ADDIS ABABA UNIVERSITYCOLLEGE OF HEAL TH SCIENCE SCHOOLOF MEDICINE DEPARTEMENT OF ANESTHESIOLOGY CRITICAL CARE AND PAIN MADICINE REASERCH THESIS.

Assessment of knowledge attitude and practice of anesthesia providers towards postoperative nausea and vomiting at tikur anbessa specialized hospital.

By : Dr. Awoke Getiye (MD, final year anaesthesia resident)

November 2020

ADDIS ABABA, ETHIOPIA

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By: Dr. Awoke Getiye (MD, Anaesthesia Residents)

Advisor's

Dr. Ananya Abate(MD,Assistant Professor Of Anesthesiology)

Dr.RahelTilahun(MD,Assistant Professor Of Cardiothoracic Anesthesiology)

A Research Thesis To Be Submitted To Addis Ababa University School Of Medicine,Department Of Anesthesiology, Critical Care and Pain Medicine In Partial Fulfillment Of The Requirement For Specialty Certificate In Anesthesiology Critical Care And Pain Medicine.

November 2020

ADDIS ABABA, ETHIOPIA

APPROVED BY THE BOARD OF EXAMINATION

The thesis here, entitled "Assessment of knowledge, attitude and practice of anesthesia providers towards PONV at TASH,2020" is accepted in its present form by the board of examiners as Partial Fulfillment Of The Requirement For Specialty Certificate In Anesthesiology, Critical Care And Pain Medicine.

Examiners:

1.Name	signature	Date
_____	_____	_____
2.Name	signature	Date
_____	_____	_____

Research Advisors:

Name of primary advisor	signature	Date
Dr Ananya Abate (MD,Assistant Professor - Of Anesthesiology)	_____	_____

Name of secondary Advisor	Signature	Date
Dr Rahel Tilahun(MD, assistantprofessor of cariothoracicanesthesiaology	_____	_____

Department Head

Name	signature	Date
Dr Ananya Abate (MD,Assistant Professor - Of Anesthesiology)	_____	_____

Contents

Research Project Submission Form

Title of the project	Assessment of knowledge, attitude and practice of anesthesia providers towards PONV at TASH.
Name of investigator	Dr. Awoke Getiye (MD, third year anaesthesiology resident)
Name of advisors	Dr. Ananya Abate (MD, Assistant Professor Of Anesthesiology) Dr. Rahel Tilahun (MD, Assistant Professor Of cardiothoracic Anesthesiology)
Duration of project	One year
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Address of investigator	Tel- +251-921091998/904541535 Email- awokegetiye21@gmail.com

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Abbreviations and Acronyms

AAU - Addis Abebe University

BSC - Bachelor of Science

CHS- Collage Of Health Science

ESPA - Ethiopian Society of anesthesiologists professional Association

GC - Gregorian calendar

MSC-masters of science

PACU -post anaesthesia care unit

PONV- Post- Operative Nausea and Vomiting

SD- Standard deviation

TASH- Tikur Anbessa Specialized Hospital

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ABSTRACT

Background: Evidence based knowledge, attitude and practice of anesthesia providers towards postoperative nausea and vomiting management is essential to improve hospital service as well as patient care.

Objective: the objective of this study was to assess the knowledge, attitude and practice of anesthesia providers working at Tikur Anbessa Specialized Hospital towards post-operative nausea and vomiting.

Method: Institutional based cross-sectional study was employed among anesthesia providers at TASH from September to October 2020. Single population proportion formula was utilized to calculate sample size of the study participants and the final sample size was 111. The study participants were selected after proportional allocation was done among the different anaesthesia providers based on their educational level. The data was collected by self-administered questionnaire and entered into Epi-data and exported to SPSS version 26 for analysis. Descriptive statistics, bi-variable and multivariable logistic regression analysis were done to identify factors associated with the knowledge, attitude and practice level of study participants.

Result: A total of 111 study subjects were participated in the study of which 65.5 % (n =73) were male with male to female ratio of 1.921:1. The result showed that 58.6% (n= 65), 61.3% (n = 68) and 39.6% (n = 44) of study participants had good knowledge, positive attitude and good practice towards PONV management respectively. Educational level of anesthesia providers was a factor significantly associated with knowledge, attitude and practice of anesthesia providers towards management of PONV.

Conclusion and recommendation: Over all educational level of anesthesia providers was a factor significantly affecting the knowledge, attitude and practice of anesthesia providers towards management of PONV. Even though majority of anesthesia providers had good knowledge and positive attitude towards management of PONV practice was lacking. Anesthesiologists were having good knowledge, positive attitude and good practice than other level of anesthesia providers at TASH .

We recommend department of anesthesia, critical care and pain medicine to prepare training, protocols and guidelines for effective management of PONV in the future.

1. INTRODUCTION

1.1. Background

Nausea is defined as a subjective feeling of the urge to vomit that usually followed by vomiting which is the forceful expulsion of gastric contents through mouth by continues contraction of abdominal muscles [1-4]. Post-operative nausea and vomiting is one of the complications in patients after taking anesthesia [3, 5].The occurrence of nausea and vomiting highly affects patient's quality of care as well as the length of stay at hospital increasing the health expenditure of the patient[5].There are many studies done aiming to identify the reasons for the occurrence of post-operative nausea and vomiting in order to decrease the problem by designing the best way to intervene. Nevertheless the problem still is one of the most prevalent and under managed complication among surgical patients leading to poor quality of a care and longer period of stay for the patients [5, 6].

Even if there are different criteria for predicting the occurrence of post-operative nausea and vomiting the Apfel score is widely accepted. This puts as of risk for PONV being female gender, previous history of post-operative nausea and vomiting, non- smoking and post operative opioids [6]. In addition to those the Sinclair score added length and type surgery as a risk for the occurrence of PONV [6]. The occurrence of PONV leads the patient to label the entire surgical procedure and medical care as poor [7].

In Ethiopia there were limited studies concerning the knowledge, attitude and practice of anesthesia providers towards the management of post-operative nausea and vomiting. So that knowing those factors which plays a major role in the provision of the service and improve patients care and also decreases hospital stay is very important especially for our country with very limited resource.

This study will provide evidences on the knowledge, attitude and practice of anesthesia providers at TASH towards PONV so as to improve the service as well as quality of care and development of guide lines.

1.2. Statement of the problem

The occurrence of post-operative nausea and vomiting is a very big worry for patient as of the professionals. In a study involving 800 patients, they were asked about their level of concern after surgery and 34% of them for post-operative pain, 24% for waking up after and 22% of them mentioned post-operative nausea and vomiting is their highest level of concern [8].Vomiting increases the risk of aspiration and has been associated with suture dehiscence, esophageal rupture, subcutaneous emphysema, and bilateral pneumothorax [9].

In the first 24 hours after surgery up to 30% of all patients and 70% to 80% of high risk patients will have post-operative nausea and vomiting [3, 10-12]. Although patients reported that they have a bigger concern of avoiding post- operative nausea and vomiting than post-operative pain and ready to spend money for the better treatment options more than quarter of them are having this complication in the first 24 hours after surgery [11, 13].

Both nausea and vomiting are responses to certain stimuli. These stimuli can include olfactory, visual, vestibular, and psychogenic sources. Factors that trigger PONV include stimuli before, during, and after the operative procedure [2].Even if there are several factors contributing for the occurrence of PONV Mesenteric hypo perfusion due to pre-operative fasting is the main reason. Administering sufficient amount of fluid in the perioperative period will decrease the fluid deficit and also eliminate the side effects of other pharmacological medications [14].

According to diffusion of innovation theory adoption of new behavior takes 5 steps: knowledge, persuasion, decision, implementation, and confirmation as developed by Everett Roger. Knowledge occurs when an individual (or other decision-making unit) first becomes aware of a new innovation and learns its basic functions. Persuasion occurs when the individual forms a positive or negative attitude towards the innovation. Decision occurs when the individual participates in activities that lead to adoption or rejection of the innovation. Implementation occurs when the individual puts the innovation into practice. Finally, confirmation occurs when the individual seeks reinforcement for the decision to put the innovation to use [15].

1.3 Significance of the study

Post-operative nausea and vomiting is potentially serious symptom after anesthesia and surgery. Managing this problem is very important in making better service quality and patient satisfaction as well as saving resources. Assessment of knowledge, attitude and practice of anesthesia providers towards its management is very crucial. Such study was not done at TASH before this, so it can provide evidence on knowledge, attitude and practice of anesthesia providers towards post-operative nausea and vomiting management. Those generated evidences can be an input to improve the service at TASH in the future.

2. LITERATURE REVIEW

A study done in Singapore on PONV attitudes, knowledge and antiemetic prescribing practices amongst surgeons in a pediatric hospital Doctors do not find PONV more distressing than pain. They lack knowledge about PONV and PONV practices. Even though there was positive attitude toward PONV management this did not translate into better knowledge about PONV and did not influence antiemetic prescribing practices[16].

A study done in Switzerland comparing surgeons and anesthesiologist attitude, knowledge and practice towards post-operative nausea and vomiting found that anesthesiologists practice more antiemetic prophylaxis than surgeons (77% and 45%; with p value < 0.01). Although it was not statically significant early onset of PONV was more common for surgeons than for anesthesiologist. Most of the surgeons did not consider longer interventions did associate with higher incidence of PONV and opioid analgesia was the most important determinant for the occurrence of PONV followed by volatile agents (76%), nitrous oxide (57%), etomidate (15%), thiopental (13%), ketamine (9%), and propofol (1%) for anesthesiologist . But PONV was mostly associated with volatile techniques (78%) followed by endotracheal intubation (54%), mask ventilation (21%), spinal anesthesia (13%), total intravenous techniques (So/), and epidural anesthesia (5%). In addition anesthesiologist tend to do more prophylaxis measures than surgeons like gastric suctioning. Most of surgeons (75%) and anesthesiologist (65%) were able to differentiate vomiting, nausea and retching [7].

Study done by Danielle Cruthirds, et al., on Review and recommendations for the prevention, management,and treatment of PONV shows that risk factors for having post-operative nausea and vomiting can generally be divided into being preoperative, intra operative and post-operative. Factors that are classified as preoperative are age which has indirect relation with the occurrence of post-operative nausea and vomiting as the age increases risk of having PONV declines than even if this risk peaks up at 11-14 years of age and female gender is associated with higher risk of having PONV. The other factor increasing the chance of having PONV is hormonal imbalance that when the procedure is done close to menstrual cycle. Being morbidly obese is also a risk for having PONV because it take longer to clear the anesthesia after the procedure. Having full stomach leads to having more chance of PONV. Those patients with previous history or motion

sickness have 3 fold chance of having PONV [2]. Intra operatively procedures done on mouth, throat, tonsils and adenoids lead to more chance of vomiting. The other factor leading to having PONV is duration of the procedure the longer it takes the more chance of having PONV. The other factor influencing the chance of having PONV is type of anesthesia and opioid anesthesia carry the highest risk [2]. Procedure done under general anesthesia carries fivefold increased risk of having post-operative nausea and vomiting than procedures done under local anesthesia [17]. One of the factors for having higher incidence of PONV is type of procedure and ENT and dental surgeries 14.3% are the major reasons among them followed by orthopedic and plastic surgery holding 7.6% and 7.4% risk respectively[17]. Women undergoing gynecologic surgery will have 25%-60% chance of having PONV[18]. In addition the incidence peaks when the time taken is too long for single procedure ranging from 2.8% for procedures for less than 30 minute and 27.7% for procedures taking 15 to 180 minute [17].Those falling under post-operative risk factors are pain, orthostatic hypotension secondary to dehydration or opioid analgesia or phenothiazine antiemetic and dehydration especially in children [2]. Peri anesthesia nurses need to integrate complementary therapies in their plan of care for the patients experiencing PONV. Non pharmacologic techniques including acupuncture, transcutaneous electrical nerve, or acupoint stimulation and acupressure have shown antiemetic efficacy for the prevention and management of PONV [19].

The study done in referral hospitals of northwest Ethiopia on Knowledge and practice of postoperative nausea, vomiting management, and predictors of knowledge among health professionals nearly 50 % of healthcare providers working in perioperative working areas had poor knowledge of PONV management. Gender, profession, and training on PONV management were factors significantly affecting the knowledge level of health professionals. Anesthetists were more working on antiemetic prophylaxis provision and the majority of PONV management following surgery was done by nurses ,midwives, and physicians**[4].**

3.OBJECTIVES

3.1. General objective

To assess knowledge, attitude and practice of Anesthesia providers towards post-operative nausea and vomiting at TASH .

*3.*2. Specific objectives

3.1.1. To assess the knowledge of Anesthesia providers towards post-operative nausea and vomiting.

3.1.2. To assess the attitude of Anesthesia providers towards post-operative nausea and vomiting.

3.1.3. To assess the practice of Anesthesia providers towards post-operative nausea and vomiting.

4. METHOD

4.1. Study design

We employed institutional based cross-sectional study design.

4.2 Study area and period

The study was conducted at Addis Ababa University, College of Health Science ,TASH from September to October,2020. TASH is the largest referral hospital in Ethiopia established since 1972 GC at Addis Ababa which is capital city of the country specifically at Lideta sub city and given to Addis Ababa University (AAU) by the Ministry of Health (MoH) since 1998 GC for the faculty as a main teaching hospital. The hospital provides a tertiary level referral treatment and is open 24 hours for emergency services. The hospital is administered by Addis Ababa University and is the largest and oldest teaching hospital among all teaching hospitals in Ethiopia, staffed with the most senior specialists providing teaching for about 300 medical students and 350 residents every year. The hospital offers diagnosis and treatment for approximately 370,000- 400,000 patients per year. The hospital has 800 beds, with 130 specialists, 50 non-teaching doctors, 854 nurses and 900 professionals who support the hospital activities. Currently the hospital has 14 operation rooms of which 10 of them are dedicated for elective cases and 4 for emergency cases. Anesthesiology department is one of the department in this hospital which has 137 professionals of different educational back ground (14 anesthesiologists, 49 anesthesia residents,20Msc in anesthesia , 25 msc anesthesia students and 29 Bsc in anesthesia), providing services at OR (for elective and emergency procedures) , ICU, Pre anesthesia clinic , sedation for different procedures and imaging , pain service in the hospital.

4.3 Population

4.3.1 Source population

The source population was all anesthesia providers working in TASH.

4.3.1 Study population

The study population were those anesthesia providers working in TASH who fulfilled the inclusion criteria.

4.4. Inclusion and exclusion criteria

4.4.1. Inclusion criteria

Those anesthesia providers who work in TASH for more than 6 months.

4.4.2. Exclusion criteria

Those who are not willing to participate in the study

Anaesthesia providers who were on leave during data collection.

4.5 Sample sizedetermination

The Sample size was determined by using single population proportion formula

Part I;

$$n = \frac{Z_{\frac{\alpha}{2}}^{2} P (1 - P)}{d^{2}}$$

Where;

n = required sample size for infinite population

Zα/2 = critical value for normal distribution at 95% confidence interval= 1.96 (α = 0.05).

P = Proportion =50%

d = margin of error= 5%

So, $n = \frac{(1.96)^2*(0.5)\ (1-0.5)}{(0.05)^2} = 384,$

Therefore, the total required sample size for infinite population is 384.

Part II

The above sample size (n=384) for infinite population was adjusted to the required population. the the anaesthesia providers to be studied in TASH were less than 10,000 (In our case there were 137anesthesia providers which are 14 anaesthesiologist,29Bsc anesthetists, 25 Msc anaesthesia students, 20Msc in anaesthesia and 49 anesthesiology residents)

If adjusted sample size is f,

$$f = \frac{n}{1+(n-1)/s} = \frac{384}{1+ (384 - 1)/s} = 1+ (384- 1)/137=101$$

Where;

n = sample size for infinite population.

S = the number of anaesthesia provider in TASH.

f = is the desired sample size when the population studied is less than 10,000.

With an addition of 10% for possible non respondents the final required adjusted sample size becomes 111 **(101+10)**.

4.6 sampling procedure

We use stratified random sampling by allocating the calculated sample based on their educational level so that we included 11anesthesiologists,40 anesthesia residents,16 Msc in anesthesia, 24 Bsc anesthetist and 20 Msc anesthesia students who work in TASH were involved in the study since they are the once who are involved in anaesthesia provision.

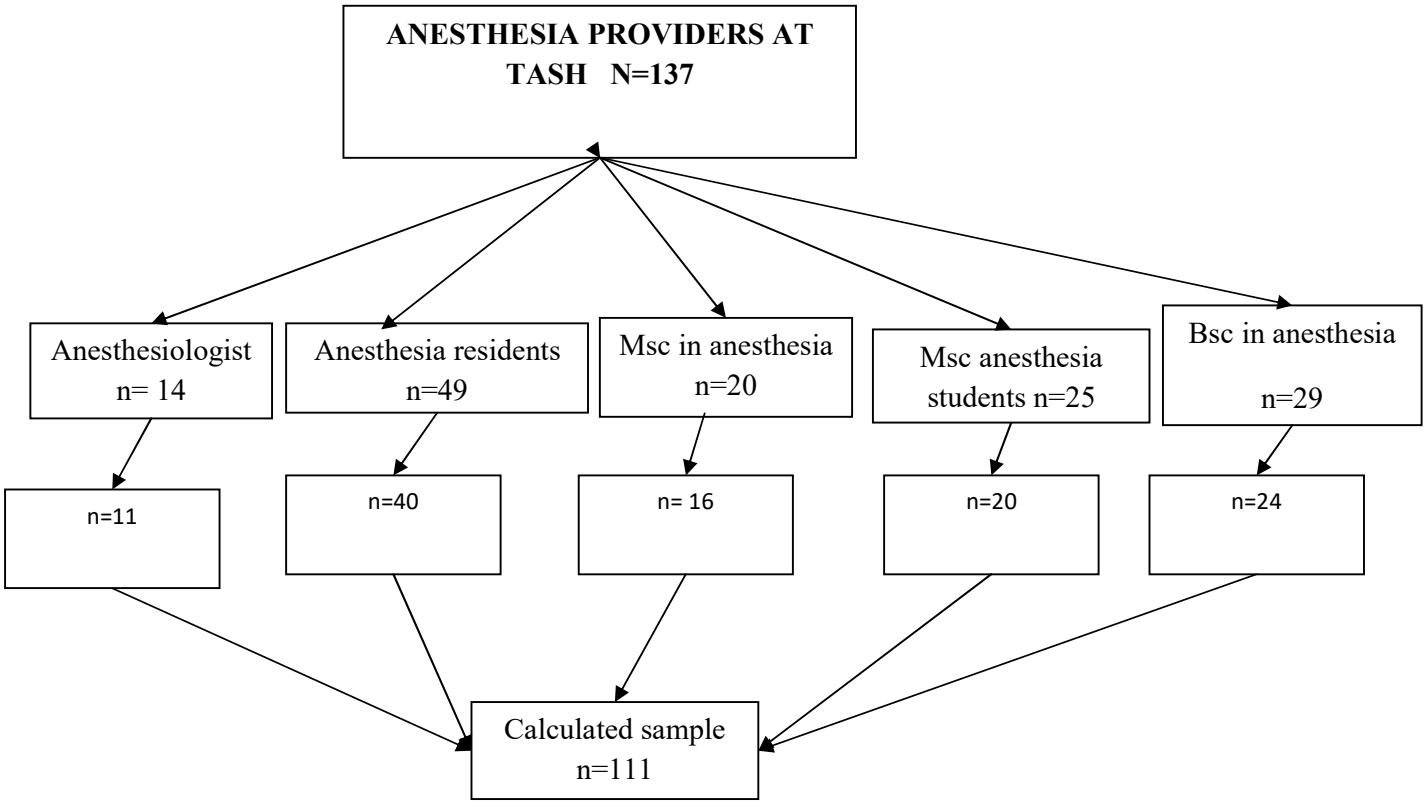

figure4. 1 sampling procedure follow chart for the assessment of knowledge, attitude and practice of anesthesia provider's towards PONV management, 2020.

4.7. Data collection procedure

The data was collected using self-administered questionnaires by principal investigator distributing the questionnaires during the working days to available anesthesia providers. The questionnaire contains four parts; the first part socio demographic characteristics such as sex, age and educational level, the second part includes questions about knowledge, the third part includes questions concerning attitude and the last part includes practice assessment questions towards PONV. The respondents were encouraged to respond to all items in the questionnaire within the time they devoted.

4.8 Data analysis procedure

First the data was checked for completeness and consistency. Then it was entered in to the computer using epi-data version 4.1software then exported to SPSS version 26 software for analysis. Before the analysis attitude questions worded negatively were reverse coded (questions 5 and 9). Descriptive statistics was done for the respondents. Bi-variable and multi variable logistic regression was done to determine factors associated with the knowledge, attitude and practice level of study subjects.

4.9 Data quality assurance

During the data collection supervision was under taken by the principal investigator throughout and regular follow up was made. Cross check for completeness and consistency of data on daily basis. Once the data had been collected and checked for completeness, and accuracy, it was sorted, categorized and summarized.

4.10 Ethical Considerations

Ethical clearance and support letter obtained from Addis Ababa University College of Health Science department of anesthesia, critical care and pain medicine to conduct the study. The participants were informed that there will be no direct benefit in participating in this study. Written informed consent had been obtained from each study subject. This study will helps policy makers, programmers and researchers to give appropriate attention on issues of interest. The study participants were assured their response confidentiality by removing personal identifications instead using codes and not sharing their information to anyone other than the study team.

4.11 Result dissemination plan

The study result will be submitted to Addis Ababa University College of Health Science department of anesthesia, critical care and pain medicine. The result will also be presented to the department of anesthesia , critical care and pain medicine as partial fulfillment of specialty in anesthesia , critical care and pain medicine and will be presented on annual national conference of Ethiopian Society of anesthesiologists professional Association (ESPA) and the result will be published on peer reviewed scientific journal.

4.12 Study variables

The independent variables for this study were age, sex and educational level. The dependent variables were knowledge, attitude and practice.

4.13 Operational Definitions

Good knowledge: the study participants who answered mean and above mean of Knowledge questions are considered as having good knowledge.

Poor knowledge: the study participants who answer below the mean of the Knowledge

questions are considered as having poor knowledge.

Positive attitude: the study participants who answered mean and above mean of attitude questions are considered as having positive attitude.

Negative attitude: the study participants who answer below the mean of the attitude questions are considered as having Negative attitude.

Good practice: the study participants who answered mean and above mean of practice questions are considered as having good practice.

Poor practice: the study participants who answered below the mean of practice questions are considered as having poor practice.

Early PONV: occurrence of PONV within 0-24 hours post operatively

Late PONV: occurrence of PONV after 24 hours post operatively.

5. RESULT

5.1. Socio - demographic Characteristics of the Study Participants

A total of 111 participants were involved in this study, with response rate of 100%.The majority of study participants were male (n=73 ,65.8%) with male to female ratio of 1.921 :1 and most of them were in the age range of 20-30 years 74 (66.67). Majority of the study participants were anesthesia residents 40 (36%) and anesthesiologists were the lowest in number accounting 9.9 % (n=11) of the study participants.

Table5. 1 Socio - demographic Characteristics of the Study Participants in assessment of knowledge, attitude and practice of anesthesia providers towards management of PONV at TASH.

	Variables	Frequency (n)	Percentage (%)
Gender	**Male**	**73**	**65.80**
	Female	**38**	**34.20**
Age	**20-30**	**74**	**66.67**
	Above 30	**37**	**33.33**
Educational level	**Anesthesiologist**	**11**	**9.91**
	Anesthesia residents	**40**	**36.04**
	MSc in anesthesia	**16**	**14.41**
	MSc anesthesia students	**2o**	**18.02**
	Bsc in Anesthesia	**24**	**21.62**

5.2. Knowledge of the Study Participants Regarding PONV management

Based on the participants answer they scored a minimum of 6/15 and a maximum of 15/15 with a mean score of 11.61 (± 2.103 SD). Sixty five (58.5%) of the study participants had good knowledge about PONV. All of anesthesiologists 11(100%), 29 (72.5%) of anesthesia residents 12 (60%) of Msc anesthesia students, 6 (37.5%), Msc in anesthesia and 7 (29.2%) of Bsc in anesthesia had good knowledge about PONV .

"All types of surgery have similar incidence of PONV" and "Women are more likely to suffer from PONV than men", were the most answered questions, where as "TIVA is preferred for prevention of PONV than regional and inhalational anesthesia" was the least answered question.

Table5. 2 Knowledge questions answered correctly by the study participants for the assessment of knowledge, attitude and practice of anesthesia providers towards PONV management at TASH (N =111).

N	Knowledge questions	Frequency(n)	Percentage (%)
1	The overall incidence of post operative nausea and vomiting (PONV) is less than ten percent(F)	68	61.26
2	Women are more likely to suffer from PONV than men(T)	104	93.7
3	Smoking have higher risk for PONV(F)	76	68.47
4	The majority of patients are more worried about pain than PONV(F)	81	72.973
5	PONV is unpleasant, but, rarely Causes a delay in recovery time after surgery(F)	63	56.76
6	There is a strong relationship between motion sickness and PONV(T)	95	85.59
7	Surgery greater than 30 minutes Increase the risk of PONV(T)	102	91.89
8	Regional anesthesia increases the risk of PONV(F)	82	73.874
9	All types of surgery have similar incidence of PONV(F)	108	97.3
10	Hypertension is more likely to Cause PONV than hypotension(F)	103	92.793
11	Nausea is a normal reaction to surgery and does not need any Intervention unless it results in vomiting(F)	103	92.793
12	Adequate IV fluid hydration is an Effective strategy for reducing the Baseline risk for PONV(T)	98	88.29
13	Smokers are less likely to Experience PONV(T)	72	64.87
14	TIVA is preferred for prevention of PONV than regional and inhalational anesthesia(F)	37	33.33

15	Prolonged pre-operative fasting can result in PONV(F)	87	78.38

The correct answer to the questions : F = false, T = true

5.3. Attitude Of Study Participants Regarding PONV

Based on the participants answer they scored a minimum of 26/45 and a maximum of 41/45 with a mean score of 34 (± 3 SD). The study showed that 68 (61.26%) of the study participants had positive attitude towards management of PONV. The majority of anesthesiologists 8 (72.73 %), 27(67.50%) of anesthesia residents, 13 (65%) of Msc anesthesia students ,10 (62.5%) of msc in anesthesia and only 20.83 % of the Bsc anesthetists answered mean and above the mean of attitude questions.

5.4. Practice of Study Participants Regarding PONV

The result showed that 44 (39.64%) of the study participants answered mean and above mean score of practice questions. According to the study 6 (54.55%) of anesthesiologists, 21(52.50%) of anesthesia residents, 10(50.00%) of Msc anesthesia students, 4(25.00%) of Msc in anesthesia and 4(16.67%) of Bsc in anesthesia 4(16.67%) had good practice towards PONV management.

5.5. Factors associated with knowledge of anesthesia providers regarding PONV Management at TASH.

Bi-variable and multivariable logistic regression analysis were done to identify factors associated with knowledge of the study participants and the result showed that anesthesia residents were having good knowledge towards management of PONV with adjusted odds ratio of 5.846 (95% CI 1.824, 18.735: p-value 0.003) times more likely than Bsc in anesthesia.

The adjusted odds ratio of Msc anesthesia students having good knowledge towards management of PONV was 3.578 (95% CI 0.995,12.864;p-value 0.050) times more likely than Bsc in anesthesia.

According to our study age and gender are also strongly associated with level of knowledge but statistically not significant as shown in table 5.3.

Table5.3 Multivariable logistic regression result of factors associated with knowledge of anesthesia providers regarding PONV management at TASH, 2020.

Variable		Level of knowledge		Crudes odds ratio	Adjusted odds ratio	p-value
		Good knowledge n (%)	Poor knowledge n(%)	95% CI	95% CI	
Age	20-30	44 (39.64)	30(27)	1.117(0.503,2.484)	1.354(0.525,3.490)	0.530
	Above 30	21(18.92)	16(14.41)	1		
Gender	Male	47(42.34)	26(23.42)	2.009(0.905,4.456)	1.786(0.707,4.513)	0.220
	Female	18(16.23)	20(18.02)	1		
Educational level	Anesthesiologist	11 (9.9%)				
	Anesthesia residents	29 (26.13)	11(9.9)	6.403(2.087,19.64)	5.846(1.824,18.735)	0.003*
	Msc in anesthesia	6(5.41)	10 (9.01)	1.457(0.381,5.572)	1.526(0.372,6.261)	0.557
	Msc anesthesia students	12(10.8)	8(7.21)	3.643(1.038,5.572)	3.578(0.995,12.864)	0.050*
	BSc in anesthesia	7(6.31)	17(15.32)	1		

*=P value < 0.05 , n= number of respondents ,1= reference

5.6. Factors associated with attitude of anesthesia providers regarding PONV management at TASH.

Bi-variable and multivariable logistic regression analysis were done to identify factors associated with attitude of the study participants and the result showed that anesthesia residents were having positive attitude towards management of PONV with adjusted odds ratio of 4.201 (95% CI 1.350,13.072: p-value 0.013) times more likely than Bsc in anesthesia.

The adjusted odds ratio of Msc anesthesia students having positive attitude towards management of PONV was 5.779 (95% CI 1.503,22.216 ;p-value 0.011) times more likely than Bsc in anesthesia. Even though statistically not significant age and gender were also strongly associated with level of attitude as shown in the table below.

Table5. 4 Factors associated with attitude of anesthesia providers regarding PONV management at TASH .

Variable		Level of attitude		Crudes odds ratio	Adjusted odds ratio	p-value
		Positive attitude n (%)	Negative attitude n(%)	95% CI	95% CI	
Age	20-30	47 (42.32)	27(24.32)	1.326 (0.593,2.965)	1.744(0.719,4.232)	0.219
	Above 30	21(18.92)	16(14.41)	1		
Gender	Male	45(40.54)	28(25.23)	1.048 (0.469,2.341)	0.759(0.310,1.855)	0.545
	Female	23(20.72)	15(13.51)	1		
Educational level	anesthesiologist	8 (7.21%)	3(2.70)	2.917 (0.664,12.82)	3.519(0.768,16.11)	0.105
	Anesthesia residents	27(24.32)	13(11.7)	3.462(1.201,9.978)	4.201(1.350,13.072)	0.013*
	Msc in anesthesia	10 (9)	6 (5.41)	2.778(0.752,10260)	3.633(0.912,14.480)	0.067
	Msc anesthesia students	13(11.71)	7(6.31)	5 (1.354,18.469)	5.779(1.503,22.216)	0.011*
	Bsc in anesthesia	9(8.11)	15(13.52)	1		

*=P value < 0.05 , n= number of respondents ,1= reference

5.7. Factors associated with practice of anesthesia providers regarding PONV management at TASH.

Bi-variable and multivariable logistic regression analysis were done to identify factors associated with practice of the study participants and the result showed that anesthesia residents were having good practice towards management of PONV with adjusted odds ratio of 3.447(95% CI 0.870,13.658 : p-value 0.038) times more likely than Bsc in anesthesia.

The adjusted odds ratio of msc anesthesia students having good practice towards management of PONV was 3.363 (0.753,15.029;p-value 0.023) times more likely than Bsc in anesthesia.

Taking practice level as final out come variable our finding showed negative attitude was strongly associated with poor practice of PONV management with adjusted odds ratio of 0.369 (95 % CI 0.146,0.933 and p-value of 0.035) times than positive attitude.

Table5. 5 Factors associated with practice of anesthesia providers regarding PONV management at TASH.

Variable		Level of practice		Crudes odds ratio	Adjusted odds ratio	P-value
		Good practice n (%)	Poor practice n(%)	95% CI	95% CI	
Age	20-30	33 (29.73)	(36.94)	1.902 (0.821,4.411)	1.776 (0.693,4.548)	0.231
	Above 30	11(9.91)	26 (23.42)	1	1	
Gender	male	35(31.53)	38(34.23)	2.968 (1.234,7.138)	2.488(0.938,6.596)	0.067
	female	9 (8.12)	29(26.13)	1	1	
Educational level	anesthesiologist	6(5.41)	5 (4.51)	4.167 (0.841,20.644)	3.180(0.509,19.857)	0.126
	Anesthesia residents	21(18.92)	19 (17.12)	5.526(1.599,19.096)	3.447(0.870,13.658)	0.038*
	Msc in anesthesia	12 (10.81)	4 (3.60)	1.667 (0.350,7.93)	1.391 (0.257,7.519)	0.702
	Msc anesthesia students	10(9.01)	10(9.01)	5 (1.254,19.992)	3.363 (0.753,15.029)	0.023*

	Bsc in anesthesia	20(18.02)	4(3.60)	1		
Level of knowledge	Below mean	13(11.71)	33(29.73)	0.432(0.193,0.967)	0.72(0.273,1.860)	0.489
	Mean and above	31(27.93)	34(30.63)	1		
Level of attitude	Below mean	10(9.01)	33(29.73)	3.3(1.407,7.739)	0.369(0.146,0.933)	0.035*
	Mean and above	34(30.63)	34(30.63)	1		

*=P value < 0.05 , n= number of respondents ,1= reference

6. DISCUSSION

According to our study being anesthesiologist was associated with good Knowledge, positive attitude and good practice towards PONV management .

This study showed 58.6% of the study participants had good knowledge about PONV in which 72.5%(n=29) of anesthesia residents were having good knowledge towards management of PONV with adjusted odds ratio of 5.846 (95% CI 1.824, 18.735: p-value 0.003) times more likely than Bsc in anesthesia and 60%(n=12) of Msc anesthesia students had good knowledge towards management of PONV with adjusted odds ratio of 3.578 (95% CI 0.995,12.864 ;p-value 0.050) times more likely than Bsc in anesthesia. This result was relatively higher than a study done in Singapore which showed 50.6% of the respondents had good knowledge of PONV management in pediatric patients [16], this difference might be due to study population that their study only included surgeons.

The mean percentage score of correctly answered questions from the aggregate score was 77.6% in our study , which was relatively higher than a study done in Canada with a mean percentage score of 61.34% [20]. The likely reason might be due to the difference of study participants educational level in which their study included only nurses.

This study showed slightly higher knowledge level of our study participants (58.6%) than a study done in university of Gondar that showed 52.8% of their study participants had good knowledge level on PONV management[4]. The likely reason of this difference might be due to our study subjects and the level of health facilities included in their study that might lead to different knowledge level.

According to this study 44 (39. 6 %) of the study participants have good practice on management of PONV, which was slightly higher than the study done in Singapore in which only 30.6% of participants have good practice of PONV management[16].The likely reason for this might be anesthesia providers in our study were more familiar on PONV management.

In our study 21(52.50%) of anesthesia residents were having good practice towards management of PONV with adjusted odds ratio of 3.447(95% CI 0.870,13.658 : p-value 0.038) times more likely than Bsc in anesthesia and 10 (50.00%) of Msc anesthesia students were having good practice towards management of PONV with adjusted odds ratio of 3.363 (0.753,15.029;p-value 0.023) times more likely than Bsc in anesthesia.

This result was different from study done in Switzerland among surgeons and anesthesiologists that showed anesthesiologists practice antiemetic prophylaxis more than surgeons (77% vs 45%; p -value < 0.01)[7]. The likely reason for this difference might be due to educational level and responsibility of professionals. Our finding also showed that negative attitude was strongly associated with poor practice of PONV management with adjusted odds ratio of 0.369 (95 % CI 0.146,0.933 and p-value of 0.035) times than positive attitude.

In our study 68 (61.3%) of the study participants had positive attitude towards management of PONV. Anesthesia residents were having positive attitude towards management of PONV with adjusted odds ratio of 4.201 (95% CI 1.350,13.072: p-value 0.013) times more likely than Bsc in anesthesia, and the adjusted odds ratio of Msc anesthesia students having positive attitude towards management of PONV was 5.779 (95% CI 1.503,22.216 ;p-value 0.011) times more likely than Bsc in anesthesia.

7. LIMITATION AND STRENGTH OF THE STUDY

7.1 Strength of the study

The study tried to assess the knowledge , attitude and practice of anesthesia providers towards management of PONV where there had not been similar previous studies carried out at TASH .

7. 2 Limitation of the study

One limitation of our study was that it only involve participants from TASH, therefore our results may not apply to other hospitals in the country.

The other limitation of our study was it did not include factors like year of experience and previous training on PONV management which can affect the result of our study.

8. CONCULUSSION

Over all educational level of anesthesia providers was a factor significantly affecting the knowledge, attitude and practice of PONV management in our study. Even though majority of anesthesia providers had good knowledge and positive attitude of PONV management most of them had poor practice. Anesthesiologists were having good knowledge, positive attitude and good practice than other level of anesthesia providers at TASH according to this study. Lack of guideline for management of PONV at TASH might be the other contributing factor for poor practice.

9. RECOMMENDATION

We recommend department of anesthesia, critical care and pain medicine to prepare training, guidelines and protocols for management of PONV in the future.

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11. ANNEXES

11.1 subject information sheet

Addis Ababa University School Of Medicine Department Of Anesthesia, Critical Care And Pain Medicine Information Sheet

Hello, my name is _____ I am here in behalf of Dr. Awoke Getiye, final year anaesthesia resident at Addis Ababa University School of medicine department of anaesthesia, critical care and pain medicine. He is conducting a research on "knowledge, attitude and practice of anesthesia providers towards post-operative nausea and vomiting at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia".

You are selected to participate in this study because you are currently working as an anesthesia provider in this facility. Your participation in this study will only be based on your willingness to participate. You have the right to choose not to take part in this study. If you are willing, you have the right to stop at any time or withdraw without giving any reason which you will not be subjected to any ill-treatment. There will be no direct benefit by participating in this study but in future information gathered by this study will helps policy makers, programmers and researchers to give appropriate attention on issues of post-operative nausea and vomiting.

The information that you provide will be kept confidential by using only code numbers and locking the data. Only the members of the study team will have the access to the non-coded data and the data will not be used for purposes other than the study. Your willingness and active participation is very important for the success of this study.

If you need any further information or explanation regarding to the study, you can have this address to contact.

Name: Dr. Awoke Getiye

Tel : +251-921091998 /0904541535

Email : awokegetiye21@gmail.com

Based on the understanding of the above information, are you willing to participate in this study?

A) Yes
B) No If yes, Signature _____ Date_____/_____/_____

11.2 Research Questionnaire

Addis Ababa University School of Medicine Department of Anesthesia, Critical Care And Pain Medicine.

Research Questionnaire To Assess Knowledge, Attitude And Practice Of Anesthesia Providers Towards Post-Operative Nausea And Vomiting At Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia.

Table 11. 1 Socio demographic characteristics of anaesthesia providers at TASH 2020.

S.no	Characteristics		
1	Age in years	20- 30	_____
		30-40	_____
		40-50	_____
		> 50	_____
2	Sex	Female	_____
		Male	_____
3	Educational level	Bsc in anaesthesia	_____
		Msc in anaesthesia	_____
		Msc student	1st year_____
			2nd year_____
		Anaesthesiologist	
		Anaesthesia Resident	1st year_____
			2nd year_____
			3rd year_____

Table 11. 2 Questions for assessment of Knowledge of anesthesia providers towards PONV management 2020.

S.no	Knowledge questions	
1	The overall incidence of post operative nausea and vomiting (PONV) is less than ten percent	1. True 2. False
2	Women are more likely to suffer from PONV than men	1. True 2. False
3	Smoking have higher risk for PONV	1. True 2. False
4	The majority of patients are more worried about pain than PONV	1. True 2. False
5	PONV is unpleasant, but, rarely Causes a delay in recovery time after surgery	1. True 2. False
6	There is a strong relationship between motion sickness and PONV	1. True 2. False
7	Surgery greater than 30 minutes Increase the risk of PONV	1. True 2. False
8	Regional anesthesia increases the risk of PONV	1. True 2. False
9	All types of surgery have similar incidence of PONV	1. True 2. False
10	Hypertension is more likely to Cause PONV than hypotension	1. True 2. False

11	Nausea is a normal reaction to surgery and does not need any Intervention unless it results in vomiting	1. True 2. False
12	Adequate IV fluid hydration is an Effective strategy for reducingthe Baseline risk for PONV	1. True 2. False
13	Smokers are less likely to Experience PONV	1. True 2. False
14	TIVA is preferred for prevention of PONV than regional and inhalational anesthesia	1. True 2. False
15	Prolonged pre-operative fasting can result in PONV	1. True 2. False

Table 11. 3 Questions for assessment of attitude of anesthesia providers towards PONV management 2020.

s.no	Questions	Strongly disagree	disagree	No commet	agree	Strongly agree
1	We need to assess for risk of post-operative nausea and vomiting (PONV) in all patients					
2	Managing PONV is equally important as managing the anaesthesia.					
3	I would change my technique of anaesthesia for reason related to PONV					
4	It is the responsibility of anaesthesia care providers to manage PONV at post anaesthesia care unit (PACU)/surgical wards					
5	PONV management has no major effect on the patient outcome .					

6	We need to give anti-emetic to decrease PONV occurrence					
7	It is the responsibility of anaesthesia care providers to administer prophylactic anti-emetics					
8	Quality of anaesthesia can be assessed using development of PONV					
9	Since PONV management can lead to poly pharmacy it should be practised only in certain cases only.					

Table 11. 4 Questions for assessment of Practice of anesthesia providers towards PONV management 2020.

S.no	Questions	
1	Do you give antiemetic based on risk factors?	1. Yes 2. No
2	How many anti-emetic drugs do you use for prophylaxis of PONV for low riskpatients	1. no anti emetics 2. Single " " 3. Two " " 4. >two " "
3	How many anti-emetic drugs do you use for prophylaxis of PONV for moderate risk patients	1. no anti emetics 2. Single " " 3. Two " " 4. >two " "
4	How many anti-emetic drugs do you use for prophylaxis of PONV for high risk patients	1. no anti emetics 2. Single " " 3. Two " "

		4. >two " "
5	Who is responsible for early PONV treatment at your work place?	1. recovery room nurse 2. Ward nurse 3. Anesthesia provider 4. Surgeon
6	Who is responsible for late PONV treatment at your work place**?**	1. recovery room nurse 2. Ward nurse **3.** Anesthesia provider **4.** Surgeon
7	How often do you ask for risk of PONV ?	1. No 2. Sometime 3. Always
8	Do you have guidelines to manage PONV at your work place ?	1. Yes 2. No