

**ADDIS ABABA UNIVERSITY
SCHOOL OF MEDICINE
DEPARTEMENT OF ANESTHESIA**



**A PROSPECTIVE COHORT STUDY ON THE EFFECTIVENESS OF
SMALL DOSE OF PROPOFOL COMPARED TO METOCLOPRIMIDE
FOR PREVENTION OF POSTOPERATIVE NAUSEA AND VOMITING
AFTER GYNECOLOGIC SURGERY IN TIKUR ANBESSA
SPECIALAIZED HOSPITAL, ADISE ABABA, ETHIOPIA 2018.**

M.SC THESIS BY

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JUNE, 2018

ADDIS ABABA, ETHIOPIA

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SPECIALIZED HOSPITAL, FROM JANUARY 10 TO MARCH 10, 2018
GC.**

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ADDIS ABABA, ETHIOPIA

DECLARATION

I..... hereby certify that this thesis is the product of my own work and, in submitting it for my fulfillment in M.Sc program in advanced clinical Anesthesia. Further attest that it has not been submitted in part or in whole to another University or for general publication and all directly quoted material has been appropriately referenced.

Signature:

Submission date:

This thesis work has been submitted for examination with my/our approval as Advisors and Tutors on the M.Sc in Advanced Clinical Anesthesia course

Advisor 1:Date.....

Advisor 2: Date.....

Advisor 3:Date.....

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ABSTRACT

Background: 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. Although PONV often considered merely an unpleasant side effect it may result many unwanted and potentially serious outcomes and increases healthcare expenditure. Propofol is an anesthetic agent used commonly for induction and maintenance. Recently its antiemetic activity at subhypnotic low dose makes it as one prophylactic medication for Postoperative Nausea and vomiting.

Objective: To compare the effectiveness of small dose of propofol with metoclopramide on prevention of postoperative nausea and vomiting after gynecologic surgery under general anesthesia at Tikur Anbessa Specialized Hospital.

Method: This institutional based prospective cohort study recruits 78 patients who underwent gynecologic surgery randomly. Chi Square test were used to compare the incidence of PONV and Manny Whitney test and independent t test used to compare median nausea score and mean total antiemetic consumption between groups respectively. Homogeneity of categorical independent variables between two groups analyzed using Chi Square. Bar chart and Box and Whisker plot were used to show the result between groups and statistical significance were seated at p value < 0.05 with a power of 80%.

Results: The comparison of data showed that during the first 6hr the incidence of postoperative nausea and vomiting were 41% in propofol group and 64.1% in metoclopramide group ($p=0.041$). The incidence of nausea alone have statistically significant higher association in metoclopramide 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 metoclopramide group ($p= 0.032$). There were no statistically significant differences in median nausea severity NRS score at 12th and 24th postoperative time. The mean (SD) rescue antiemetic metoclopramide consumption over 24hrs in mg were 1.28 ± 3.38 in propofol group compared to 1.78 ± 3.89 in metoclopramide group which have no statistical difference ($p=0.54$).

Conclusion and Recommendation: Small dose propofol given at the end of surgery is more effective than metoclopramide 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 metoclopramide in the first 6 postoperative hours.

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ACRONYM AND LIST OF ABBREVIATIONS

AAU	Addis Ababa University
ASA	American Society of Anesthesiologists
BMI	Body mass index
BLSH	Black Lion Specialized Hospital
BP	Blood Pressure
CTZ	Chemoreceptor Trigger Zone
CI	Confidence Interval
EAA	Ethiopian Anesthetists Association
ENT	Ear, Nose and Throat
GA	General Anesthesia
GABA	Gamma Amino butyric Acid
GIT	Gastrointestinal Tract
5-HT	5-Hydroxytryptamine
IQR	Inter Quartile Range
IV	Intravenous
NMDA	N-methyl D-aspartate
NPO	Non per- Oral
NRS	Numeric Rating Scale
NVS	Nausea Vomiting Scale
Mg/kg	Milligrams per kilogram
PACU	Post Anesthetic Care Unit
PONV	Postoperative Nausea and Vomiting
RA	Regional Anesthesia
RCT	Randomized Control Trial
SD	Standard Deviation
TIVA	Total Intravenous Anesthesia

CHAPTER ONE

1. INTRODUCTION

1.1 Background

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 postrema (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 opioids 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 sequel 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).

1.2 Statement of the Problem

Incidence of PONV after surgery is 30% and can reach up to 70% in high risk patients. After major gynecological surgeries PONV is a common unpleasant condition associated with highest incidence as 60-83% due to multiple risk factors (13, 14). Study done in Ethiopia also shows that prevalence of PONV was 36.2% within 24 hours after operation (15).

Despite strong antiemetic, modern anesthetic and surgical techniques the incidence of PONV remains high. One survey by Myles PS. et al shows that incision-site pain was patients' most undesirable outcome, when in reality; the patients' chief concern was postoperative vomiting (16, 17). It is also the most unpleasant experiences and poor patient satisfaction rating in the postoperative period (18).

PONV associated morbidity mainly includes decreased patient satisfaction, delayed hospital discharge, and unexpected hospital readmission. If not treated early it can also contribute to wound dehiscence, bleeding, pulmonary aspiration, oesophageal rupture, and fluid and electrolyte disturbances (7).

The risk factors that affect the incidence of post-operative nausea and vomiting are multifactorial in origin such as being female, patients with previous history of motion sickness, nonsmoker, , increasing duration of surgery and anesthesia, postoperative opioids, type of surgeries (laparoscopic, gynecologic and ENT surgeries) (19).

Low doses of Propofol have been associated with a lower incidence of PONV compared with placebo but its effectiveness is controversial when compared to metoclopramide (12, 20). While studies show that propofol at a sub-hypnotic dose may reduce the incidence of PONV, the optimum dose to be used is debatable. It has been also used successfully at dose range of 0.5- 1 mg/kg for the prevention and treatment of PONV without any side effects (14, 21).

Therefore prophylaxis or treatment by available and less expensive antiemetic including propofol or metoclopramide is the optimal strategy. We therefore sought to evaluate the effectiveness of subhypnotic dose of propofol on prevention of PONV as part of multimodal antiemetics after gynecological surgery.

1.3 Justification of the Study

Gynecological surgery contributes a significant number of surgical operations in both public and private health sectors in Ethiopia. Incidence and severity of PONV is high after gynecologic surgery which needed prophylaxis routinely in order to reduce PONV occurrence and associated morbidity. Using strong antiemetics routinely are not feasible and too expensive in our setting. But propofol a commonly available and less expensive drug in our hospital can be used as alternative antiemetics.

Propofol at small subhypnotic dose possess antiemetic activity. But its efficacy is not clear and controversial. This is one of the reasons which call for this study, which seeks to find out its antiemetic effectiveness at 0.5mg/kg in reducing PONV after gynecological surgery.

The number of studies done to asses antiemetic efficacy of propofol were limited to laparoscopic and ENT surgery, where there is insufficient work done to evaluate its effect in gynecologic surgery. Undertaking such studies in resource limited area can improve PONV treatment and patient comfort by counteracting the effect of high patients to nurse ratio.

PONV is influenced with various factors related to patient, anesthesia, surgery and medication. Therefore conducting such a research is useful to determine propofol effectiveness compared to metoclopramide in our local population. On the other hand, it will open the gate to bring alternative treatment for PONV and used as a baseline for further research activities.

1.4 Hypothesis Testing

H₀₁: There is no difference in Incidence of PONV in propofol and metoclopramide group.

H_a₁: There is a difference in Incidence of PONV in propofol and metoclopramide group.

H₀₂: There is no difference in the severity of Nausea in propofol and metoclopramide group.

H_a₂: There is a difference in the severity of Nausea in propofol and metoclopramide group.

H₀₃: There is no difference in total 24hr Rescue antiemetic consumption in propofol and metoclopramide group.

H_a₃: There is a difference in total 24hr Rescue antiemetic consumption in propofol and metoclopramide group.

CHAPTER TWO

2. LITERATURE REVIEW

The Antiemetic efficacy of Propofol remains controversial. A Prospective randomized, double blind, placebo-controlled study in Japanese women, underwent breast cancer surgery under GA, shows 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 metoclopramide (0.2mg/kg) ($P = NS$), compared with placebo group (68%). Propofol is effective as droperidol and associated with significantly lower incidence of PONV compared with metoclopramide ($P = 0.022$ and $P = 0.043$), respectively (20).

Another RCT study by fuji Y et. al demonstrates that Small dose propofol (0.5 mg/kg) is more effective than droperidol or metoclopramide 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 metoclopramide, respectively ($P < 0.05$). The mean rescue antiemetic consumption in mg were 0.13 ± 0.64 , 0.2 ± 0.54 and 0.5 ± 0.52 in propofol, droperidol and metoclopramide groups respectively with no significant difference ($p=0.32$) (21).

A prospective RCT done by Mine Celi et al, infused subhypnotic propofol (1 mg/kg/h) in prevention of PONV compared to 8mg dexamethasone (group D) and control (group C) during laparoscopic cholecystectomy. During 0-6 h, total incidence of PONV was 65% in the group C, 30% in the group P and 30% in the group D. For 6-12 h, it was 52.5% in the group C, 25% in the group P, 20% in group D. In 12-24 h period, it was 45% in the group C, 20% in the group P and 10% in the group D. Propofol infusion at 1 mg/kg/h is as effective as dexamethasone for the prevention of PONV during the first 24 hours (22).

A double-blind RCT, controlled clinical study Turkey, compared 0.5 mg/kg propofol plus 8 mg dexamethasone (group 1), and 0.5 mg/kg propofol plus 0.2 mg/kg metoclopramide (group 2) to prevent PONV after LC. PONV rates in 24 hours were 23.3% and 50% for group 1 and group 2, respectively. At 0 to 4 hours, vomiting was 6 (20%) in group 1 and 14 (46.7%) in group 2 ($P = 0.028$). The frequency of vomiting in group 1 was significantly lower than that for group 2 ($P =$

0.028). The sub hypnotic bolus doses of propofol plus dexamethasone is more effective than propofol plus metoclopramide in preventing PONV in this patient population (23).

A prospective RCT study done by Yusuf Unal M et. al showed 0.5 mg/kg propofol is effective as 0.2mg/kg metoclopramide in preventing PONV in the early postoperative period in middle ear surgery. At 0-4hours, the incidence of vomiting was 25% in propofol group, 40% in metoclopramide group, and 75% in control group. The incidence rate of group P was significantly lower than that of group C ($p=0.002$), and the rate of antiemetics use in group C was higher than that in group P ($p=0.028$). PONV severity with nausea vomiting scale (NVS) in propofol versus metoclopramide group has no statistical difference. It was found that the median (IQR) 0(0-1.75) in propofol and 1(0-2) in metoclopramide group The Nausea & Vomiting Scale scores of group C were also significantly higher than those of group P ($p=0.005$). There were no significant differences between the values at 4-12 and 12-24 hours (24).

A prospective randomized study in India compared propofol (0.5 mg/kg) with either ondansetron (0.1 mg/kg) or metoclopramide (0.2 mg/kg) in preventing PONV, given at the end of ENT surgery under GA. Incidence of PONV during the first 24 hr was 20%, 70% and 50% of the patients who received ondansetron, metoclopramide or propofol respectively ($p < 0.05$) (25).

A study done by Dr.Swati Shah shows low dose propofol is effective in prevention of severity of nausea and vomiting compared to control group after abdominal / 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. The median number of episodes of vomiting in propofol group were 0.5(0-2) and 2(0-4) control group with a significant p value of 0.001 (4)

A study done by Aidah Alkaissi in Palestine show metoclopramide, dexamethasone and combination reduces the incidence and intensity of nausea. In the 24-hour post-operative period the incidence of nausea between groups have similar effect with metoclopramide 10(33.3%). The intensity of nausea in metoclopramide is also 2.43 (± 1.03) and the total number of patients who received rescue antiemetic was 6 (20%) in metoclopramide group (26).

In Pakistan Prospective, randomized, placebo-controlled, double-blind study between ondansetron group (4mg) and metoclopramide (10mg) iv demonstrates the frequency of nausea and vomiting was clinically and statistically lower in ondansetron group ($p=0.035$). Use of rescue antiemetic was significantly higher in metoclopramide group ($p=0.022$) after elective laparoscopic cholecystectomy under GA (27).

A retrospective review done in Nigeria shows the incidence of PONV within 48-hours of anesthesia in an obstetrical (C/S) and gynecological surgery was 12/300 or 4.0%. From these, nine patients (9/112) or 8% vomited in gynecological population and (3/188) or 1.6% in the obstetric population (28).

A Randomized single blinded controlled study in Zimbabwe shows a Propofol Group (low dose 0.5mg/kg propofol at the end of the operation) compared to non propofol group (induction dose 2mg/kg of propofol) have no significant difference in reducing the incidence of PONV after laparoscopic gynecological surgery. The proportion of patient reporting nausea within one hour were 7.5% in the propofol and 2.5% in the non propofol group ($P = 0.6$) and 10% and 15% after one hour in the respective groups. Vomiting occurred on two participants from the propofol group only within the first hour and no reported vomiting after one hour from both study 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) .

CHAPTER THREE

3. OBJECTIVES

3.1 General Objective

To compare the effectiveness of small dose propofol with metoclopramide in prevention of postoperative nausea and vomiting after gynecologic surgery under general anesthesia at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia.

3.2 Specific Objectives

- To compare the Incidence of PONV between propofol and metoclopramide group.
- To compare the Severity of Nausea between propofol and metoclopramide group.
- To compare total 24hr Rescue antiemetic consumption between propofol and metoclopramide group.

CHAPTER FOUR

4. METHODOLOGY

4.1 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.

4.2 Study Design and Period

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

4.3 Population

4.3.1 Source Population

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

4.3.2 Study Population

Gynecologic patients who underwent surgery under general anesthesia in Black Lion Specialized Hospital during study period who fulfill inclusion criteria

4.3.3 Study Unit

Individual patients involved in the study.

4.4 Eligibility Criteria

4.4.1 Inclusion Criteria

- ✓ Elective gynecologic surgery
- ✓ Patients who take general anesthesia
- ✓ ASA status I and II
- ✓ Age >18 years
- ✓ Patients taking 10mg metoclopramide or 0.5mg/kg propofol for PONV prophylaxis

4.5.2 Exclusion Criteria

- ✓ Patients Induced by propofol
- ✓ Patients' at High risk of PONV including; History of Motion sickness or PONV, Pregnancy and Hypotension.
- ✓ Patients who received antiemetic preoperatively
- ✓ Smoker patients

4.5 Study Variables

4.5.1 Independent Variables

Sociodemographic variables

- ✓ Age, BMI, ASA status, NPO time

Intraoperative variables

- ✓ Induction agent, Intraoperative opioids, Duration of surgery& anesthesia, Type of surgery, Amount of fluid given over 24hours, Postoperative oral intake time

Postoperative variables

- ✓ Hypotension, Pain, Post operative analgesic

4.5.2. Dependent Variables

Effectiveness of the drugs

4.6 Sample Size and Sampling Procedure

4.6. 1. 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.

$$n = \frac{(S_1^2 + S_2^2)(\alpha + \beta)^2}{(X_1 - X_2)^2}$$

Where n = the sample size in each of the groups

S_1^2 = Sample variance in Metoclopramide 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 metoclopramide 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 metoclopramide 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.

4.6.2 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 my 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 metoclopramide (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 metoclopramide for other metoclopramide 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 metoclopramide based on patient complain and sometimes on physician order.

4.7 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 6th, 12th and 24th 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.

4.8 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.

4.9 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.

4.10 Data Analysis and Interpretation

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 \pm 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.

4.11 Dissemination Plan

The results of the study will be presented to the department of anesthesia as part of M.Sc. in advanced clinical anesthesia thesis, communicated through annual students and staff research conference, annual National conference of Ethiopian Anesthetists Association (EAA) and will be sent to journals for publishing.

4.12 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.

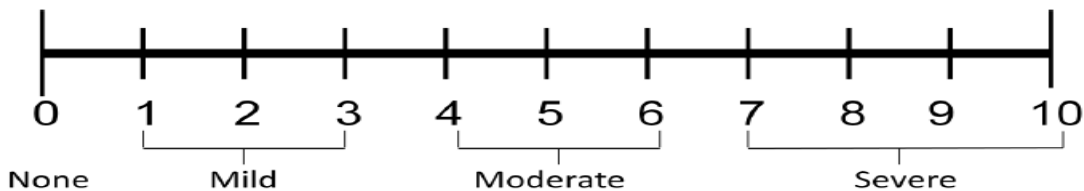
Nausea: subjective abdominal discomfort associated with an urge to vomite.

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)

CHAPTER FIVE

5. RESULT

5.1 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 metoclopramide as metoclopramide group.

5.1.1 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)	Metoclopramide Group (n=39)	p values
Age in years (Mean \pm SD)		45.85 \pm 12.33	40.64 \pm 11.30	0.056
Weight in Kg (Mean \pm SD)		57.69 \pm 7.88	60.95 \pm 8.79	0.089
BMI in Kg/m ² (Mean \pm SD)		22.85 \pm 2.58	23.29 \pm 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

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

		Propofol Group (n=39)	Metoclopramide Group (n=39)	p values
Thiopentone -induction dose in mg (mean \pm SD)		224 \pm 23	213 \pm 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 \pm SD)		111.79 \pm 32.17	104.62 \pm 32.15	0.327
Duration of Anesthesia (min) (Mean \pm SD)		122.31 \pm 33.58	114.36 \pm 33.01	0.295

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

5.1.3 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)	Metoclopramide group (n=39)	P values
Postoperative oral intake time in Hr (Mean \pm SD)		16.92 \pm 2.88	17.67 \pm 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	Tramadol (mean \pm SD)	50 \pm 8.5	46.6 \pm 11.5	0.636
Consumption	Diclofenac (mean \pm SD)	125 \pm 24	118 \pm 12.6	0.46

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

5.2 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 metoclopramide 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 metoclopramide group (P =0.041). Six hours after the surgery, 5.1% of the patients who received metoclopramide 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)	Metoclopramide 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 metoclopramide group with no statistical difference between groups (p=0.36).

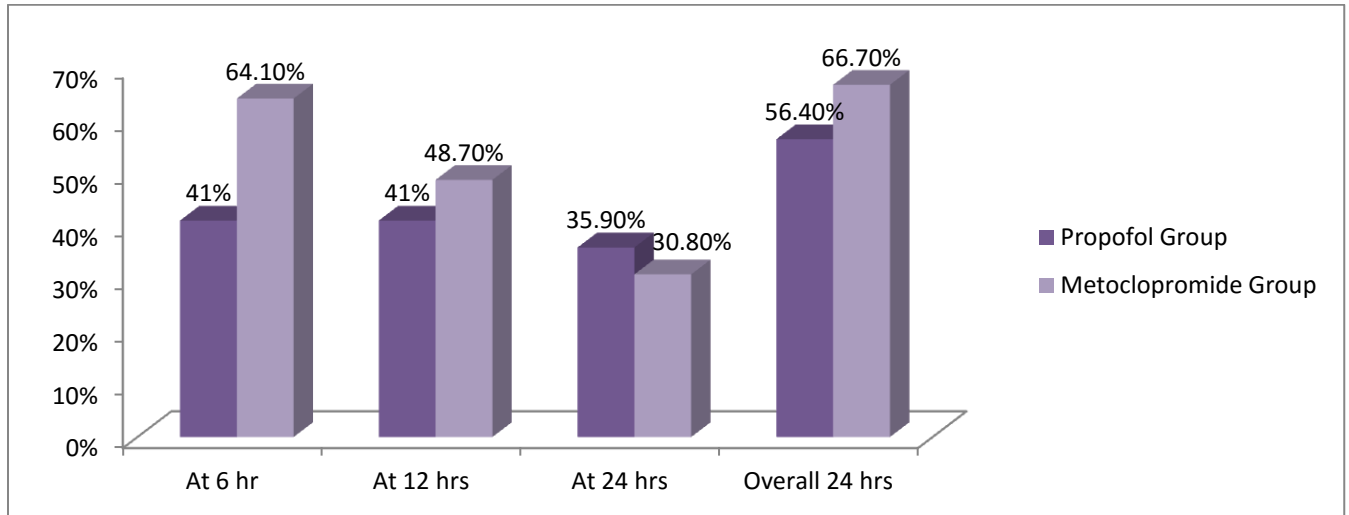


Figure- 1: Incidence of Postoperative Nausea and vomiting (PONV) between propofol and metoclopramide groups.

5.3 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 metoclopramide group 3(0-5) p=0.032. At this period propofol is effectively reduce the severity of nausea compared to metoclopramide. But at 12 and 24 post-operative hours no significant difference reported on severity of nausea between propofol and metoclopramide 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)	Metoclopramide 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

Below the box and whisker graph shows severity of nausea have statistical difference at 6 but have no after this time have no

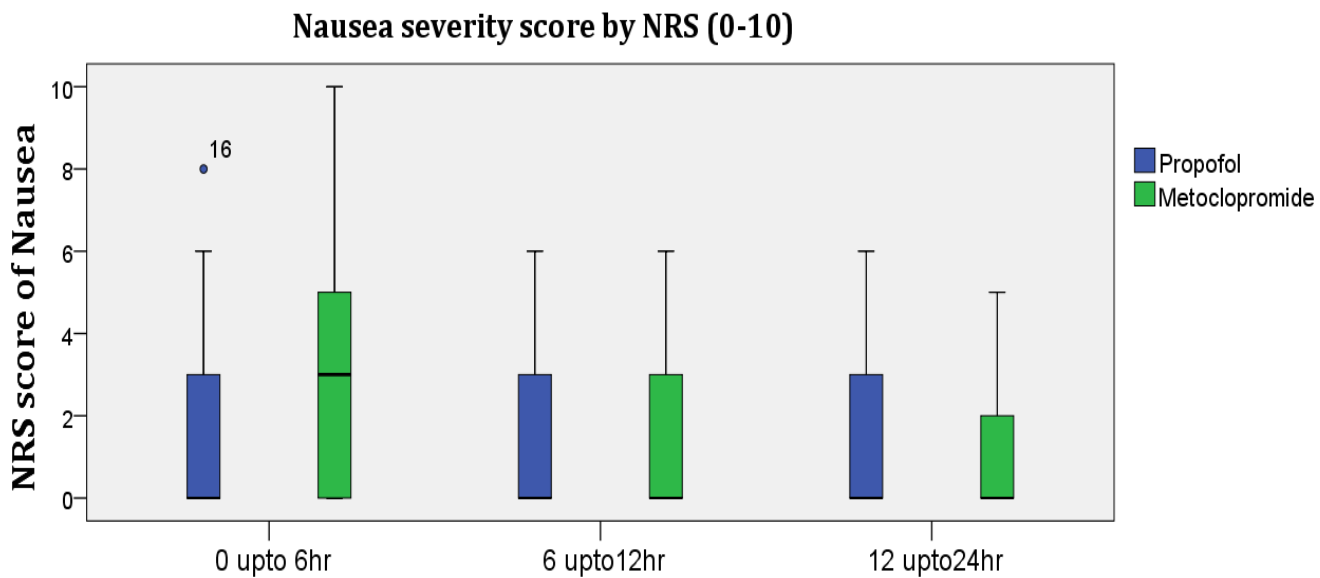


Figure- 2: Comparison of postoperative Nausea severity score using 11 point NRS (0-10).

5.4 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 metoclopramide group (12.8% versus 17.9% respectively) which is not statistical significant between the group. The mean (SD) rescue antiemetic metoclopramide consumption over 24hrs in mg were 1.28 ± 3.38 in propofol group compared to 1.78 ± 3.89 in metoclopramide group which is not statically significant ($p=0.54$). These results show that during the 24 postoperative hours using propofol is comparable with metoclopramide 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)	Metoclopramide group (n=39)	P value
Dose of rescue metoclopramide 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)

CHAPTER SIX

6. 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 metoclopramide.

This study demonstrates the overall incidence of PONV in 24 postoperative hours were 56.4% in propofol group compared to 66.7% in metoclopramide 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 metoclopramide group 64.1% with p value of 0.04 which shows propofol reduce PONV significantly in this time. The occurrence of PONV at 12th postoperative time is 41% and 48.7% in propofol and metoclopramide group respectively with no statistical difference ($p=0.49$). The incidences of PONV were also not significant at 24th postoperative time between the two groups ($p=0.63$). In addition the incidence of nausea significantly reduced in propofol group 41% compared to metoclopramide 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 metoclopramide (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 metoclopramide 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, metoclopramide 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 metoclopramide 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 metoclopramide (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 metoclopramide 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 metoclopramide, 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 metoclopramide 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 metoclopramide 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 metoclopramide 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 metoclopramide 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 metoclopramide 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 metoclopramide group 1(0-2) in which propofol in reduce severity of Nausea and Vomiting significantly in the early 4 postoperative hours than metoclopramide. 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 metoclopramide 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 metoclopramide in mg given over 24hours were 1.28 ± 3.38 in propofol group compared to 1.78 ± 3.89 in metoclopramide 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 metoclopramide 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 metoclopramide 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 metoclopramide group needs additional metoclopramide 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.

Most studies we used for comparison were randomized control trial.

6.2 STRENGTH

Study participant were homogenous between the propofol and metoclopramide group.

CHAPTER SEVEN

7. CONCLUSION AND RECOMMENDATION

7.1 Conclusion

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

7.2 Recommendation

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

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Annexes

Annex I

Information sheet to get permission for the research

Introduction

This information sheet is prepared to explain the research project that you are asked to join by a group of research investigators. The research team includes MSc students, one senior advisor from AAU and two Nurses for data collection from Black Lion Specialized Hospital.

Name of Principal investigator: - Ashagrie Sintayhu (M.Sc Student)

Advisor's name: - Mr: - Eyayalem Melese (Bsc, M.Sc in Anesthesia)

Name of sponsor: - AAU

Name of organization: - AAU, Health science college, anesthesia department

This information sheet is prepared by the above mentioned investigator.

Risk

There is no any risk or harm that you will face by participating in this research. Any personal information recorded will not be copied and transferred to other bodies. No need of writing participants' name but by a code. Every piece of information will be kept confidentially.

Benefits

There is no incentive or payment to be gained by taking part in this project. The information collected from this research project will be kept confidential and only accessed the researcher and research assistant only. This research project will be reviewed and approved by ethical committee of the AAU. If you want to know more information, you can contact the committee through the address below.

Tel: - +251949022810

Email: ashedbro20@gmail.com

Annex II

Consent Form

Addis Ababa University, College of Health Sciences School of Anesthesia

Efficacy of low dose of propofol to prevent post operative Nausea and Vomiting compared to Metoclopramide after Gynecologic Surgery at Black Lion Specialized Hospital.

Introduction

My Name is..... , I work for

This questionnaire is to assess the efficacy of low dose of propofol to prevent post operative Nausea and Vomiting compared to Metoclopramide after Gynecologic Surgery at Black Lion Specialized Hospital. The main concern of this study is to fill the information gap on Anti-emetic effectiveness of low dose of propofol to prevent Postoperative Nausea and Vomiting. So you are kindly requested to participate on this study and provide appropriate response to questions. I obtained your name from the list of appointed surgical patients. Your participation is voluntary. Only anonymous data will be analyzed and I strictly keep confidentiality of participants. Participating or not participating on this study will not bring any harm or benefit to you. This interview will take a maximum of 15 minutes. Therefore I kindly request you to respond for the following questions based on your willingness. If you feel or face any problem regarding your participation, you can contact the principal investigators by +251949022810.

Can I proceed? Yes _____ Signature _____

No _____

Thank you for your participation!

የመጠይቅ ፈቃድ

የዚህ ጥናት ዋና አላማ በ አደስ አበባ ዩኒቨርሲቲ ስር በሚገኘው ጥቁር አንበሳ ስፔሻላይዝድ ሆስፒታል አፕራሲዮን ክፍል ለማህጸን ቀዶ ህክምና ለሚደረግላቸው ህሙማን ከጠቅላላ አነስቴዥያ በኋላ ለማቅለሽና ለማስመለስ የሚሰጠውን ማስታገሻ መድኃኒት (propofol) ከአፕራሲዮን በኋላ ህመም በምን ያህል እንደሚቀንስ ለማወቅ ነው። በአጋጣሚ እርስዎም በዚህ ጥናት እንዲሳተፉ ተመርጠዋል። የዚህ ጥናት ጥቅም እርስዎ በሚሰጡት ምላሽ መሰረት መረጃዎችን በማመጣት በሚገኘው ውጤት መሰረት መረጃዎችን በማጠናቀር ውጤቱን እየተሰራበት ካለው ጋር ለማገናኘት እንዲቻል ነው። ጥናቱ በትክክል አላማውን እንዲመታ የእርሶዎን ድጋፍ እንጠይቃለን። የማንኛውም ግለሰብ ስም አይመዘገብም እንዲሁም ሀሳቡ ብቻውን ይፋ እንዲደግግ አይደረግም። ሙሉ በሙሉ በሚስጥር የተጠበቀ ነው። በጥናቱ መሳተፍ አለመሳተፍ የራስዎ መብት ብቻ ነው። ግልፅ የሆነ ምላሽንና ክልብ የመነጨ ተሳትፎዎን እንዲሰጡን በአክብሮት እንጠይቃለን።

ለመሳተፍ ፈቃደኛ ስለሆኑ እናመሰግናለን።

ANNEX III

QUESTIONNAIRE AND CHECKLIST

Section -I: Socio-demographic Data of the Patient

Card Number:_____		Bed no:_____	Code
S .no	Question	Response	
101	Age	_____ years	
102	ASA status	A. ASA I B. ASA II	
103	Weight	_____ Kg	
104	Height	_____ Cm	
105	BMI	_____ kg/cm ²	

Section -II: Preoperative Data that would be filled by data collectors

S .no	Question	Response	Code
201	Preoperative Vital Sign	A. BP _____ mmhg B. MAP _____ mmhg C. HR _____ bpm D. Spo ₂ _____ %	
202	NPO time	_____ Hrs	
203	Smoking Status	A. Yes B. No	
204	History of Nausea and Vomiting	A. Yes B. No	
205	History of Motion Sickness	A. Yes B. No	
206	Does the patient have Nausea or Vomiting by now?	A. Yes B. No	
207	Does the patient have Co-morbid Disease?	A. Yes B. No If yes for this question encircle which one?	1. Asthma 2. HTN 3. Diabetes 4. GERD 5. Other specify
208	Preoperative Antiemetic Prophylaxis given?	A. Yes B. No	If yes specify here _____ mg

SECTION -III: Intraoperative Data that would be filled

S no	Question	Response	Code
301	Diagnosis	_____	
302	Type of Surgical Procedure	_____	
303	Induction Agent	A. Ketamine _____mg B. Thiopental _____mg C. Succinylcholine D. Others	If other specify
304	Name and dose of Analgesic given Intraoperatively?	A. Morphine _____mg B. Fentanyl _____mcg C. Pethidine _____mg D. Tramadol _____mg E. Diclofenac _____mg F. Nerve Block (specify)	If Analgesia not given jump Q. 303
305	Anesthesia for maintenance	A. Inhalational _____ B. Relaxant _____	
306	Intraoperative blood loss	_____ml	
307	Total fluid given over 24hrs	A. Intraoperative _____ml B. Postoperatively _____ml	
308	Type of Antiemetic given at time of skin closure /Emergence	A. Propofol _____mg IV B. Metoclopramide 10mg IV	
309	Duration of Surgery and Anesthesia	A. Surgery _____Minutes B. Anesthesia _____Minutes	

SECTION IV: Postoperative parameters filled by data collectors

S. no	Question	Response	Code
401	Post operative Vital sign taken at recovery	A. BP _____ mmhg B. MAP _____ mmhg C. HR _____ bpm D. Spo ₂ _____ %	
402	Postoperative pain score with Numeric Rating Score (0-10)	A. 0 up to 6hrs # _____ B. 6 up to 12hrs # _____ C. 12 up to 24 hrs # _____	
403	Mention the type and dose of analgesics given postoperatively over 24hrs	A. Morphine _____ mg B. Tramadol _____ mg C. Diclofenac _____ mg	
404	The first postoperative oral intake of liquid or solid food?	After _____ Hr	

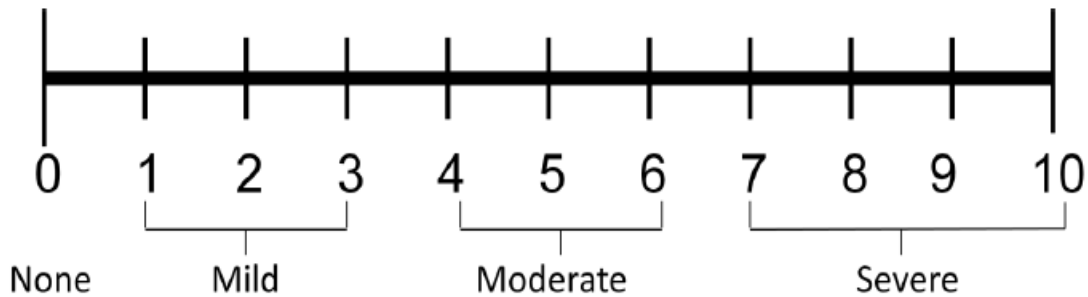
SECTION V-Data filled related to incidence & severity of Post operative Nausea and Vomiting.

S. no	Question	Response	Code
501	Does the patient have vomiting?	A. Yes B. No	
502	If yes for the above Q 501 write episode/number of vomiting on the space provided?	A. 0 up to 6hrs # _____ times B. 6 up to 12hrs # _____ times C. 12 up to 24 hrs # _____ times	
503	Does the patient have nausea?	A. Yes B. No	
504	If yes for the above Q 503 write severity of nausea by Numeric Rating Score (0-10)?	D. 0 up to 6hrs # _____ E. 6 up to 12hrs # _____ F. 12 up to 24 hrs # _____	
505	Rescue Antiemetic given Post operatively	A. Yes B. No	
506	If yes for Question 505 specify the name and dose of the drug	_____ mg	

Appendix

The Numeric Rating scale (NRS)

This numeric rating scale was used 3 times within the first 24 hours. Patients asked to rate their nausea and recorded at 0-6hrs, 6-12hrs and 12-24 hours post-operatively.



The patient asked one of the following questions:

1. What number on a 0 to 10 scale would you give your nausea by now?
2. When the explanation suggested above is not sufficient for the patient, further explanation of the scale done as follows:

0 = No Nausea

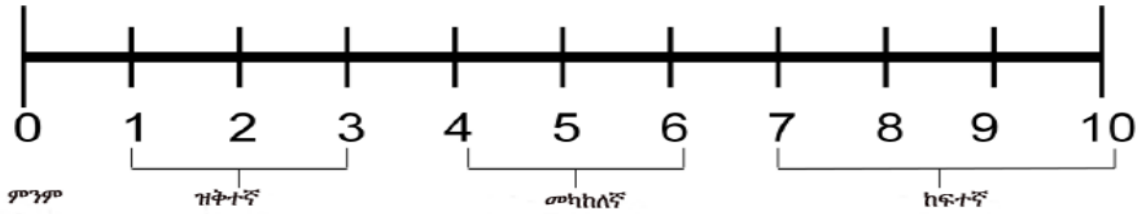
1-3 = Mild Nausea

4-6 = Moderate Nausea

7-10 = Severe Nausea

በቁጥር አምሳያ መለኪያ (VNRS)

ይህ መለኪያ በመጀመሪያዉ 24 ሰአት 3 ጊዜ የሚወሰድ ሲሆን ህመምትኛዉ ከ0-10 ይመርጣሉ



1. በሽተኛዉ የሚጠየቃቸዉ ጥያቄዎች

- i. አሁን የሚሰማዎትን የማቅለሽለሽ ህመም በየትኛዉ ቁጥር ይወክሉታል ;
- ii. ከ0 እስከ 10 ካሉትቁጥሮች አሁን የሚሰማዎትን ማቅለሽለሽ ህመም የትኛዉ ቁጥር ይገልፀዋል ;

2. ከላይ የተሰጠዉ ማብራሪያ በቁ ሳይሆን ሲቀር፣ለበሽተኛዉ የበለጠ መረጃ መስጠት አስፈላጊ ሆኖ ይገኛል

- 0 =ምንም ማቅለሽለሽ ስሜት የለም
- 1-3= ትንሽ ማቅለሽለሽ ስሜት አለ
- 4-6= መካከለኛ ማቅለሽለሽ ስሜት አለ
- 7-10= ከባድ ማቅለሽለሽ ስሜት አለ