

EVALUATION OF THE IMPLEMENTATION OF FLUID FULFILLMENT IN THE PONV PATIENTS AFTER ABDOMINAL SURGERY

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Background. Nausea and vomiting are problems that almost some patients often complain about after surgery. Some patients claim to experience nausea and vomiting after regaining consciousness from surgery. Tujuan dari penelitian ini In this study using quantitative methods with crosssectional. The sample used in this study was respondents who were willing or willing to consciously follow this study, aged 17 years over and had been operated on after 12 hours. The exclusion criteria in this study were patients who did not have complaints of nausea vomiting. This research was conducted from March – August 2022. In this study the variables used were age, sex, duration in surgery, smoking history, post op history, pain post op. **Results.** the frequency distribution of respondents is several variables. In the most age variables at the age of 51-75 years as much as 63.4%, in the sex variable more than half of men as much as 63.4%. The next variable was more than half the duration of surgery at a duration of 1 hour 77.7% with those who had a history of smoking as much as 56.7% and did not have a history of PONV more than half. Based on the variable incidence of PONV as many as 60% who experience mild PONV events and moderate postoperative pain as much as 60%. It can be seen that the P Value value is 0.000 on the age and gender variables. Seen p value of surgical duration 0.004; History of smoking with a p value of 0.001; Post op history with p value 0.003 and post op pain with p value 0.010. It can be concluded that there is an association between age, sex, duration of surgery, smoking history, post op history and post op pain with PONV. **Conclusion.** The conclusion in this study is that there is an association between age, sex, duration of surgery, smoking history, postoperative history, post op pain with PONV.

KEYWORDS

Balance, evaluation, fluid, PONV

INTRODUCTIONS

Abdominal surgery is a condition that is often encountered in most cases but is a serious condition that requires proper treatment from a doctor. Establishing the diagnosis and etiology of abdominal abscesses presents a challenge and increases the risk of injury in surgical interventions and *postoperative* complications aggravated by comorbidities, such as geriatrics. In this case report, we aim to describe the treatment of anesthesia in geriatric patients with abdominal abscesses undergoing laparotomy (Jatmiko & Mochamat, 2022; Pradhana et al., 2023)

Nausea and vomiting are problems that almost some patients often complain about after surgery. Some patients claim to experience nausea and vomiting after regaining consciousness from surgery. However, there are also patients who just feel nausea when they get home. Nausea after surgery will cause

discomfort, not infrequently this even affects your appetite. Of course, this will cause pain in the surgical incision wound, especially if you do surgery in the abdomen (Panji, 2023).

Postoperative nausea and vomiting (PONV) continue to be a common complication after general anesthesia, which can lead to high levels of patient distress and dissatisfaction. After elective surgery, PONV is believed to be caused by intestinal ischemia, secondary to hypovolemia resulting from overnight fasting. A number of risk factors have been identified for PONV. This includes patient-related factors, anesthesia, surgical procedures, and postoperative factors. Current approaches to the prevention and treatment of PONV are limited, and 25% of patients continue to develop PONV within 24 hours of [surgery](#). Nonetheless, universal pharmacological PONV prophylaxis appears to be cost-ineffective, and may be

associated with increased adverse events (Pradhana et al., 2023)

There are many factors that cause nausea and vomiting that you feel after surgery, which are often used in assessing risk factors for nausea and vomiting, one of which is *the APFEL Score (Nakatani et al., 2023)* The assessment included four risk factors: female gender, nonsmoking status, history of PONV or motion sickness, and opioid use after surgery. Although nausea can heal on its own, this condition will make patients feel discomfort and can cause some complications (Zhou et al., 2023) For example, dehydration, electrolyte imbalance, tension in the area of surgical stitches, or even the opening of the edges of the suture scar, bleeding, and shortness of breath (Chen & Chang, 2020)

Postoperative nausea and vomiting (PONV) is one of the complex and significant issues in anesthesia practice, with an increasing trend towards outpatient surgery and child care. This review focuses on pathophysiology, pharmacological prophylaxis, and rescue therapy for POVEN (Feri et al., 2023) The search used Medline and PubMed's databases for articles published in English from 1991 to 2014 when writing this review using "postoperative nausea and vomiting, PONV, nausea-vomiting, PON prophylaxis, and rescue" as keywords.

PONV is influenced by many patient-related, surgical, and anesthetic factors before, intra, and postoperatively. PONV risk can be assessed using scoring systems such as the simplified Apfel scoring system which is based on four independent risk predictors. PONV prophylaxis is administered to

patients at moderate and high risk based on this scoring system. New drugs such as neurokinin-1 receptor antagonists (aprepitants) are used along with serotonin receptor antagonists (5-hydroxytryptamine subtype 3), corticosteroids, anticholinergics, antihistamines, and butyrophenones for PONV prophylaxis. Combinations of drugs of different classes with different mechanisms of action are administered to optimize efficacy in adults at moderate risk for PONV. A multimodal approach with a combination of pharmacological and nonpharmacological prophylaxis and interventions that reduce initial risk is used in patients with a high risk of PONV (Juartika, 2022).

The incidence of postoperative nausea and vomiting can cause medical complications, psychological effects, inhibit the overall therapy process so as to reduce the recovery rate of postoperative patients and have an impact on increasing the burden of treatment costs during patient hospitalization (Hendro et al., 2018) Postoperative nausea and vomiting can occur in 80% of patients undergoing surgery and anesthesia, a major concern in recovery room care and a priority scale for anesthesiologists. The general prevalence of postoperative nausea and vomiting in all surgical procedures is more than 30%. However, the highest incidence among several surgical procedures is found in procedures such as tonslectomy, strabismus surgery, laparotomy (Latha et al., 2023).

Perioperative risk stratification and intervention according to the level of risk is essential in the prevention and management of PONV. There are many practical guidelines for PONV, but they can be

difficult to implement in resource-limited settings because there is no established consistent supply of drugs for prophylaxis and rescue management. So, the goals of these systemic reviews and guidelines can help improve patient satisfaction by reducing the prevalence of postoperative nausea and vomiting and their complications (Pradhana et al., 2023)

In Indonesia, the number of postoperative vomiting nausea has not been clearly recorded. The incidence of nausea and vomiting was 31.25% in postoperative laparotomy gene, and 31.4% in postoperative mastectomy. Postoperative nausea and vomiting complicate post-surgery discomfort and on an outpatient basis increase costs by about 0.1 -0.2 percent due to the incidence of readmission to the hospital. The incidence of postoperative nausea vomiting can be caused by pharmacological factors such as the use of certain types of anesthesia or the effects of a drug. While from non-arthracological factors, the incidence of nausea vomiting can come from the patient's own factors. The study aims to analyze the relationship between age, age, sex, length of surgery, history of nausea vomiting in previous operations, history of smoking, postoperative pain to the incidence of postoperative vomiting nausea (Type et al., 2023).

Although some advocate prophylactic antiemetic therapy for high-risk patients, with antiemetic-saving treatment for episodes of PONV, the optimal approach remains unclear. There is still a need to develop cost-effective strategies, ideally non-pharmacological strategies to reduce the incidence of PONV. Administering sufficient amounts of

intravenous fluids during perioperative to correct fasting hour deficits can effectively prevent PONV, without the cost or potential side effects seen with pharmacological approaches. The replacement of assumed preoperative deficits, in addition to the substitution of a lot of unfounded sweating, increasing, and loss of third space, plays an important role in the current perioperative fluid regimen. Application of perioperative fluids has been a topic of debate in recent years. Therefore, the potential efficacy of intravenous fluid therapy in reducing PONV remains to be conclusively proven (Pradhana et al., 2023)

During postoperative recovery, the body experiences an increased need for fluids. Lack of fluids can have an impact on dehydration. Where dehydration has complications in the patient's own body. Based on the results of research (Juartika, 2022) using white drinking water with lukewarm temperatures that can meet body fluids after nausea vomiting. Supported by the results of previous research (Lee et al., 2008) that meet the needs of liquids by using temperatures that are in accordance with those needed.

This evaluation needs to be carried out by nurses, in evaluating the use of interventions to meet fluid needs so that the desired goals are achieved and nursing care services can improve the health status of postoperative patients. Therefore, research on the evaluation of the implementation of fluid fulfillment in PONV patients after abdominal surgery.

METHODS

In this study using quantitative methods with crossectional. The sample used in this study was respondents who were willing or willing to consciously follow

this study, aged 17 years over and had been operated on after 12 hours. The exclusion criteria in this study were patients who did not have complaints of nausea vomiting. This research was conducted from March – August 2022. In this study the variables used were age, sex, duration in surgery, smoking history, post op history, pain post op.

History of nausea, vomiting as well as history of smoking, postoperative pain. This study was the incidence of postoperative nausea, vomiting . Data on the incidence of postoperative nausea and vomiting in patients were obtained from interviews and direct observation of patients using the nausea vomiting questionnaire from the Rhodes Index of Nausea, Vomiting and Retching (Rhodes INVR) in patients after 12 hours postoperatively. Measurements using the Rhodes INVR instrument total the smallest score is 0 and the highest score is 32. The categories are 0 = normal, scores 1-8 mild vomiting, scores 9-16 = moderate vomiting, scores 17-24 = severe vomiting, and scores 25-32 = very severe vomiting nausea (Rhodes & Roxanne, 1990).

In this study also took into account the output and input of the fluids used while in Rawat. Univariate analysis researchers use descriptive analysis that describes the characteristics of respondents in the form of percentage tables. As for bivariate analysis, the author uses statistical tests carried out are pearson, spearman tests and contingency coefficient correlation tests, which are selected and adjusted to the scale of the research data.

Table 1. Analysis results based on age, sex, duration of surgery characteristics

Characteristics	n	%
Age		
17-25 years	2	6,6
26-50 years	9	30
51-75 years	19	63,4
Gender		
Woman	11	36,6
Man	19	63,4
Operation Duration		
1 jam	23	77,7
1-2 jam	7	23,3
Smoking History		
Yes	17	56,7
No	13	43,3
Post op History		
Yes	2	6,6
No	28	93,4
PONV events		
Mild	18	60
Medium	12	30
Weight	0	0
Very Weight	0	0
Postoperative Pain		
Mild	10	33,3
Medium	18	60
Weight	2	6,7
Total	30	100

RESULTS AND DISCUSSION

Based on table 1 the frequency distribution of respondents is several variables. In the most age variables at the age of 51-75 years as much as 63.4%, in the sex variable more than half of men as much as 63.4%. The next variable was more than half the duration of surgery at a duration of 1 hour 77.7% with those who had a history of smoking as much as 56.7% and did not have a history of PONV more than half. Based on the variable incidence of PONV as many as 60% who experience mild PONV events and moderate postoperative pain as much as 60%.

Table 2. Analysis of the relationship between age, sex, duration of surgery, smoking history, history of PONV and postoperative pain with PONV events

Dependent Variables	Independent Variables	P Value
Age	PONV	0,000
Gender	PONV	0,000
Duration of Surgery	PONV	0,004
Smoking History	PONV	0,001
Post op History	PONV	0,003
Pain Post Op	PONV	0,010

In table 2. It can be seen that the P Value value is 0.000 on the age and gender variables. Seen p value of surgical duration 0.004; History of smoking with a p value of 0.001; Post op history with p value 0.003 and post op pain with p value 0.010. It can be concluded that there is an association between age, sex, duration of surgery, smoking history, post op history and post op pain with PONV.

In table 3 (attachment) It can be seen in full how to meet fluid needs. Visible from the table in the column Vital signs in general do not see blood pressure, pulse, breathing and temperature in an abnormal state. The height and weight columns, look to vary from respondents. Likewise, fluid needs vary, between needs. To determine the fluid balance look at the patient which is -5 and -10.

Age related to PONV

Based on the results of research on the age of > 51 years, more than half of which is 63.4%. This indicates that there are physiological disorders in the digestive tract and disorders in other body systems. In contrast to the results of the following study, the high incidence in young patients may be due to the fact that they are more likely to complain about PONV than older patients. It is also possible that younger patients may have high autonomic tone and respond worse to anesthetic and analgesic agents including opioids. PONV can be caused by various kinds of stimuli, namely chemicals and movement. In younger patients, afferent neurons are more sensitive to these stimuli and signals from these stimuli are relayed to the vomiting center in the brainstem and nausea vomits. So that young patients have a lower threshold for nausea vomiting and the risk of PONV will be higher than older patients. However, until now there has been no definite research on age and its effect on the incidence of PONV (Karnina & Ismah, 2021).

Gender with PONV

The results of this study were male sex as much as 63.4%. This is different from the results of the study (Karnina et al., 2021) where in this study it was found that 61 patients experienced Postoperative Nausea and Vomiting events consisting of 18 male patients and 43 female patients. Therefore, according to the results of the study, more female patients experienced PONV.

This is because men / men are too silent and unable to express their feelings. In women this happens because in women, the hormone estrogen is the main hormone and this hormone can concentrate dopamine receptors on CTZ. This causes nausea and vomiting stimuli one of which is from the blood circulation will be more easily channeled using dopamine receptors because in this case dopamine has been centered with the presence of estrogen in the blood so that the incidence of nausea vomiting after surgery will increase (Yi et al., 2018).

Duration of Operation with PONV

Results of this study pada durasi > 1 jam sebanyak 77,7%. Based on the results of the study (Karnina & Salmah, 2021) it was found that the length of surgery in patients after laparotomy digestive surgery with general anesthesia was mostly with a time of > 60 minutes, which was 60.6% from 104 samples. This is not in line with previous research at Yogyakarta City Hospital, data were obtained that the duration of surgery \leq 60 minutes as much as 78.6% and > 60 minutes as much as 21.4%. The incidence of PONV in this study was found to be more at the length of surgery > 60 minutes compared to the length of surgery \leq 60 minutes. Research conducted by Hendro et al, reported that the incidence of PONV was 2.8% in exposure to anesthesia for \leq 30 minutes and increased to 13-17% in the duration of surgery for 90-150 minutes. This means that the longer the operation, the more the percentage of PONV occurs.

Smoking history with PONV

In the results of this study, it was seen that as many as 56.7% had a history of smoking. This is in line with (Chimberia & Sweeney, 2000) There were 85 smokers and 242 nonsmokers. Of the 327 patients, 42 (13%) complained of postoperative nausea and vomiting.

Of smokers, only 6% complained of postoperative nausea and vomiting compared to 15% of nonsmokers ($p < 0.05$). It is suspected that enzyme induction is the most likely reason to cause antiemetic effects. It is generally accepted by anesthesiologists that smokers are more prone to perioperative complications such as coughing and desaturation. It is also known that smokers are more prone to postoperative complications such as atelectasis and respiratory infections. We showed a marked increase in the incidence of coughing, straining, and desaturation among smokers. It is generally temporary and in all cases can be controlled either by deepening the level of anesthesia or by the use of small doses of succinylcholine. In addition, there were no postoperative respiratory complications resulting in delayed discharge (Chimberia & Sweeney, 2000).

Post op history with PONV

Based on the results of this study, as many as 93.4% did not have a history of Post op. Just like the previous guidelines, risk factors in adults include female gender, history of PONV and/or motion sickness, not smoking, and young age. For types of surgery associated with an increased risk of PONV are laparoscopy, bariatric, gynecological surgery, and cholecystectomy. Risk factors for anesthesia include inhaled anesthesia, nitrous oxide, and postoperative opioid use. The effect of inhaled anesthesia on PONV is dose-dependent and prominent in the first 2-6 hours of surgery. The incidence of PONV is lower in total intravenous anesthesia (TIVA) without opioids. Recent studies have shown that the risk of PONV due to nitrous oxide use is duration-dependent. In less than an hour of anesthesia, the NNT (number needed to treat) to prevent PONV due to nitrous oxide is 128. NNT decreases to 23 at anesthesia over one hour, and decreases to 9 at anesthesia over two hours.

Pain Post Op with PONV

Berdasarkan hasil penelitian nyeri sedang sebanyak 60%. Sejalan dengan penelitian (Aubrun et al., 2019) Over the two days of investigation in each of the 221 randomly selected healthcare institutions, 7382 patients were included, of whom 2144 patients above 12 years underwent one of 10 selected procedures. Among responding institutions, 40% [33;47] had a dedicated pain management written protocol. Combination of tramadol and paracetamol was the most commonly prescribed (78% [71;83] of centres). Oral morphine was prescribed in 59/199 (30% [23; 37]) centres, for home treatment in 25/59 (42% [30; 56]) centres. However, there was no standardised take-home analgesic and PONV strategies for selected surgical procedures at risk of moderate to severe pain. PONV management guidance after discharge was included in only 12 % of centres. opioids: intravenous morphine titration was prescribed in only 4% [3;4] (75/2144) of the patients in the PACU. The reason is probably four-fold: fear of morphine-related adverse events in outpatients, controversy about the role of morphine as a factor delaying discharge after ambulatory surgery, underesti-mation of pain severity in the immediate post-operative period or low level of immediate post-operative pain despite some major surgical procedures. Morphine was rarely used at home (8/2144).

Among WHO step-2 analgesics, tramadol was the most frequently administered during the surgical procedure [13% [11; 14] (269/ 2144)] and prescribed after surgery and at home.

Fulfillment of Fluid Needs

Patients undergoing arthroscopic surgery are given crystalloid fluid at 10 mL/kgbb, ideally given intravenously 30 minutes before preloading surgery, can maintain hemodynamic stability and prevent postoperative vomiting.

Preoperative fluid balance (colloidal and crystalloid) in the 6 articles is effective in reducing the incidence of postoperative nausea. Fluids and electrolytes that enter the body make the balance of fluids and electrolytes mean a normal distribution of total body water and electrolytes into all parts of the body. The composition of fluids and electrolytes in the body has been arranged in such a way that the balance of vital organ functions can be maintained (Rahmawati et al., 2020).

Adequate fluids can reduce and prevent postoperative nausea, vomiting. Fluids and electrolytes that enter the body make the balance of fluids and electrolytes mean a normal distribution of total body water and electrolytes into all parts of the body. The composition of fluids and electrolytes in the body has been arranged in such a way that the balance of vital organ functions can be maintained (Gan et al., 2020).

CONCLUSION AND RECOMMENDATIONS

The conclusion in this study is that there is an association between age, sex, duration of surgery, smoking history, postoperative history, post op pain with PONV. It is recommended to conduct further research and fulfill fluid needs according to patient needs. Fluid needs must be met as it prevents the occurrence of complications and other nursing problems.

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Table 3. Liquid Fulfillment Table

No	TTV				BB (kg) / TB (cm)	Kebutuhan Minum (hari)	Intake				Output						Balance Cairan	
	TD	N	RR	S			36 Jam	48 Jam	Air Metabolisme	Total	36 jam		48 Jam		Feses	IWL		Total
											Muntah	Urin	Muntah	Urin				
1	130/90	83	23	36,3	34/153	1.020	950	1100	170	2220	110	700	100	700	100	510	2220	0
2	120/80	100	24	37	54/ 143	1.620	800	1340	270	2410	100	500	300	600	100	810	2410	0
3	130/70	90	18	36,5	65/ 154	1.950	960	1400	320	2680	150	600	260	600	100	975	2685	-5
4	120/90	84	18	36	40/ 150	1.200	810	1200	200	2210	150	600	110	650	100	600	2210	0
5	120/80	80	20	36	55/ 150	1.650	900	1400	275	2575	140	800	110	600	100	825	2575	0
6	130/80	84	20	36,3	60/ 150	1.800	1060	1200	300	2560	150	500	120	800	100	900	2570	-10
7	130/90	90	24	36,3	57/ 150	1.710	1000	1290	285	2575	120	600	100	800	100	855	2575	0
8	110/90	100	24	36,5	54/ 165	1.620	1100	1100	270	2470	120	610	130	700	100	810	2470	0
9	110/80	80	20	37	54/ 165	1.620	1200	1000	270	2470	200	650	110	600	100	810	2470	0
10	130/70	86	18	36,3	44/ 158	1.320	800	1000	220	2020	120	640	100	400	100	660	2020	0
11	130/90	88	18	36	54/ 160	1.620	1100	1200	270	2570	250	700	80	630	100	810	2570	0
12	120/90	100	20	36	45/ 160	1.350	900	1270	225	2395	600	500	120	400	100	675	2395	0
13	120/90	80	24	36,5	44/ 158	1.320	920	1250	220	2390	210	600	220	600	100	660	2390	0
14	130/80	90	20	36,5	47/ 155	1.410	880	850	235	1965	100	440	120	500	100	705	1965	0
15	120/90	96	18	36	52/ 160	1.560	1090	1400	260	2750	120	600	550	600	100	780	2750	0
16	120/80	80	18	36	41/ 155	1.230	910	1000	205	2115	100	400	100	800	100	615	2115	0
17	130/90	96	20	36	40/ 145	1.200	800	900	200	1900	100	400	100	600	100	600	1900	0
18	130/80	100	20	36	47/ 160	1.410	800	1200	235	2235	170	600	150	500	100	715	2235	0
19	130/70	90	20	36	51/ 155	1.530	1320	1500	255	3075	560	800	250	600	100	765	3075	0
20	110/80	80	20	37	54/ 165	1.620	1200	1000	270	2470	200	650	110	600	100	810	2470	0
21	130/70	86	18	36,3	44/ 158	1.320	800	1000	220	2020	120	640	100	400	100	660	2020	0
22	130/90	88	18	36	54/ 160	1.620	1100	1200	270	2570	250	700	80	630	100	810	2570	0
23	120/90	100	20	36	45/ 160	1.350	900	1270	225	2395	600	500	120	400	100	675	2395	0
24	120/90	80	24	36,5	44/ 158	1.320	920	1250	220	2390	210	600	220	600	100	660	2390	0
25	130/80	90	20	36,5	47/ 155	1.410	880	850	235	1965	100	440	120	500	100	705	1965	0

26	120/90	96	18	36	52/ 160	1.560	1090	1400	260	2750	120	600	550	600	100	780	2750	0
27	120/80	80	18	36	41/ 155	1.230	910	1000	205	2115	100	400	100	800	100	615	2115	0
28	130/90	96	20	36	40/ 145	1.200	800	900	200	1900	100	400	100	600	100	600	1900	0
29	130/80	100	20	36	47/ 160	1.410	800	1200	235	2235	170	600	150	500	100	715	2235	0
30	130/70	90	20	36	51/ 155	1.530	1320	1500	255	3075	560	800	250	600	100	765	3075	0