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A PROSPECTIVE COHORT STUDY ON THE EFFECTIVENESS OF SMALL DOSE OF PROPOFOL COMPARED TO METOCLOPROMIDE FOR PREVENTION OF POSTOPERATIVE NAUSEA AND VOMITING AFTER GYNECOLOGIC SURGERY IN TIKUR ANBESSA SPECIALAIZED HOSPITAL

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ABSTRACT

Post-operative nausea and vomiting (PONV) is a common problem affecting 30%-70% of the patient within the first 24 to 48 hours after surgery. Propofol is an anesthetic agent used commonly for induction and maintenance. Recently its antiemetic activity at sub hypnotic low dose makes it as one prophylactic medication for Postoperative Nausea and vomiting. the Objective of this research is to compare the effectiveness of small dose of propofol with metoclopromide on prevention of postoperative nausea and vomiting after gynecologic surgery under general anesthesia at Tikur Anbessa Specialized Hospital, in Addis Ababa. It is an institutional based prospective cohort study recruits 78 patients who underwent gynecologic surgery randomly. The comparison of data showed that during the first 6 hr the incidence of postoperative nausea and vomiting were 41% with propofol group and 64.1% with metoclopromide group (p=0.041). The incidence of nausea alone have statistically significant higher association in metoclopromide than propofol group 64.1% versus 41% respectively (P =0.041) during the first 6hr but there were no statistically differences at 12 and 24 postoperative hours. The median nausea severity NRS score in the first 6 postoperative hours were lower 0 in propofol compared to 3 in metoclopromide group (p= 0.032). To conclude Small dose propofol given at the end of surgery is more effective than metoclopromide but have no difference after 6 hours to reduce the incidence and severity of post operative nausea and vomiting after gynecologic surgery. Based on these we recommend use of low dose propofol is effective antiemetic than metoclopromide in the first 6 postoperative hours.

KEYWORD: Small Dose of Propofol, Metoclopromide, Nausea and Vomiting.

INTRODUCTION

Gynecological surgery under general surgery is one of the most common operations performed throughout the world. Associated with this surgery postoperative nausea and vomiting is the common perioperative complication observed.[1]

Postoperative nausea and vomiting (PONV) is any nausea or vomiting occurring during the first 24-48 h after surgery. It is an unpleasant, and unfortunately common symptom affecting patients undergoing surgery.[2] It may take place in single or multiple episodes and it can be early, occurred 2 to 6 hours after surgery, and late, occurred 24 or 48 hours after surgery.[3]

In gynecological procedures the incidence of PONV is a complex multifactorial problem. Stimulation of uterus, broad ligament, vagina and cervix causes vomiting through afferents to spinal cord along hypogastric and pelvic plexus. Also surgical pain increases the circulating catecholamine which causes PONV by stimulating area posterma.[4]

Occurrence and severity of PONV is influenced by several factors including patient socio-demographic characteristics, duration and type of anesthesia / surgery, medications and postoperative patient condition.[5,6] Apfel et al. developed a simplified risk score consisting of four predictors for PONV; female gender, history of motion sickness or PONV, non-smoking status and the use of opoids for postoperative analgesia. If none, one, two, three or four of these risk factors were present, the incidences of PONV were 10%, 21%, 39%, 61% and 79% respectively.[7,8]

The Pathophysiology of Vomiting is complex and elicited through a series of autonomic changes that interact within the vomiting center. Signals are mediated

primarily through neurotransmitter- receptor systems and antiemetics for prophylaxis and/or treatment of PONV act by blocking one or more receptors.[9]
Controversy still persists in effectiveness of different antiemetics for prevention and treatment of PONV, probably because of its multi-factorial etiology and also due to different risk of emetic squeal of PONV on different patient population.[5]

A number of antiemetics medications have been tried to decrease the incidence and severity of PONV. Although, their cost is expensive, recently serotonin antagonists such as ondansetron or granisetron are the most popular agent used for prevention and treatment of PONV but are too expensive for routine use in developing countries. Other cost effective antiemetic such as metoclopramide and low dose propofol have also been shown to be an effective anti-emetic drug used for prevention of PONV in patients undergoing surgery.[10,11]

Propofol is a novel anesthetic agent used for induction and maintenance. In small subhypnotic dose it possesses antiemetic activity. However, the exact mechanism by which Propofol acts as an antiemetic remains unclear and controversial. But it has been postulated that its antiemetic effects may be as an antagonist at the 5-HT3 receptor. In addition it has a direct depressant effect on the chemoreceptor trigger zone (CTZ), and decrease synaptic transmission in the olfactory cortex.[12] The objective of this study is To compare the effectiveness of small dose propofol with metoclopromide in prevention of postoperative nausea and vomiting after gynecologic surgery under general anesthesia at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia.

MATERIALS AND METHODS

The study is an Institutional based prospective cohort study conducted from January 10, 2018 to March 10, 2018 GC. Study participant were followed starting from immediate PACU till 24th hours prospectively.

Study Area: The study conducted at Black Lion Specialized Hospital located, in Addis Ababa, capital city of Ethiopia. It opened since 1972 and in 1998 transferred to school by FMOH. Since then it became a university teaching hospital which is the largest, multi-specialist tertiary care teaching hospital and offer diagnosis & treatment for approximately 370,000-400,000 in a year. BLSH is now the main teaching hospital for clinical and preclinical trainings of most disciplines. It has about 800 beds, about 17 operation theatre which approximately 7000-9000 elective and emergency patients undergo surgery in a year.

Data sourse

All elective gynecologic patients, who underwent surgery under general anesthesia in Black Lion Specialized Hospital.

Sample Size Determination: Two independent sample size formulas based on mean difference of PONV, Nausea NRS score and total antiemetic request among two groups were used to calculate sample size for each group. Having no previous study done in the study area, result adopted from literature has been used to calculate sample size based on the three outcome variable and the largest sample size were used for recruiting study subjects.

$$n = \frac{(S_1^2 + S_2^2)(\alpha+\beta)^2}{(X1-X2)^2}$$

Where n = the sample size in each of the groups
S_1^2 = Sample variance in Metoclopromide group
S_2^2 = Sample variance in Propofol group
α = Conventional multiplier for alpha =0.05, which is 1.96
β = Conventional multiplier for power = 0.80, which is 0.842
X_1 = Sample mean in metoclopromide group
X_2 = Sample mean in propofol group
$X_1 - X_2$ = the difference the investigator wishes to detect
From the literature in Turkey the mean rescue antiemetic consumption in 24hr is 0.5 from metoclopromide group and 0.13 from propofol group and $\sigma 1 = 0.52$, $\sigma 2 = 0.64$[.21]

Substituting for this variables yields

$$n = \frac{((0.52)^2 + (0.64)^2) \times (1.96+0.842)^2}{(0.5-0.13)^2}$$

n = 39, using 1:1 ratio between groups a total of 78 patients were required.

Sampling Procedure: Patients who underwent gynecologic surgery under general anesthesia were recruited into the study during postoperative period. A Systematic random sampling technique was applied to achieve the required sample size. With 176 patients estimated to undergo gynecological surgery during study period with three patients in every working day at Black Lion Specialized Hospital from the situational analysis. Using the skip interval (k=N/n, 176/78 =3), where N= number of patients during the study period, n = sample size, k = interval. From three patients scheduled for gynecological surgery, one patient was taken following the first patient was selected through lottery method. Study participants were grouped based on whether they received propofol (0.5mg/kg) or metoclopromide (10mg) and selection made on the rest of numbers in both groups till the required sample size is reached.

All patients who were scheduled for elective gynecologic surgery under general anesthesia who fulfill inclusion criteria and volunteer to take part in the study were instructed on how to self-report nausea using the eleven point NRS score 0 to 10 in the morning of operation day at ward with trained nurse. Anesthetic management for gynecologic surgery in study hospitals are carried out by B.Sc., M.Sc. anesthesia professional and anesthesiologist. At the end of the procedure before skin

closure the responsible anesthesia professionals give propofol 0.5mg/kg for propofol group and 10mg metoclopromide for other metoclopromide group. In the postoperative time patients transferred to recovery room and transferred to ward when they recover from anesthesia. In ward patient were usually observed by ward nurses and nausea and vomiting is usually managed by metoclopromide based on patient complain and sometimes on physician order.

Data Collection Tool and Procedure

Structured checklists and questionnaires were prepared in English which included socio-demographic, perioperative data, incidence of nausea, severity of nausea, antiemetic consumption.

In the postoperative period patients were asked to report nausea and vomiting at PACU as soon as they fully respond to verbal command. Then PONV and other variables were recorded by one PACU and two ward nurses at 6^{th}, 12^{th} and 24^{th} hours at PACU and wards. Intraoperative data were collected by anesthetists while postoperative data was collected by two nurses after getting training and the PI supervise the completeness of the data daily.

Data Quality Control

Collected data were checked for completeness, accuracy and clarity. Incomplete data were not entered a data base prepared on Epi-info. Data clean up and cross-checking was done before analysis on SPSS. Supervision was done during data collection by principal investigator and M.Sc. anesthesia students.

Ethical Consideration

Ethical clearance was obtained from the university ethical clearance committee before the start of the study. The importance of the study was explained & verbal informed consent was obtained from each participant by the data collector. Confidentiality was maintained at all levels of the study by avoiding identifiers and using codes to identify patients. Participant's involvement in the study was on voluntary bases, participants who were not willing to participate in the study & those who wish to quit their participation at any stage was informed to do so without any restriction.

Analysis: After data cleared manually it were entered into Epi-info 7 and transported to SPSS V 20 for analysis. Shapiro Wilk test were used to test for distributions of data while homogeneity of variance were assessed using Levene's test for equality of variance. Numeric data were described in terms of mean ± SD for symmetric and median (IQR) for asymmetric numeric data. Comparison of numerical variables between study groups were done using unpaired student t- test and Manny Whitney test based for symmetric and asymmetric data respectively. Frequency and percentage were used to describe categorical variable and statistical difference between groups were tested using Chi square or Fisher's exact test. A p value < 0.05 with power of 80% considered statistically significant.

RESULT AND DISCUSSION

Demographic and Perioperative Characteristics

Seventy eight patients were analyzed based on whether they received Propofol at the end of surgery before skin closure for antiemetic supplementation as propofol group and those who took metoclopromide as metoclopromide group.

Demographic and Preoperative characteristics

There was no statistical difference (p>0.05) and are comparable between two groups in terms of Age, BMI, ASA status and NPO time. (***Table 1).***

Table. 1: Demographic and Preoperative characteristics of elective Gynecologic patient between two groups in Black Lion Specialize Hospital, from January 10 to March 10, 2018.

		Propofol Group (n=39)	Metoclopromide Group (n=39)	p values
Age in years (Mean ± SD)		45.85 ± 12.33	40.64 ± 11.30	0.056
Weight in Kg (Mean ± SD)		57.69 ±7.88	60.95 ± 8.79	0.089
BMI in Kg/m^2 (Mean ± SD)		22.85 ± 2.58	23.29 ± 2.96	0.487
NPO Time in Hr (Median, IQR)		9(8-10)	9(8-10)	0.432
ASA status	ASA 1 (n, %)	32 (41%)	33 (42.3%)	0.91
	ASA 2 (n, %)	7(9%)	6 (7.7%)	

Hint: n (%) = Number (proportion); SD=Standard Deviation; IQR=Interquartile range

Intraoperative characteristics of the patient: The current study also showed that there was no significant difference between the two groups regarding intra operative variables including type of induction, analgesia taken , and duration of surgery and anesthesia with a p value of >.05(table 2).

Table. 2: Intraoperative characteristics of patients who underwent gynecologic surgery at Black Lion Specialized Hospital, from January 10 to March 10, 2018.

		Propofol Group (n=39)	Metoclopromide Group (n=39)	p values
Thiopentone -induction dose in mg (mean ±SD)		224±23	213±38	0.42
Maintenance	Halothane	32(82%)	35(89.7 %)	0.36
	Isoflurane	7(18%)	4(10.25%)	0.64
Number of Patients taking Morphine (n, %)		8(20.5%)	12(30.8%)	0.513
Type of Surgical Procedures	Trans abdominal Hysterectomy (n, %)	17(21.8%)	18(23.1%)	0.837
	Myomectomy (n, %)	8(10.3%)	10(12.8%)	
	Salphingopherectomy (n, %)	9(11.5%)	6(7.7%)	
	Others (n, %)	5(6.4%)	5(6.4%)	
Duration of Surgery (min) (Mean ± SD)		111.79±32.17	104.62±32.15	0.327
Duration of Anesthesia (min) (Mean ± SD)		122.31±33.58	114.36±33.01	0.295

Hint: n (%) = Number (proportion); SD=Standard Deviation; IQR=Interquartile range

Postoperative Characteristics of the Patients

In the postoperative time patients assessed for pain severity, analgesic consumption and incidence of hypotension and there were no significant difference and comparable between two groups over 24 hours. Neither of the groups have incidence of hypotension (*Table 3*).

Table. 3: Postoperative Characteristic of patients who underwent Gynecological surgery at Black Lion Specialized Hospital, from January 10 to March 10, 2018.

		Propofol group (n=39)	Metoclopromide group (n=39)	P values
Postoperative oral intake time in Hr (Mean ± SD)		16.92±2.88	17.67±2.923	0.262
Postoperative pain	Mild (n, %)	24(61.53%)	19(48.7%)	0.71
	Moderate (n, %)	11(28, 2%)	14(35.9%)	0.29
	Sever (n, %)	4(10.25%)	6(15.38%)	0.1
24hr Analgesic Consumption	Tramadol (mean ± SD)	50±8.5	46.6±11.5	0.636
	Diclofenac (mean ± SD)	125±24	118±12.6	0.46

Hint: n (%) = Number (proportion); IQR=interquartile range; SD=standard deviation

Incidence of Postoperative Nausea and Vomiting Between Two Groups: The incidence of PONV in the first 6hr postoperatively was significantly lower in the propofol group than that of metoclopromide group 41% and 64.1% respectively (p=0.041). However, there were no statistically significant differences at 6 to 12hrs, or at 12 to 24 hrs postoperative time. (*Figure -1*). The incidence of nausea alone during the first six postoperative hours was significantly lower in patients who received propofol 41% versus 64.1% in metoclopromide group (P =0.041). Six hours after the surgery, 5.1% of the patients who received metoclopromide presented vomiting, with p =0.152; but no vomiting from the propofol group. The difference was not statistically significant. No further vomiting was reported 12 hours later in both groups. *(Table 2).*

Table. 4: The incidence of postoperative nausea and vomiting (PONV) of patients, who underwent elective gynecologic surgery under general anesthesia, at Black Lion Specialized Hospital, from January 10 to March 10, 2018.

Interval		Propofol group (n=39)	Metoclopromide group (n=39)	P value
0 to 6hr	Nausea (n, %)	16(41%)	25(64.1%)	0.041*
	Vomiting (n, %)	0(0%)	2(5.1%)	0.152
	PONV (n, %)	16(41%)	25(64.1%)	0.041*
6 to 12 hr	Nausea (n, %)	13(41%)	19(48.7%)	0.495
	Vomiting (n, %)	0	1(2.6%)	0.314
	PONV (n, %)	16(41%)	19(48.7%)	0.495
12 to 24 hr	Nausea (n, %)	14(35.9%)	12(30.8%)	0.631
	Vomiting (n, %)	0	0	-
	PONV (n, %)	14(35.9%)	12(30.8%)	0.631
Overall 24hr PONV		56.4%	66.7%	0.36

*Hint: PONV= postoperative nausea and vomiting * = Significant*

The overall incidence of PONV in 24 postoperative hours were 56.4% in propofol group compared to 66.7% in metoclopromide group with no statistical difference between groups (p=0.36).

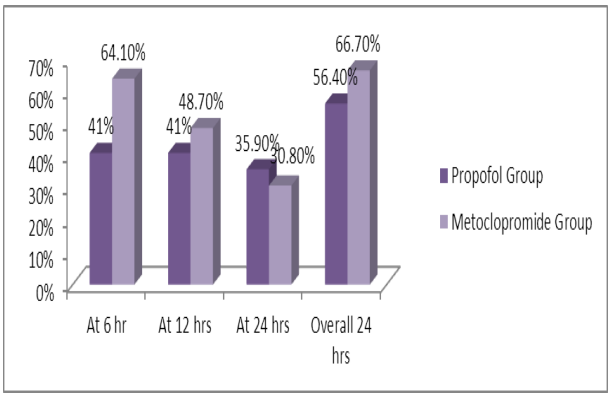


Figure. 1: Incidence of Postoperative Nausea and vomiting (PONV) between propofol and metoclopromide groups.

Severity of postoperative nausea between two group

In the first 6 postoperative hours the median (IQR) severity of nausea (NRS) score reduced significantly for the propofol group 0(0-3) compared to metoclopromide group 3(0-5) p=0.032. At this period propofol is effectively reduce the severity of nausea compared to metoclopromide. But at 12 and 24 post-operative hours no significant difference reported on severity of nausea between propofol and metoclopromide groups.

Table. 5: Comparison of postoperative Nausea severity using 11 point NRS score (0-10) of elective Gynecologic patients in Black Lion Specialize Hospital from January 10 to March 10, 2018.

Severity of Nausea	Propofol Group (n=39)	Metoclopromide Group (n=39)	P value
0-6hr (median, IQR)	0(0-3)	3(0-5)	0.032*
6-12hr (median, IQR)	0(0-3)	0(0-3)	0.52
12-24hr (median, IQR)	0(0-3)	0(0-2)	0.579

*Hint: IQR =interquartile range; * =significant*

Figure-2: Below the box and whisker graph shows severity of nausea have statistical difference at 6 but have no after the shown time frame.

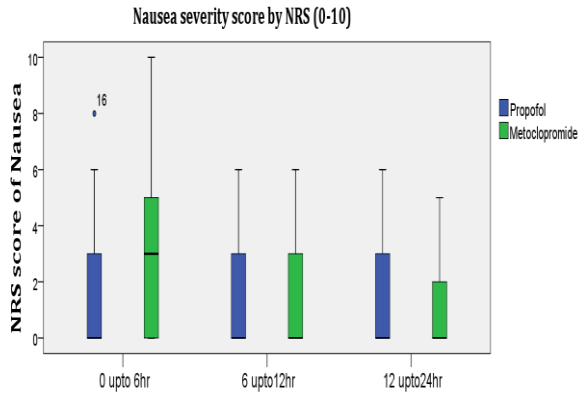


Figure. 2: Comparison of postoperative Nausea severity score using 11 point NRS (0-10).

Comparison of total 24hr Rescue Antiemetic consumption between groups: During the first postoperative 24h, five patients required rescue antiemetic in the propofol group and seven patients in that of metoclopromide group (12.8% versus 17.9% respectively) which is not statistical significant between the group. The mean (SD) rescue antiemetic metoclopromide consumption over 24hrs in mg were 1.28±3.38 in propofol group compared to 1.78±3.89 in metoclopromide group which is not statically significant (p=0.54). These results show that during the 24 postoperative hours using propofol is comparable with metoclopromide in the need for rescue antiemetic medication.

Table. 6: Dose of rescue antiemetics and number of patients taking rescue antiemetic in postoperative 24hour in Black Lion Specialize Hospital, from January 10 to March 10, 2018.

	Propofol group (n=39)	Metoclopromide group (n=39)	P value
Dose of rescue metoclopromide in 24hrs (mean, SD)	1.28± 3.38	1.78± 3.89	0.54
Number of patients taking rescue antiemetics (n, %)	5 (12.8%)	7(17.9%)	0.53

Hint: IQR= interquartile range; n, %= number (proportion)

DISCUSSION

Major Gynecological surgeries are associated with highest incidence of post operative nausea and vomiting as high as 60-83%.[17] Although propofol was initially accepted as an induction and maintenance anesthetic agent, its clinical use has remarkably expanded recently. In this study, we focused on unique antiemetic properties of propofol compared with metoclopromide.

This study demonstrates the overall incidence of PONV in 24 postoperative hours were 56.4% in propofol group compared to 66.7% in metoclopromide group with no statistical difference between groups (p=0.36). But at immediate 6 postoperative hours PONV incidence were lower in propofol group, 41% compared to metoclopromide group 64.1% with p value of 0.04 which shows propofol reduce PONV significantly in this time. The occurrence of PONV at 12th post-operative time is 41% and 48.7% in propofol and metoclopromide group respectively with no statistical difference (p=0.49). The incidences of PONV were also not significant at 24th post-operative time between the two groups (p=0.63). In addition the incidence of nausea significantly reduced in propofol group 41% compared to metoclopromide group 64.1% in the first 6hrs (P=0.04) but there is no significant difference at 12 and 24 postoperative hours.

The result of this study is in line with study done in Turkey showing administering propofol (0.5mg/kg) at the end of surgery is effective as metoclopromide (0.2mg/kg) in preventing PONV. This RCT study shows the incidence of nausea 0 to 4 hours were 6(30%) in propofol group, 9(45%) in metoclopromide group and 16(80%) in placebo group with p value of 0.002 which is significant while there is no statistical difference at 4-12 and 12 -24hours. The likely explanation for the similarity between two studies is the antiemetics were given at the end of surgery in both studies.[24]

Our study also shows comparable result with study done in India where propofol (0.5 mg/kg) with either ondansetron (0.1 mg/kg) or metoclopramide (0.2 mg/kg) in preventing PONV after ENT surgery. Incidence of PONV during the first 24 hours was 20%, 70% and 50% of the patients who received ondansetron, metoclopromide or propofol respectively ($p < 0.05$).[25] Slight variations in the incidence of PONV reported might be explained by the different types of surgery studied, and study population demographics. Specifically, middle ear surgery is associated with a higher incidence of PONV due to direct or indirect stimulation of vestibular system.

In contrary to our study RCT study in Japanese patients showing propofol were associated with significantly lower prevalence of PONV compared with metoclopromide in the first postoperative 24hours after breast cancer surgery. The prevalence of PONV 0 to 24 hours after anesthesia were 28% with propofol (0.5mg/kg) (P = 0.005), 32% with droperidol (20mcg/kg) (P = 0.011), and 60% with metoclopromide (0.2mg/kg) (P = NS), compared with placebo group (68%).[20] The possible explanation for this contradictory result is difference in study design and PONV management practice in study set up.

Another RCT study by fuji Y et. al is not comparable with our study which demonstrate that small dose propofol (0.5 mg/kg) is more effective than droperidol or metoclopromide for the prevention of PONV after thyroidectomy. The incidence of PONV during the first 24 hours after anesthesia was recorded in 13%, 47%, and 50% of patients who had received propofol, droperidol, and metoclopromide, respectively ($P < 0.05$).[21] This contradictory result is possibly due to a difference in surgical procedures and anesthetic management.

In Zimbabwe RCT study demonstrate propofol (0.5mg/kg) didn't show antiemetic efficacy which is contradicted with our study. Incidence of nausea within one hour was 7.5% in the propofol group and 2.5% in the non propofol group (P = 0.6) and 10% and 15% nausea incidence after one hour in the respective groups. Four participants (10.5%) complained of either nausea or vomiting from the propofol group compared to 9 (21.4%) from the non-propofol group (P =0.23) which was not statistically significant.[29] Another study done Gan TJ et. al also shows low-dose (1.0 mg/kg/hr) propofol does not decrease the frequency of nausea and vomiting after general anesthesia for major gynecologic surgery and laparoscopy in contrary to our study.[18] But in our study propofol at low dose (0.5 mg/kg) given at the end of surgery was effective as metoclopromide in reducing the frequency of nausea and vomiting during gynecological surgery done under general anesthesia. This difference might be due to the difference in study design, type of anesthesia used and surgery and patient characteristics.

Our study also shows the proportions of patients who had vomiting at 24 hour is 10.25% and majority of them 7.69% from metoclopromide group and 2.56% from propofol group with no significant p value of 0.49. As shown by prospective RCT study by Yusuf Unal M et. al the proportions of patient who vomited 0-4hr was 25% in propofol group, 40% in metoclopromide group, and 75% in control group (p=0.002). But there were no significant differences between the values at 4-12 and 12-24 hours which is comparable with our study.[24] In our study the median (IQR) nausea NRS score in the first 6 hours were significantly lower in propofol group 0(0-3) than metoclopromide group 3(0-5) with a p value of 0.03. The median (IQR) nausea NRS score at 12hr is 0(0-3) and 0(0-3) and at 24 postoperative time 0(0-3) and 0(0-2) in propofol and metoclopromide group respectively. But the median NRS score of nausea at 12 and 24 postoperative hours have no significant different between the two groups Comparable to our study RCT done in Turkey shows the median (IQR) nausea and vomiting score is lower in propofol 0(0-1.75) than in metoclopromide group 1(0-2) in which propofol in reduce severity of Nausea and Vomiting significantly in the early 4 postoperative hours than metoclopromide. But no statistical difference found between two groups after 4 postoperative times.[24]

Another study done by Dr.Swati Shah also shows low dose propofol is effective in prevention of severity of nausea and vomiting compared to control group after abdominal or vaginal hysterectomy under central neuraxial block. By nausea and vomiting rating scale the Median (IQR) episodes of nausea in propofol group were 3(0-5) and 6(0-8) in control group with a significant P value 0.001.[4] This result is comparable with our study which shows propofol is effective to reduce the severity of nausea and vomiting However, the small discrepancy in median might be resulted by difference in perioperative patient management and type of anesthesia used.

In addition another study done by Aidah Alkaissil in Palestine shows that metoclopromide reduced the intensity of nausea at PACU, ward and 24 postoperative hours which is comparable with our study.[26]

This study also shows the mean (SD) rescue metoclopromide in mg given over 24hours were 1.28±3.38 in propofol group compared to 1.78±3.89 in metoclopromide group. This rescue antiemetic requirement is not significantly different between the two group's (p= 0.54). In terms of number of patients, 5 patients (12.8%) in the propofol group needed rescue anti-emetic while 7 patients (17.9%) in metoclopromide group (p= 0.326).

This study is comparable with result of fuji Y et. al which shows the mean rescue antiemetic consumption in mg were 0.13±0.64 and 0.5±0.52 in propofol and metoclopromide groups respectively with no significant difference between groups (p=0.32).[21] Another study by Yusuf Un al shows 25% in propofol and 35% in metoclopromide group needs additional metoclopromide over 24 postoperative time which is not statistically different is also comparable with this study.[24] Regarding the number of patients that need rescue anti-emetics, our result was also comparable with other studies.[25,30] But presence of slight variation in proportion is possibly due to a difference in PONV management protocol.

6.1 LIMITATION OF THE STUDY

The main limitations of this study were Lack of randomization, Lack of standard PONV management protocol in the study hospital and Most studies we used for comparison were randomized control trial. The

strength of the study was Study participant were homogenous between the propofol and metoclopromide group.

CONCLUSION

The result of our study demonstrates small dose propofol given at the end of gynecologic surgery is effective than metoclopromide within the first six postoperative times but have no difference after six postoperative time in reducing PONV.

Recommendation

We recommend the use of propofol at the end of gynecologic surgery as an effective post-operative antiemetic prophylaxis in the early six postoperative times. We also recommend additional randomized controlled study.

Operational Definition

ASA status: is a surgical risk stratifications validated by American Society of Anesthesiologist.

Duration of surgery: time in minutes from skin incision to end of surgery.

Duration of anesthesia: a time in minutes it takes from pre oxygenation to a time a patient get response to verbal command.

Elective surgery: the surgery that is scheduled in advance because doesn't involve a medical emergency.

Emergency surgery: a surgical emergency needed immediate intervention.

General anesthesia: reversible loss of consciousness caused by the drug.

Post-operative nausea and vomiting: when a patients experience at least one episode of either nausea or vomiting within 24 hours.

Postoperative pain: the presence of pain in the postoperative period was defined as a patient complaining pain and any pain score other than zero within 24 hours.

Hypotension: a decrease in systolic blood pressure by 20% from the base line.

Total antiemetic consumption: total dose of antiemetic medication given in mg within the first 24 hour after end of surgery.

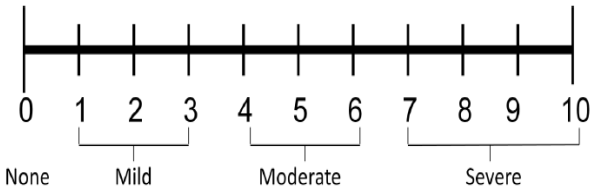
Nausea: subjective abdominal discomfort associated with an urge to vomite.

Small dose Propofol – 0.5mg/kg of propofol.

Vomiting - a forced ejection of gastric content through the mouth or nose.

Grading of vomiting: severity of vomiting in an individual graded based on episode of vomiting over 24hrs as Grade 0= 0 episode of vomiting; Grade 1= 1 vomiting; Grade 2 =2 vomiting and Grade3= >3 vomiting episodes.

NRS: is a valid nausea intensity assessment tool that involves asking a patient to rate his or her nausea from 0-10 (11 point scale) with the understanding that 0 is equal to no nausea and 10 equal to the worst possible nausea.



The above figure is the NRS score (0-10) for severity of nausea which adopted from British Journal of Anesthesia (BJA).

REFERENCES

1. Sebastien Pierre RW. Nausea and Vomiting After Surgery. BJA Education, 2013; 13(1): 28-32.
2. Scuderi PE CL. Postoperative nausea and vomiting and outcome. Anesthesiology Clinics, 2003; 41: 165-74.
3. al ACe. How to study postoperative nausea and vomiting. Acta Anaesthesiologica Scandinavica, 2002; 46(8): 921-8.
4. shah Ds. Efficacy of Low Dose Propofol in Prevention of Nausea and Vomiting After Central Neuraxial Blockade. Journal of Medical and Dental Science Research, 2015; 2(2): 13-8.
5. GN K. Risk factors for post operative nausea and vomiting. Anaesthesia, 2010; 49: 6-10.
6. Jong Bum Choi ea. Postoperative Nausea and Vomiting. Yonsei Med J., 2014; 55(5): 1430-5.
7. al ACe. A simplified risk scores for predicting postoperative nausea and vomiting: conclusions from cross-validations between two centers. Anesthesiology Clinics, 1999; 91(3): 693-700.
8. al E-We. Antiemetic Use for Nausea and Vomiting in Adult Emergency Department Patients:. Annals of Emergency Medicine, 2014; 64(5).
9. Hornby PJ. Central neurocircuitry associated with emesis. American Journal of Medicine, 2011; 111(8A): 1065-125.
10. Habib AS GT. Evidence-based management of postoperative nausea and vomiting: a review. Canadian Journal of Anaesthesia, 2004; 51: 326-41.
11. Rother C. Post-Operative Nausea & Vomiting - Use of Anti-Emetic Agents. in Anaesthesia. Scottish Universities Medical Journal, 2012; 1(1): 89-97.

12. Al Be. Subhypnotic Doses of Propofol Possess Direct Antiemetic Properties. Anesth Analg, 1992; 74(539-41).
13. Al Se. Can postoperative nausea and vomiting be predicted?. Anesthesiology Clinics, 1999; 91: 108-18.
14. Ramanathan A, Thiruvengadam et al. Efficacy of propofol in preventing post-operative nausea and vomiting (PONV) : Single blind randomized control study. The internet journal of Anaesthesiology, 2003; 7(1).
15. Endale G/Egziabher G/medhn, Jessica Hoyle,Danielle Reddi andTadesse Belayneh Melkie. Prevalence And Factors Associated With Postoperative Nauseaand Vomiting At The University Of Gondar Teaching Hospital, Northwest Ethiopia, 2012: A Cross-Sectional Study. Ethiop J Health Biomed Sci., 2014;6(1).
16. Wengritzky Ma. Simplified postoperative nausea and vomiting impact scale for audit and post-discharge review. British Journal of Anaesthesia, 2012; 108(3): 423-9.
17. TJ. G. Post operative nausea and vomiting-can it be eliminated? JAMA, 2002; 287(10): 1233-6.
18. Gan TJ ea. Society for Ambulatory A: Society for Ambulatory Anesthesia guidelines for the management of postoperative nausea and vomiting. Anesthesia & Analgesia, 2007; 105: 1615-28.
19. Al. ACe. Volatile Anaesthesia may be the main cause of early but not delayed PONV: a randomized controlled trial of factorial design. BJA Education, 2002; 88(5): 659-68.
20. Itakura YFaM. Comparison of Propofol, Droperidol, and Metoclopramide for Prophylaxis of Postoperative Nausea and Vomiting After Breast Cancer Surgery. Clinical Therapeutics, 2008; 30(11).
21. Al FYe. comparision of propofol ,metoclopromide and droperidole for prevention of PONV after thyriodectomy. BJA Education, 2014.
22. Mine Celik AD MA. Is infusion of sub hypnotic propofol as effective as dexamethasone in prevention of postoperative nausea and vomiting related to laparoscopic cholecystectomy: A randomized controlled trial? Journal of Anesthesia and Clinical Research, 2013; 2(2): 15.
23. Al. MAe. Preventing Postoperative Nausea and Vomiting After Laparoscopic Cholecystectomy. Current Therapeutic Research, 2011; 71(1).
24. Al Ue. Comparision of the efficacy of propofol and metoclopromide in preventing postoperative nausea and vomiting after middle ear surgery. Saudi MD J., 2009; 30(6).
25. Al ARMe. Nausea and vomiting after ENT surgeries: A comparison between ondansetron, metoclopramide and small dose of propofol. Indian J Otolaryngol Head Neck Surg, 2010; 62(1): 29-31.
26. Al AAe. Dexamethasone, Metoclopramide, And Their Combination For The Prevention Of Postoperative Nausea And Vomiting In Female Patients With Moderate-To-High Risk For Ponv Undergoing LAPAROSCOPIC SURGERY. J Evolution Med Dent Sci., 2017; 6(75).
27. Al Fe. Comparison of Ondansetron and Metoclopramide for PONV Prophylaxis in Laparoscopic Cholecystectomy. J Anesthe Clinic Res., 2013; 4(3).
28. Al OUe. Postoperative nausea and vomiting in a gynecological and obstetrical population in South Eastern Nigeria. Pan African Medical Journal, 2010; 7(6).
29. DT K. The effect of a single low dose propofol at the end of the operation in reducing post operative nausea and vomiting (PONV) in women undergoing laparoscopic gynaecological surgery at Parirenyatwa hospital. Zimbabwe:. 2011; University of Zimbabwe.
30. Al HUe. Propofol and Midazolal for postoperative emesise. European journal of anesthesiology, 2004; 20: 60-5.