



The magnitude of postoperative nausea and vomiting: A descriptive study in private clinics, Pabna, Bangladesh

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Abstract

Post-operative Nausea and Vomiting still remains a challenge, despite having clinical perception and evidence that its severity has diminished. We conducted a descriptive study in post the operative units in several private clinics, Pabna, Bangladesh. Our aim was to find out the magnitude of postoperative nausea and vomiting in patients aged 3–79 years during the period from October 2016 to September 2017. Nausea, emetic episodes and the need for anti-emetic medication were recorded for 24 h postoperatively. In the post-operative unit, nausea and vomiting were 27.25% and 13.25%, respectively. Over the whole 24-h period, these figures were 65.75% and 35%, respectively and severe nausea was experienced by 7.88% in an average. The highest rate of emetic sequelae was observed in gynaecological & obstetrics patients; 28% of the patients who received general anaesthesia and 72% of the patients who received regional anaesthesia reported nausea. The most important predictive factors associated with an increased risk for nausea and vomiting were female gender, a previous history of postoperative sickness, a longer duration of surgery and a history of motion sickness. Even though, nausea and vomiting problem is neglected in developing world like Bangladesh but it's indeed a big problem for the patients and can hindered normal treatment procedures. Researchers should give more attention to this issue for reducing the burden of treatment facilities in our country.

Keywords: post-operative, vomiting, nausea, anaesthesia

1. Introduction

Nausea and emetic episodes still persist as the most common complaints following anaesthesia and surgery. Many adults find postoperative nausea and vomiting even more distressing than postoperative pain. The overall incidence of postoperative nausea and vomiting in the recovery room is around 10% [1] but ranges from 20% to 30% during the first 24 h after surgery according to recent reports [1–4]. Despite the advances in modern anaesthetic practice and surgical techniques, there is still room for improvement in identifying the causative factors as well as in the prophylaxis and treatment of this problem. The assessment intervals were 0–2 h and 2–24 h; the first 2 h spent in the recovery room and the remainder mostly on the surgical ward. The OT staffs completed the items on the surgical procedure, the premeditation and the anesthetic given by respective anesthesiologist. They also recorded medication for postoperative pain and possible postoperative nausea and vomiting and its treatment after the 2-h assessment in the recovery room. The questionnaire accompanied each patient's medical report to the ward. The patients were interviewed on the first postoperative day, 24 h after the operation and the anesthetic records were reviewed to ensure the completeness of the collected data. All interviews were conducted by the data collectors. Before visiting the patient, the interviewer recorded data from the medical notes about pain medication, emetic episodes and

anti-emetics used. During the interview, the patients were asked, in addition to their background characteristics, about the presence and intensity of nausea, vomiting and pain, any feeling of fatigue or drowsiness postoperatively and the overall satisfaction with the given treatment, including surgery, anaesthesia and postoperative care. Assessment of symptoms and their measurements Nausea was evaluated by the patient's subjective sensation of feeling sick or wishing to vomit.

2. Objective

- 1. General objective:** To observe the magnitude of post-operative nausea and vomiting
- 2. Specific objectives:** To analyze the predictive factors associated with these symptoms. To analyze key anaesthetic and surgical factors associated with these symptoms

3. Method and Materials

This was a prospective descriptive study to estimate the incidence of postoperative nausea and vomiting. We conducted this study in post-operative units in several private clinics, Pabna, Bangladesh during the period from January 2016 to December 2016. Our aim was to estimate incidence of nausea and vomiting in post-operative room. To achieve a representative sample of everyday surgery, we collected data from several types of common surgical

procedures in five different private clinics in the departments of general surgical including orthopaedics, gynaecological & obstetrics and otolaryngological. The study scheduled was to observe undergoing elective surgery requiring general or regional anaesthesia and follow-up for the first 2 hours in the recovery room and then post-operative room. Both genders were included, but critically ill patients and those requiring treatment in the intensive care unit were not studied. All patients during this period who met the inclusion criteria and gave their informed consent enrolled in the study. Anaesthetic staffs were instructed to keep records on nausea and vomiting. All statistical calculations were performed by the SPSS statistical package.

4. Results

Questionnaires and interviews were completed for 200 patients, of whom 50 (50%) were male and another 50% were females. The distribution of the inpatients within the surgical departments and different procedures is shown in the tables and figure. Nausea, emetic episodes and the need for anti-emetic medication were recorded for 24 h postoperatively. In the post-operative unit, nausea and vomiting were 27.25% and 13.25%, respectively. Over the whole 24-h period, these figures were 65.75% and 35%, respectively and severe nausea was experienced by 7.88% in an average. The highest rate of emetic sequelae was observed in gynaecological & obstetrics patients; 42% of the patients who received general anaesthesia and 62% of the patients who received regional anaesthesia reported nausea. The most important predictive factors associated with an increased risk for nausea and vomiting were female gender, a previous history of postoperative sickness, a longer duration of surgery and a history of motion sickness. The highest number of vomiting episodes was three in seven patients. The highest incidence of nausea (27%) was reported in gynaecology and obstetrics patients, of whom 21% were treated with anti-emetic medication. During the second observation period from 2 to 24 h postoperatively, the proportions of patients with nausea and vomiting in the whole population were 49% and 24%, respectively. Of all the patients reporting nausea, 49% also vomited. Severe vomiting (more than three episodes) occurred in 56 patients. Again the rate was highest in the gynaecology and obstetrics patients (nausea 60% and vomiting 31%), but also half of the otolaryngological patients suffered from nausea. Among the separate types of surgery, the highest incidence of nausea appeared in gynaecological & obstetrics (73%), joint replacement (61%) and general surgical (58%); of these nauseated patients, 41%, 70% and 47%, respectively, also vomited. Vomiting was treated with anti-emetics more often than nausea only. In most cases, nausea assessment was mild with no differences in median nausea scores (calculated for patients with nausea) between surgical departments. Following factors as predictors of the incidence of nausea among adult patients: gender, previous

experience of postoperative nausea and vomiting, duration of surgery, history of motion sickness, smoking, use of opioids, ceftiaxone, metronidasole etc. postoperatively, type of anaesthetic, obesity and history of migraine. When the outcome was vomiting gender, previous experience of post-operative nausea and vomiting, duration of surgery, history of motion sickness and smoking also as the five strongest predictors in the same order as for nausea

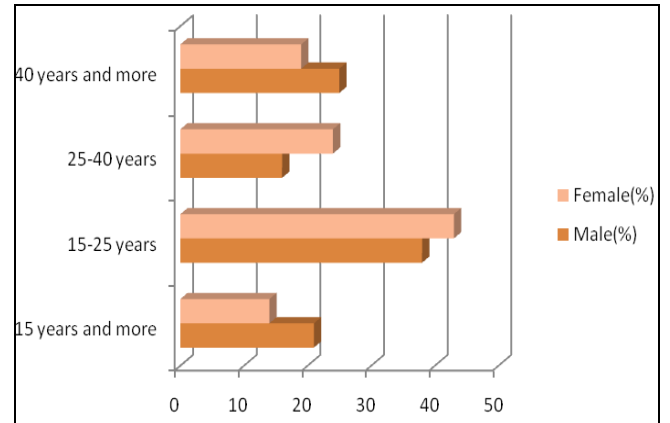


Fig 1: Age and sex distribution of the study participants (n=200)

Table 1: Demographic data of the patients for the different types of surgery and anesthesia (n=200)

Characteristic	GYN & OBS (%)	OTO (%)	GEN (%)	Total
Current daily smokers	02	14	22	200
History of migraine in childhood only	23	12	14	
as adult also	24	31	22	
Previous GA	15	8	9	
in previous GA	77	65	72	
Previous RA	49	43	41	
median	94	84	93	
(Q1, Q3)	80	35	73	
Use of postoperative opioids	(47, 113)	(23,100)	(45,105)	
	68	75	69	

Table 2: Distributions of procedures (Departments) of surgery among study participants (n=200)

Department	Procedure	Male	Female	Total
Gynaecology & Obstetrics	Abdominal surgery	==	29	29
	Laparotomy	==	18	18
	Vaginal surgery	==	4	4
Otolaryngology	Tonsillectomy	4	7	11
	Nose and sinus surgery	9	4	13
	Aural surgery	1	1	2
General surgery		39	13	52
Orthopaedic:	Joint replacement	11	5	14
	Lower limb surgery	17	9	26
	Upper limb surgery	9	5	14
	Spine surgery	10	5	15
Total		100	100	200

Table 3: Distribution of episodes with nausea and vomiting in different types of surgery (n=200)

Type of Surgery				
0-2 hours in the recovery room				
	GYN (%)	OTO (%)	GEN (%)	Average
Nausea	42	21	27	27.25%
Vomiting	19	14	12	13.25%
2-24 hours on ward				

Nausea	60	a	37	43.50%
Vomiting	31	a	22	21.75%
2-48 hours on ward				
Nausea	82	62	64	65.75%
Vomiting	50	35	34	35.00%

Table 4: The distribution (%) of the severity of nausea as assessed by the patients on the ward (2–24 h), by the type of surgery, anaesthetic technique and gender (n=200)

Nausea Score				
	none	mild	moderate	severe
Type of Surgery				
Gynaecological & obstetrics	40	29	21	10
Otolaryngological	49	24	16	11
General surgical	54	23	16	7
Type of anaesthesia				
General	48	25	18	9
Regional	62	20	11	7
Gender				
Male	68	17	11	4
Female	43	27	20	10

5. Discussion

This survey was designed to investigate the magnitude of postoperative nausea and vomiting. Our findings indicate that the occurrence of nausea and vomiting is still surprisingly high, especially on the general ward. Although the incidence of nausea was high but the proportion of severe nausea was generally below 10%. About half of the patients with nausea also vomited. This study was conducted by personally interviewing all the subjects during the first postoperative day while still in hospital. The patients were questioned regarding their symptoms, mostly by the same investigator, in a consistent manner. The intensity of nausea, as perceived by the patient, can be measured only by a subjective scale and the same approach was chosen as with pain evaluation [7, 8]. These aspects in measurements might elicit the true proportion of patients with emetic symptoms and are in accordance with the study conducted by Cohen *et al.* [3]. In interpreting our results some factors must be taken into consideration. The proportion of females was twice that of males and men generally are less susceptible to nausea [1-4]. The proportion of gynaecological & obstetrics patients contributed to the imbalance of gender distribution, as well as to the high overall rate of nausea. Similar findings have been described recently [3, 4, 9]. Severe nausea was more common in females, who were also far more often treated with antiemetic than were men. Seventy two (72) patients were operated upon under Regional anaesthesia, which is known to provoke more emetic reactions [2, 4]. This may have increased the overall incidence of postoperative nausea and vomiting although the anaesthetic techniques used were representative of current practice elsewhere. In this population, the incidence of nausea and vomiting after regional anaesthesia (mostly spinal) was greater than that reported by Carpenter *et al.* [10]. Over one-third of our nauseated patients associated the sensation with movement, either active or passive. Kamath *et al.* reported that 66% of their patients who could identify a cause for postoperative nausea blamed movement [11]. Muir *et al.* suggested that the increase in postoperative nausea and vomiting after leaving the recovery room might be related to patient transport [12]. Opioids are considered to sensitise the vestibular organ to movement-induced emesis [2, 13]. According to Andersen &

Krogh [14], opioids are seldom the cause of postoperative nausea if the patient is immobile. They also pointed out that nausea frequently accompanied pain in the early postoperative period and the relief of pain with opioids resulted in relief of nausea as well. Quinn *et al.* reported significantly higher mean pain scores in nauseated patients [4]. Our survey confirmed female gender, a history of previous postoperative emetic sequelae and a history of motion sickness as the most important patient-related risk factors for postoperative nausea and vomiting. These items were also included in the risk score model of Palazzo & Evans [6] developed for a specific patient group under- going minor orthopaedic surgery. In addition, we found smoking and the duration of operation among the five most important determinants of postoperative nausea and vomiting not considered by Palazzo & Evans. On the other hand, their strongest individual predictor was the use of opioids in postoperative pain management, which was the sixth predictor in our analysis. In spite of the differences in the study populations and items included in the prediction model, the performance of the score of Palazzo & Evans was only slightly worse than ours. We were not able to detect any clear effect of age on nausea but, in females, increasing age was associated with some increased risk. Our sample of children was far too small to draw any conclusions about the incidences of postoperative nausea and vomiting. Smokers had a decreased risk of nausea and vomiting, a fact also observed by Cohen *et al.* [3].

6. Limitations of the study

The study conducted in a single community. Also, our sample size was too small to exclude chance variation So, study results may not reflect the scenarios of the whole country. Our practice of using opioids and sedatives in association with some regional blocks may also have contributed to the unexpectedly.

7. Conclusion and Recommendations

Management of postoperative nausea and vomiting is important in public health practitioners as well as policy makers. The highest incidence of emetic sequelae was observed in gynaecological & obstetrics patients. The most important predictive factors associated with an increased risk for nausea and vomiting were female gender, a previous history of postoperative sickness; a longer duration of surgery and a history of motion sickness. This survey do not support the current clinical impression of a decreased incidence of postoperative nausea and vomiting. However, this survey has enhanced our awareness of postoperative sickness and raised the possibility of recognizing patients at risk for nausea preoperatively. Applying risk scoring in order to improve the patient outcome, antiemetic are given like prochlorperazine, promethazine, droperidol, ondansetron, dolasetron, granisetron and dexamethasone, prophylactically to patients with a high probability of emesis which could prevent or at least reduce these adverse symptoms.

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