



Original Article

Comparison of Metoclopramide and Dexamethasone in Post-Operative Vomiting

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ABSTRACT

Postoperative nausea and vomiting are one of the most common complaints following anesthesia and surgery. This study was designed to evaluate the efficacy of dexamethasone and metoclopramide to prevent postoperative vomiting (POV) in patients undergoing abdominal surgeries. **Objective:** To compare the efficacy of injection metoclopramide with injection dexamethasone for POV after abdominal surgeries. **Methods:** This Randomized Double-Blind Controlled Trial was conducted in ward 3, Jinnah Postgraduate Medical Centre, Karachi for one year, upon a sample of 98 patients, aged 12 to 60 years and undergoing abdominal surgery (elective and emergency) divided into two groups (Group A: Injection Metoclopramide 10 mg, and Group B: Injection Dexamethasone 8mg), of 49 patients each. The incidence of POV were recorded during the first 24 h postoperatively. **Results:** The mean age of the sample stood at 31 (SD ± 03) years, with most of the sample comprising of males (72.45%). Vomiting was noted in both groups, with group A reporting vomiting among 07 individuals and group B reporting vomiting among 09 individuals. There was no statistical difference between the incidences of vomiting in both groups. **Conclusion:** After careful consideration, it may be concluded that both agents, namely metoclopramide and dexamethasone are efficacious at minimizing the incidence of POV and hence both may be used interchangeably or in conjunction among patients undergoing abdominal surgeries.

INTRODUCTION

Post-operative vomiting (POV) is among the most common causes of patients' distress [1]. In the absence of pharmacologic intervention, the POV incidence after surgery ranges from 20-30% [2] however, it may hike up to as high as seventy percent after abdominal surgeries [3]. POV can lead to dehydration, anxiety, wound disruption, metabolic abnormality, prolonged recovery, and other issues with a significant health expenditure burden [4]. Thus finding a pertinent solution to the issue is of utmost importance. Various aspects pertaining to the patient, such as the fairer gender, smoking habit, past POV history, and travel sickness are known to be significant factors increasing the risk of POV. Additionally, numerous factors pertaining to anesthesia, for example nitrous oxide and opioid use and general anesthesia duration have been

proposed to carry significant risk of POV [5]. Owing to this multifaceted causation of POV, neither of the present classes of anti-emetics is entirely curative for patients and a single best option continues to elude us. Among the many choices available for prophylaxis, the two most used drugs are a metoclopramide and dexamethasone [6]. Though metoclopramide is an established anti-emetic, the use of dexamethasone for this purpose is relatively new. Individual clinical research has noted dexamethasone to be an effective antiemetic agent capable of lessening the incidence of early PONV following abdominal surgeries [7]. It is also reported that dexamethasone usage is free from any marked adverse effects. Moreover, it may decrease postoperative pain after laparoscopic cholecystectomy [8]. In this modern era of medicine, patients demand to be

given the best evidence-based medicine to treat their condition. However, owing to a lack of direct comparative studies between the top two drugs for POV (metoclopramide and dexamethasone), healthcare professionals are often at loss for ample evidence to choose between either of the two. In this scenario, POV prevention, following abdominal surgeries is a test for the healthcare provider [9, 10]. Owing to the discomfort it brings to the patients and the increasing frequency of such surgeries being performed on daycare basis, knowledge regarding the most effective prophylactic therapy is becoming highly desirable for alleviation of undesirable POV symptoms and an early home discharge. The high incidence and much distress associated with POV merits the utmost attention. An ideal prophylactic regimen, if identified, can significantly decrease the morbidity associated with this condition. The aim of study was to compare the efficacy of injection metoclopramide with injection dexamethasone for POV after abdominal surgeries.

METHODS

This randomized double-blind controlled trial was conducted in Ward 3, Jinnah Postgraduate Medical Centre, Karachi, from November 2020 to November 2021, upon a sample of 98 patients, aged 12 to 60 years and undergoing abdominal surgery (elective and emergency) divided into two groups (Group A: Injection Metoclopramide 10 mg, and Group B: Injection Dexamethasone 8mg), of 49 patients each. The incidence of POV were recorded during the first 24 h postoperatively. All consecutive patients presenting to the study setting and meeting the eligibility criteria were allocated to either of the groups (A or B) using computer generated simple randomized numbers. The study medicines were given by slow (thirty seconds) IV injection. Postoperatively, all patients were monitored for POV for 24 hours. POV was checked at thirty minutes and 2, 4, 8 and 24 hours after surgery by the researcher. The intensity of POV was gauged using a visual analog scale ranging from no symptom (0 cm) to maximum intensity symptoms (10 cm). The visual analog scale was categorized into four parts: zero cm for no symptoms; one to three cm for mild symptoms; three to seven cm for moderate symptoms, and seven to ten cm for severe symptoms. Data was analyzed using the IBM SPSS version 21.0 and M.S Excel 2013. Descriptive statistics such as mean \pm standard deviation (SD) was used for continuous variables such as age and VAS Score. Numbers and percentages were used to describe the proportion of categorical variables such as sex and the frequency and severity of POV.

RESULTS

The mean age of the sample stood at 31(SD \pm 03) years, with

most of the sample comprising of males (72.45%). The summary of descriptive statistics is tabulated below in Table 1.

Variable		Group A	Group B	Cumulative
Mean Age		31.5 (SD \pm 03)	30.5 (SD \pm 03)	31 (SD \pm 03)
Gender	Male	35 (71.43%)	36 (73.47%)	71 (72.45%)
	Female	14 (28.57%)	13 (26.53%)	27 (27.55%)
Type of Surgery	Elective	37 (75.55%)	41 (83.67%)	78 (79.59%)
	Emergency	12 (24.49%)	08 (16.33%)	20 (20.41%)

Table 1: Descriptive statistics

Vomiting was noted in both groups, with group A reporting vomiting among 07 individuals and group B reporting vomiting among 09 individuals. There was no statistical difference between the incidences of vomiting in both groups, Table 2.

POV	Group A	Group B	P-Value
Incidence	07 (14.29%)	09 (18.38%)	0.971

Table 2: Incidence of POV in both groups

The severity of POV is tabulated below in both groups, Table 3.

Severity of POV	Group A	Group B	P-Value
No Symptoms	42 (85.71%)	40 (81.63%)	0.971
Mild	1 (2.045%)	3 (6.12%)	0.634
Moderate	5 (10.2%)	4 (8.16%)	0.929
Severe	1 (2.045%)	2 (4.09%)	0.711

Table 3: Severity of POV in both groups

DISCUSSION

A common complication encountered by patients following abdominal surgery is POV. The condition, though seemingly non-life threatening, is much distressful and at times, a stronger source of patient dissatisfaction than even post-operative pain [10]. POV may hinder the early discharge of otherwise recovered patients and thus add to burden on the already limited healthcare resources [11]. Having a post-operative incidence as high as 63% following certain abdominal surgeries, (in the absence of pharmacologic prophylaxis [12] there is a dire need to address this condition. Metoclopramide and dexamethasone are two commonly employed drugs known to offer prophylaxis against POV [13]. In this research, the incidence did not exceed 18.38% due to the pharmacologic prophylaxis. Research suggests that dexamethasone may offer successful prophylaxis against POV at a dose of 5–8mg. Similarly, there is evidence of metoclopramide too exhibiting successful prophylactic ability against POV at a dose of 4mg [14]. Existing RCTs have fallen short of identifying which among the two pharmacologic agents exhibits a better prophylactic ability and provides more relief to the patients from POV following abdominal surgeries [15, 16]. Research with contradicting claims have begun to surface recently, with some claiming

dexamethasone to be a better prophylactic agent (especially owing to its safety, cost-effectiveness and being free from any reported side effects in addition to offering pain relief) the while the others supporting ondansetron (due to its greater efficacy) [17, 20].

CONCLUSION

After careful consideration, it may be concluded that both agents, namely metoclopramide and dexamethasone are efficacious at minimizing the incidence of POV and hence both may be used interchangeably or in conjunction among patients undergoing abdominal surgeries.

REFERENCES

- [1] Myles PS, Wengritzky R. Simplified postoperative nausea and vomiting impact scale for audit and post-discharge review. *British journal of anaesthesia*. 2012 Mar; 108(3):423-9. doi: 10.1093/bja/aer505
- [2] Iitomi T, Toriumi S, Kondo A, Akazawa T, Nakahara T. Incidence of nausea and vomiting after cholecystectomy performed via laparotomy or laparoscopy. *Masui. The Japanese journal of anesthesiology*. 1995 Dec; 44(12):1627-31.
- [3] Tseng LH, Liou SC, Chang TC, Tsai SC, Soong YK, Wong SY. A randomized blinded study of the incidence of postoperative nausea and vomiting in women after major gynecologic laparoscopic surgery. *Journal of minimally invasive gynecology*. 2006 Sep; 13(5):413-7. doi: 10.1016/j.jmig.2006.05.003
- [4] Regasa T, Aweke Z, Neme D, Hailu S, Jemal B, and Mekonen S. Comparison of prophylactic dexamethasone, metoclopramide, and combination of dexamethasone and metoclopramide for prevention of post-operative nausea and vomiting for major gynaecological surgery in Hawassa university compressive specialized hospital, Ethiopia, 2019. *International Journal of Surgery*; 27(2): 18-24. doi:10.1016/j.ijso.2020.10.004
- [5] Gan TJ. Risk factors for postoperative nausea and vomiting. *Anesthesia & Analgesia*. 2006 Jun; 102(6):1884-98. doi: 10.1213/01.ANE.0000219597.16143.4D
- [6] Kwak KH. PONV prevention: still not enough. *Korean journal of anesthesiology*. 2017 Oct; 70(5):489. doi: 10.4097/kjae.2017.70.5.489
- [7] Sekhavat L, Davar R, Behdad S. Efficacy of prophylactic dexamethasone in prevention of postoperative nausea and vomiting. *Journal of epidemiology and global health*. 2015 Jun; 5(2):175-9. doi: 10.1016/j.jegh.2014.07.004
- [8] Tan M, Law LS, Gan TJ. Optimizing pain management to facilitate enhanced recovery after surgery pathways. *Canadian Journal of Anesthesia/Journal canadien d'anesthésie*. 2015 Feb; 62(2):203-18. doi: 10.1007/s12630-014-0275-x
- [9] Hammad RA, Eldeek AM, Hussien RM, Shendy AA. Dexamethasone versus ondansetron in prevention of postoperative nausea and vomiting after laparoscopic surgery. *The Egyptian Journal of Hospital Medicine*. 2018 Jul; 72(10):5479-84. doi: 10.21608/EJHM.2018.11362
- [10] AlJabari A, Massad I, AlZaben K. Post-operative nausea, vomiting and pain score in post anesthesia care unit (PACU) at Jordan university hospital. *Journal of Anesthesia and Clinical Research*. 2016; 7(595):2. doi:10.4172/2155-6148.1000595
- [11] Cao J, Liu B, Li X. Analysis of delayed discharge after day-surgery laparoscopic cholecystectomy. *International Journal of Surgery*. 2017 Apr; 40:33-7. doi: 10.1016/j.ijso.2017.02.055
- [12] Smith CA, Ruth-Sahd L. Reducing the incidence of postoperative nausea and vomiting begins with risk screening: An evaluation of the evidence. *Journal of PeriAnesthesia Nursing*. 2016 Apr; 31(2):158-71. doi: 10.1016/j.jopan.2015.03.011
- [13] Atashkhoei S, Bilehjani E, Fakhari S, Hanieh FA. Postoperative Nausea and Vomiting Prophylaxis with Ondansetron in Diagnostic Gynecologic Laparoscopy: Preemptive versus Preventive Method. *Advances in Reproductive Sciences*. 2017 Jan; 5(1):1-9. doi:10.4236/arsci.2017.51001
- [14] Awad K, Ahmed H, Abushouk AI. Dexamethasone combined with other antiemetics versus single antiemetics for prevention of postoperative nausea and vomiting after laparoscopic cholecystectomy: An updated systematic review and meta-analysis. *International journal of surgery*. 2016 Dec; 36:152-63. doi: 10.1016/j.ijso.2016.10.034
- [15] Firdaus K, Dan A, Maaya M. Dexamethasone 8 mg Versus Dexamethasone 4 mg with Propofol 0.5 mg/kg for the Prevention of Postoperative Nausea and Vomiting after Laparoscopic Gynaecology Procedure. *International Medical Journal*. 2016 Feb; 23(1).
- [16] Munishankar B, Fettes P, Moore C, Mcleod GA. A double-blind randomized controlled trial of paracetamol, diclofenac or the combination for pain relief after cesarean section. *International Journal of Obstetric Anaesthesia*. 2008 Sep; 17:9-14. doi: 10.1016/j.ijoa.2007.06.006
- [17] Chan A, Dore CJ, Ramachandra V. Analgesia for day surgery. Evaluation of the effect of diclofenac given before or after surgery with or without bupivacaine infiltration. *Journal of Anaesthesia*. 1996; 51:592-5. doi: 10.1111/j.1365-2044.1996.tb12574.x

- [18] Krzyzanowski SA, Kim K, Smith DC, Young M, Buffington CK. The Effects of a Dexamethasone-based Prophylaxis Protocol on Postoperative Nausea and Vomiting (PONV) and the Duration and Associated Cost of the Hospital Stay. *Surgery for Obesity and Related Diseases*. 2018 Nov; 14(11):S7. doi:10.1016/j.soard.2018.09.474
- [19] Gao C, Li B, Xu L, Lv F. Efficacy and safety of ramosetron versus ondansetron for postoperative nausea and vomiting after general anesthesia: a meta-analysis of randomized clinical trials. *Drug Des Devel Ther*. 2015;9:2343./doi.10.2147/DDDT.S80407
- [20] Merrikhihaghi S, Farshchi A, Farshchi B, Farshchi S, Dorkoosh FA. Tramadol versus Diclofenac in pain management after cesarean section: a cost analysis study. *Journal of Pharmacoeconomics and Pharmaceutical Management*. 2015; 1(1):22-4.