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COMPARISION OF DEXAMETHASONE AND ONDANSETRON FOR PREVENTION OF PONV IN LAPAROSCOPIC SURGERIES UNDER GENERAL ANAESTHESIA.

Anesthesiology

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ABSTRACT

Introduction: Post-operative nausea and vomiting is a common morbidity observed after anesthesia and surgery. It has significance, especially in day care surgeries. PONV is the reason for unanticipated hospital admission, resulting in stress and financial burden. In this prospective double blind study, comparision of efficacy of dexamethasone and ondansetron was done. **Materials and Methods:** After obtaining approval of the hospital ethical committee and informed consent, 60 adult patients of either sex, scheduled for elective laproscopic surgeries under general anaesthesia were included in the study. A prospective double blind study, Group A received Ondansetron 4mg and Group B received Dexamethasone 8mg just before induction of general anesthesia. The antiemetic efficacy and patient satisfaction were analysed. The results of the study were statistically analyzed using the student t test and chi square test. **Discussion:** Incidence of PONV in patients undergoing laproscopic surgeries is 30-50%. Age, gender, smoking habits, past history of previous PONV and/or motion sickness, surgical procedure, length of procedure, and use of postoperative opioids are of importance in predicting PONV. Prevention of PONV can be observed in patients who are premedicated with anti-emetics.**Results:** All episodes of nausea and vomiting in the first 24 hour postoperative period during the interval of 0-6 hrs (early PONV) and 6-12 hours (late PONV) were evaluated by a numeric scoring system of PONV. The entire post operative experience was assessed using an 11 point verbal numeric scoring system (0 = not at all satisfied, 10 = fully satisfied).There is no statistically significant difference between Ondansetron and Dexamethasone in preventing postoperative nausea and vomiting either in the early or late postoperative period. But clinically significant difference was noted between these two groups .ie, when 83.3% had no nausea and vomiting in the Dexamethasone group ,93.3% had no nausea and vomiting in Ondansetron group. But in the late postoperative period, Dexamethasone had a better effect, ie, while 86.7% had no vomiting in Ondansetron group, 93.3% were free of vomiting episodes in Dexamethasone group. **Conclusion:** In the prevention of postoperative nausea and vomiting, Ondansetron is clinically better than Dexamethasone in early postoperative period. Dexamethasone is more effective in late postoperative period. Dexamethasone being cheaper and easily available can be considered in prevention of PONV.

KEYWORDS

PONV, I.V. dexamethasone ,I.V. ondansetron, laparoscopic surgeries

INTRODUCTION :

Laparoscopic surgery provides enormous benefits to patients, including quick recovery, shorter hospital stay and prompt return to regular activities.Incidence of PONV in laparoscopic surgeries accounts to 40-70%. Incidence of PONV are more with laparoscopic surgery due to manipulation of abdominal viscera, which is a strong emetic stimulus along with pain, anxiety and use of drugs like opioids and NSAID.PONV is highly unacceptable for the patients and may augment uneasiness and unwanted adverse effects that extend recovery time, delay patient discharge, and increase hospital expenses.It can also be life threatening if it predisposes to pulmonary aspiration syndrome.

AIM OF THE STUDY:

To compare efficacy of dexamethasone and ondansetron in prevention of PONV in laparoscopic surgeries done under general anaesthesia.

METHODS AND MATERIALS:

After Approval of the hospital ethical committee and written informed consent were obtained.60 adult patients of either sex,scheduled for elective laproscopic surgeries under general anaesthesia were included and randomly allocated into group A and B with 30 each.

A prospective double blind study, Group A received Ondans etron 4mg and Group B received Dexamethasone 8mg just before induction of general anesthesia.

Inclusion Criteria:

ASA 1 and 2 ,18 and 60 years of age, either gender undergoing laparoscopic surgery under general anaesthesia.

Exclusion Criteria:

Patients with history of gastro -oesophageal reflux,BMI> 30,history of motion sickness or prior history of PONV, who are menstruating or breast feedingwho had taken drugs with antiemetic effects (Phenothiazines, Benzamides, Scopolamine, Corticosteroids, and Tricyclic anti depressants) within 24 hours before surgery.

METHODOLOGY:

The patients were made to fast for 6 hours prior to surgery.Group A Ondansetron 4 mg in 0.9% saline, total 5m1. Group B Dexamethasone 8 mg in 0.9% saline, total 5m1, administer edintravenously before inductions of anaesthesia. All patients were given general anesthesia with endotracheal intubation, Pulse rate, ECG, BP, SpO2 were monitored.

After the procedure was done patients were extubated and shifted to recovery room. After shifting to recovery room, patients were observed for 24 hours and nausea and vomiting assessment were done.

All episodes of nausea and vomiting during the interval of 0 -6 hrs (early PONV) and 6-24 hours (late PONV) were evaluated by **a numeric scoring system of PONV.**

0= nausea or vomiting
1= nausea but no vomiting
12 2 2=vomiting once in 30 minutes or more
3 = persistent nausea (>30 minutes) or 2 or more vomiting in 30 minutes

Any patient having a PONV score of 2 was treated with Metoclopramide 10mg as a rescue antiemetic.

OBSERVATION AND RESULTS:

the antiemetic efficacy and patient satisfaction were analysed.the results of the study were analyzed statistically using the student t test and chi square test.

Demographic Pattern Of The Study

Parameters	Group A(ondan 4mg)	Group B(dexa 8mg)	P value
Age(years)	51.12+-10.23	52.32+-10.63	0.57
Weight (kg)	58.08+-6.629	61.48+-9.35	0.73
Sex(M/F)	18/12	19/11	0.89

At different time intervals - PONV scores

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PONV SCORE	Group A (0-6 hrs)	Group B (0-6 28hrs)	Group A (6-24 hrs)	Group B (6-24 hrs)
0(no nausea / vomiting)	23 (77%)	26 (86.6%)	22 (73.3%)	28 (93.3%)
1(nausea)	3 (20%)	2(13.3%)	4 (13%)	1 (3.3 %)
2(vomiting)	2 (13%)	2 (6.6 %)	2 (6.6 %)	1(3.3 %)
3(n/v within 30 min)	2 (33.3%)	0	2 (6.6 %)	0

PONV	Group A (ondan 4mg)		Group B (dexa 8mg)		p= value
At 0-6 hrs	PONV	No PONV	PONV	No PONV	
Nausea	7(22%)	23(78 %)	4(14%)	26 (86%)	0.506
Vomiting	3(10%)	27 (90%)	1(3%)	29 (97 %)	0.612
At 6-24 hrs					
Nausea	8(20%)	22 (80%)	2(6%)	28(94%)	0.037*
Vomiting	10(12%)	20(88%)	4(8%)	26(92%)	0.028*

P value <0.05* was considered as statisticall y significant

DISCUSSION:

PONV is multifactorial –patient factors, anaesthesia factors, surgical factors contribute to its incidence. Ondansetron is a selective 5-HT3 receptor antagonist, effective in preventing PONV, has a plasma half-life of approximately 3 hrs.

According to McKenzie and colleagues in a dose ranging study, it was demonstrated that a single 4-mg i.v. dose appeared to be the lowest acceptable dose to prevent PONV. Dexamethasone was first reported to be an effective antiemetic agent in patients undergoing cancer chemotherapy in 1981.

Plasma elimination half-life of dexamethasone is approximately 4–4.5 hrs.dose ranging study by Drapkin and Sokl evaluated the optimal effective dose of i.v. dexamethasone is 8mg.Dexamethasone may antagonize prostaglandin or release endorphins that elevate mood, improve one's sense of wellbeing, and stimulate appetite.

According to X Wang et al study, Ondansetron was effective at decreasing PONV in the early postoperative stage (0–6 h), while Dexamethasone was more effective at decreasing PONV in the late postoperative stage (6–24 h). This study demonstrated similar results with the above study, wherein,82% of patients with dexamethasone had shown no PONV at late(6-24 hrs) post operative period in comparision with that of ondansetron where only 50% has shown no PONV.

B.Subramaniam, R.Madan, S. Sadhasivam et al. Dexamethasone is a cost effective alternative to Ondansetron in preventing PONV after paediatric strabismus repairIn another study Gautam B, Shrestha BR, in 2012, proved Ondansetron and Dexamethasone were more effective than placebo in controlling PONV after tympanoplasty surgeries.

CONCLUSION:

In the prevention of postoperative nausea and vomiting, Dexamethasone is more effective than Ondansetron in late postoperative period and has better satisfactory scores Dexamethasone being cheaper and easily available can be considered in prevention of PONV.

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