

Factors Involved in the Occurrence of Postoperative Nausea and Vomiting After Urologic and Traumatological Surgery Seen at the Morafeno Toamasina University Hospital Center

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Abstract

Introduction

Postoperative nausea and vomiting (PONV) are disabling symptoms after surgery. Several risk factors are incriminated in their occurrence. Our goal is to determine the incidence of postoperative nausea and vomiting and then observe the intricate parameters in their occurrence in our center.

Materials and methods

We conducted a prospective observational monocentric study involving all patients over 15 years of age undergoing urological or traumatic surgery over a period of two consecutive months.

Results

Of the 134 patients selected, the incidence of PONV was 25.3% and this incidence increased proportionally with age. PONV is of interest to both men and women. The presence of a history of transport sickness, peptic ulcer, gastroesophageal reflux disease, diabetes, is at risk for PONV. The administration of opioid and a duration of intervention greater than two hours increases the risk of PONV. Dexamethasone prophylaxis appeared to be effective. In our study, the type of anesthesia had no impact on the appearance of the PONV.

Conclusion

A case-control study on a large number of staff is warranted in order to highlight exactly the risk factors taking into account our context as a reference center in urological and traumatological surgery in the eastern region of Madagascar.

Keywords - Incidence, Postoperative Nausea and Vomiting, Risk.

I. INTRODUCTION

Postoperative nausea and vomiting (PONV) is defined as nausea and / or vomiting occurring within 24 hours of surgery [1]. In the world, postoperative nausea and vomiting remain among the most feared events in patients with an

estimated incidence of 30-50% in conventional or outpatient surgery [2]. The incidence is increased in women, children and adolescents with a history of PONV or transport sickness, conversely it is reduced in smokers and probably alcoholics. [3]. In Africa, there is very little data on this

topic, however, in Mali, a study carried out at the Gabriel Touré Hospital, the average incidence is of the order of 18.3% [4]. Many products contribute significantly to both prevention and care. Most clinical guidelines agree that low-risk patients are unlikely to benefit from prophylaxis and that it should be reserved for patients with moderate to high risk. [5]. Hence the question, have patients with postoperative nausea and vomiting seen at Morafeno Toamasina University Hospital a particular epidemioclinical profile unlike literature data? Our goal is to determine the incidence of postoperative nausea and vomiting and then to observe the intricate parameters in their occurrence in our facility.

II. MATERIALS AND METHODS

A prospective descriptive study was conducted at the Morafeno Toamasina University Hospital Center over a period of two consecutive months. Our study concerns patients with postoperative nausea and vomiting, meeting the following inclusion criteria: all patients who underwent urologic or traumatic surgery aged more than 14 years. Outpatient surgery cases and patients with incomplete records were excluded. The variables studied are some demographic characteristics (ages, gender), the presence or absence of a medical history at risk of postoperative nausea and vomiting which are gastroesophageal reflux, peptic ulcer, diabetes, transport sickness, in charge anesthetic

(antiemetic prophylaxis, types of anesthesia, morphine use), the duration of the intervention. The sampling method was exhaustive. The data was collected from a pre-written survey sheet and then processed using Microsoft Excel.

III. RESULTS

A total of 134 patients who met the inclusion criteria had 34 cases of postoperative nausea and vomiting, an incidence of 25.3%. This incidence increases with age (Table I)

Table I: Distribution of Postoperative Nausea and Vomiting by Age Group

Age range	Number (n)	Percentage (%)
14 à 24 years	04	11,76
25 à 34 years	06	17,65
35 à 44 years	10	29,41
45 years and over	14	41,18
Total	34	100

Postoperative nausea and vomiting affect both the male (52.94%) and female gender (47.06%). Nearly 70% of patients with postoperative nausea and vomiting had at least one history of either transport sickness or diabetes, or gastro-duodenal reflux, or peptic ulcer disease. (Table II)

Table II: Distribution of patients according to the presence of antecedents at risk of postoperative nausea and vomiting (transport sickness, diabetes, gastro-duodenal reflux, peptic ulcer)

Antecedent at risk			Nausea		Vomiting	
	n	P (%)	n	P (%)	n	P (%)
With	44	32,84	16	72,72	08	66,67
Without	90	67,16	06	27,28	04	33,33
Total	134	100	22	100	12	100

Eighty-eight patients (65.78%) had received antiemetic prophylaxis with dexamethasone 4 mg prior to induction. Prophylaxis seems to have an impact on nausea but not on vomiting. (Table III).

Table III: Distribution of cases of postoperative nausea and vomiting according to the presence of prophylaxis

Prophylaxis	Nausea		Vomiting	
	n	P (%)	n	P (%)
Yes	88	65,78	02	09,09
No	46	34,22	20	90,91
Total	134	100	22	100

Patients who received opioids were at risk of vomiting in 83.33% of cases and at risk of nausea in 63.64% of cases. (Table IV)

Table IV: Distribution by use of morphinomimetic products

Opioids	Nausea		Vomiting	
	n	P (%)	n	P (%)
With	114	85,07	14	63,64
Without	20	14,93	08	36,36
Total	134	100	22	100

The influence of the type of anesthesia on the occurrence of postoperative nausea and vomiting was not observed. (Table V)

Table V: Distribution of Postoperative Nausea and Vomiting by Type of Anesthesia (AG, ALR: Rachianesthesia, APD, Axillary Block)

Type of anesthesia	With PONV		Without PONV	
	n	P(%)	N	P(%)
AG	22	64,71	74	74
ALR (APD, RA, axillary block)	12	35,29	26	26
Total	34	100	100	100

With respect to duration of intervention, the longer the duration, the higher the risk of developing postoperative nausea and vomiting.

Table VI: Distribution of PONV by duration of intervention

Duration	With PONV		Without PONV	
	n	P(%)	N	P(%)
Less than 1Hour	06	17,65	26	26
1 to 2 Hours	10	29,41	18	18
More than 2 Hours	18	52,94	56	56
Total	34	100	100	100

IV. DISCUSSION

Our study found a total occurrence of the PONV of the order of 25.37%. The latter is one of the most frequent and most feared adverse effects after anesthetic action. According to some authors, the incidence of VNP in SSPI is 20%, 5% for vomiting alone. [6]. This rate varies from one study to another between 30 and 80% [7] [8] depending on the context. Unlike the literature, the incidence of VONP increases with age in our study. In a study of 145 patients over the age of 18, 69.4% of those who vomited were under 60 years of age compared to 30.6% of those over 60 years of age [9]. Regardless of age, the risk of PONV was higher in humans in our series. On the other hand, a study shows that female patients, particularly children aged 5 to 15, are the most affected. This finding was also made by the authors who have done similar studies and this is consistent with literature data which states that the incidence of PONV is increased in women, children and adolescents [10].

In almost 70% of cases, patients with VONP were at-risk. The medical history we evaluated was one that could affect the risk of PONV including peptic ulcer disease, gastro esophageal reflux disease, diabetes and motion sickness. Several studies have shown that PONV or PONV have a greater risk of PONV with a probability ratio of between 1.7 [5] and 3.1 [11].

In our study, 65.78% of patients had not received antiemetic prophylaxis. The rest benefited from prophylaxis with dexamethasone 4 mg intravenously before induction. Of the patients who received prophylaxis, 23.53% had PONV. Authors in a sample of 395 patients had a PONV incidence of 39.2% in the absence of prophylaxis and 7.5% with prophylaxis. [12]. Others authors find a figure close to ours, or 24.5% but on a sample of 102 patients. [13]. The incidence of PONV after spinal anesthesia is generally lower than after general anesthesia (64.71% under General Anesthesia versus 27.29% under regional anesthesia in our study). Carpentier et al studied the incidence of PONV after spinal anesthesia prospectively in nearly 1,000 patients. PONV were noted in 25% of patients [14]. For Bastia B et al, the occurrence of PONV is important in the absence of prophylaxis and under general anesthesia [15]. On the products used, our results are in line with the literature concerning the increased risk of morphine-related VONP. The use of opioid especially postoperatively increases the risk of PONV [16]. This incidence is even higher if the patient is intubated. Between 60% and 80% of the patients who presented with PONV had received opioids in our study. The duration of the procedure was greater than 2

hours in almost half of the patients who presented with the VONP. According to a series to reduce the risk of PONV in patients operated for more than 2 hours, a crystalloid should be administered at the time of induction at 20 ml / kg before incision [15]. Each additional half-hour spent on the operating table increases the risk of PONV by 60% by 60% [11].

V. CONCLUSION

PONV have intrinsic morbidity by increasing the risk of inhalation pneumopathy, oesophageal rupture, and digestive sutures. They delay postoperative rehabilitation, functional recovery and decrease patient satisfaction. Our study, although preliminary and monocentric, made it possible to observe the frequency of the VONP in our establishment. To explain the discrepancy between our results and literature data on risk factors, a case-control study with a larger staff size is warranted. The predominance of the male gender and the frequency of the VONP in individuals over 35 are probably related to the type of surgery most often urological and traumatic.

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