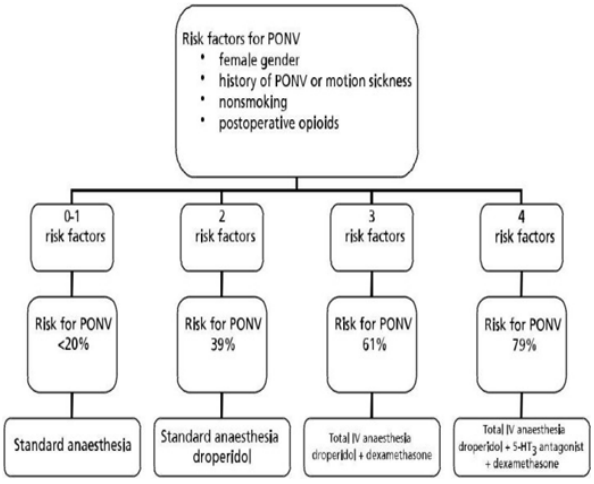
4. Risk Factors In The Post Operative Period:
- Post operative pain
- Hypotension

The etiopathogenesis of nausea and vomiting following laparoscopic surgeries is not fully understood.Long periods of Co2 insufflation, intraoperative use of isoflurane, fentanyl, glycopyrrolate, female sex,phase ofmenstrualcycle, and post operative use of PCA morphine may contribute to these episodes.

.Apfel's Simplified Risk Score For Ponv

Risk factors	Points
Female gender	1
Nonsmoker	1
History of PONV	1
Postoperative opioids	1
Total	0-4

PONV: Postoperative nausea and vomiting



MATERIALS AND METHODS

It Is A Randomisedcontrol Study Conducted In 40

PatientsundergoinglaparoscopicproceduresatAlluriSitaramaRaju Academy of Medical sciences, Eluru West Godavari district, Andhra Pradesh during the period April 2023-March 2024, After obtaining permission fromthe ASRAMS institutional ethics committee the study subjects selected by a simple random sampling method. Awritten consent wastakenfromthestudysubjectsafterexplanation about the purpose of the study to them.All patients were evaluated one day prior to surgery and necessary investigations sent and reviewed. All patients pre medicated and iv study drugs were given.After preoxygenation for

3 minutes, patients were induced and tracheal intubation done with appropriate size oral endotracheal tube.

Group A - 40 patients will receive Ondansetron 4mg IV with Dexamethasone 8mg Ivand

Group B - 40 patients will receive Granisetron 2mg IV with Dexametha sone 8mg IV.

The incidence of nausea, vomiting and retching was studiedafter extubation for a total period of 24hrs post operative

RESULTS:

There was no significant difference in patient demographics and general characteristics between the two groups.

1) Incidence Of Nausea:

Table1:Incidence of Nausea in two groups at different time intervals

	Nausea	0-2hours	2-12 hours	12-24 hours	%change
Ondansetronwith Dexamethasone (n=40)	Absent	31(77.5%)	33(82.5%)	38(95.0 %)	18.0%
	Present	9(22.5%)	7(17.5%)	2(5.0%)	-18.0%
Granisetronwith Dexamethasone (n=40)	Absent	37(92.5%)	39(97.5%)	40(100 %)	8.0%
	Present	3(7.5%)	1(2.5%)	0(0%)	-8.0%
	Pvalue	0.061	0.071	0.152	----

Chi-Squaretest/FisherExacttest

2) Incidence of Retching:

Table 2:Incidence of Retching in two groups at different time intervals

	Retching	0-2 Hours	2-12 hours	12-24 hours	%change
Ondansetronwith dexamethasone (n=40)	No	35(87.5%)	38(95%)	40(100 %)	13.0%
	Yes	5(12.5%)	2(5%)	0(%)	-`13.0%
Granisetronwith dexamethasone (n=40)	No	38(95%)	39(97.5%)	40(100 %)	5.0%
	Yes	2(5%)	1(2.5%)	0(%)	-5.0%
	Pvalue	0.235	0.551	1.00	----

Chi-Squaretest/FisherExacttest

3) Incidence Of Rescue Antie Metic Requirement

Table3:Incidence of Rescue antie metic requirement in two groups at different time intervals

	Rescue antiemetic	0-2 hours	2-12 hours	12-24 hours	%change
Ondansetron with Dexamethasone (n=40)	No	33(82.5%)	36(90%)	40(100 %)	18.0%
	Yes	7(17.5%)	4(10%)	0(0%)	-18.0%
Granisetronwith Dexamethasone (n=40)	No	38(95%)	39(97.5 %)	40(100 %)	5.0%
	Yes	2(5%)	1(2.5%)	0(0%)	-5.0%
	Pvalue	0.071	0.165	1.00	----

Chi-Squaretest/FisherExacttest

4) Incidence of adverse reactions:

Table4:Adverse Reactions in two groups of patients studied

AdverseReactions	Ondansetronwith dexamethasone		Granisetronwith dexamethasone	
	No	%	No	%
No	33	82.5	35	87.5
Yes	7	17.5	5	12.5

P=0.531,Notsignificant,Chi-Squaretest.

DISCUSSION:

During a prospective, randomised study, the efficacy of intravenous Ondansetron 4 mg and Granisetron 2 mg in conjunction with intravenous 8 mg Dexamethasone for reducing postoperative nausea and vomiting in people under going proceduresunder general anesthesia was compared. During the tutorial year from April 2023 to March 2024, 40 patients of either sex of ASA grade I and II, rang in ginage from18to70years,underwentlaparpscopic proced uresu nder general anesthesia at ALLURISITARAMARAJU ACADAMY OF MEDICAL SCIENCES, ELURU.

Thepatientswererandomisedintotwo40-persongroups(Aand B) randomly . Each patient received either 4mg i.vOndansetron or 2mg i.vGranisetronandbothgroupsreceivedivDexamethasone8mg,beforei nduction of general anesthesia .

Both groupsgiven an uniform anaesthetic method. At intervals of 0-2 hours, 2-12 hours, and 12-24 hours after surgery, patients were monitored for bouts of nausea, retching, and vomiting, also in view ofneed for the rescue antiemetic.

With in the event of 1 or more episodes of vomiting, rescue antiemetic Inj. Metoclopramide 10 mg IV was given. The drug's side effects, like headaches, dizziness, and constipation, QT prolangation were noticed.

The Findings Of Our Research Revealed That

1. At 0-2 hours, 2-12 hours, and 12-24 hours postoperatively, there was a statistically significant difference between Ondansetron, Dexamathasone group and Granisetron, Dexame thas one group inincidence of nausea, retching, vomiting, and the requirement for rescue antiemetic also.Granisetron in combination with dexamethasone prevents PONV better than Ondansetron with dexamethasone.
2. Ondansetron and Granisetron were both well tolerated, with little side effects; one of the most common side effect was constipation. In terms of negativeimpacts, there was no significant difference between the 2 groups.

CONCLUSION:

Granisetronatanintravenousdose of 2 mg together with Dexamethasone 8mg is safer and more effective than 4mg intravenous Ondansetron together with dexamethasone 8 mg for antiemetic prophylaxis in surgeries done under general anaesthesia.

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