

Postoperative Pain Experience and Satisfaction with Pain Control Medication among Surgical Patients

Abeer Mohamed EL-Shatby Moursy, Assistant Professor
Medical Surgical Nursing, Faculty of Nursing, Alexandria University

Hoda Abdou Abd El-Monem El-Deeb, Lecturer
Medical Surgical Nursing, Faculty of Nursing, Alexandria University

Abstract

Postoperative pain is profoundly prevalent and keeps on being a noteworthy challenge in the surgical patients' care. **Objective:** Assess the postoperative pain experience and satisfaction with pain control medication among surgical patients. **Setting:** The study was preceded in four surgical departments at Alexandria Main University Hospital. **Subjects:** A convenience sample of 135 adult patients who had undergone surgical operations throughout the 1st 24 hours. **Tools:** One tool was used to collect the necessary data: postoperative patient pain experience and satisfaction questionnaire. **Results:** The majority of patients had severe pain with severe percent score of (90.9%). More than half of patients had severe impacted of pain on activities, sleep, mood and emotional status with moderate percent score of (70.8%). More than three quarters of patients were moderate side effects of pain control medications. **Conclusion:** The study concluded that the majority of enrolled patients experienced severe pain in the 1st 24 hours postoperative and were not satisfied with pain control medication. **Recommendations:** This study recommended that nurses must appreciate the importance of effective pain evaluation, provide knowledge about postoperative pain control and ensure patients' participation in decisions of pain management.

Keywords: Pain experience; Satisfaction; Pain control medication; Postoperative patient.

Introduction

Postoperative pain is the most prevalent complaints in surgical wards. It keeps on being a noteworthy challenge in the management of surgical patients^(1,2). Despite all the available analgesics, most surgical patients still suffer from mild to intense pain after surgery. Inadequate pain management can prompt counter active physical and psychological patients outcomes^(1,2). Several studies demonstrated that postoperative pain is common and pain control is inadequate^(3,4).

Over 230 million people undergo surgery each year worldwide and the number is increasing annually and up to 80% of patients experienced pain after surgery. Literature review suggests that postoperative pain remains a challenge in the developed and developing countries⁽⁵⁻⁸⁾. The study done by Sommer et al. (2008) reported that the prevalence of moderate or severe pain was high (30-55%) among

postoperative patients on the first day following surgery⁽⁹⁾.

Deficient pain management increases morbidity, mortality and decreased patients' quality of life. Also, it reduces patient mobility, resulting in postoperative complications including deep vein thrombosis, pneumonia and pulmonary embolus. All of these negatively affect the patient's welfare and the hospital performance in addition to extended lengths of stay and readmissions, both of which increase the cost of care^(10,11).

Unceasing, unrelieved pain also influences the patient's psychological condition. Prevalent psychological responses to pain include anxiety, helplessness, hopelessness and depression. Moreover, Patients who have experienced insufficient pain management may be reluctant to seek medical care for other health problems^(1,7).

Patient satisfaction with care is strongly tied to their experiences with pain during hospitalization. Postoperative patient satisfaction has been appeared to be related to the level of pain control. Thus, availability of adequate postoperative pain control is needed⁽¹⁰⁻¹²⁾.

Pain is described as an annoying feel and psychological experience following surgery. It is thought to be caused by nerve injury, and neuroplastic change in the central nervous system induced by high-intensity pain in the first days following surgery. Presently, pain literature bolsters the idea that even a brief experience of mild to intense acute pain can prompt neurons reorganization in the higher center^(13,14).

Pain management is an essential constituent in providing quality health-care planning and evaluation. Pain management guidelines seem to have had little effect on practice patterns or improvement in patients' pain control. Postoperative pain continues being known as an issue among patients⁽¹⁵⁾. Inadequate treatment of postoperative pain can influence satisfaction level among patients, since pain control is known to be the essential effectiveness measure of pain management system^(16,17).

Nowadays, the recognition and treatment of pain among post-surgical patients has recently received increased attention. The American Pain Society Standards advocate that pain is appraised in all patients and that patients have the right to appropriate appraisal and management^(18,19). So, this study expects to provide insight into patients' pain encounter instantly on the first 24 hours of surgery, and to investigate satisfaction with pain control medication among surgical patients.

Aim of the Study

This study aimed to assess the postoperative pain experience and satisfaction with pain control medication among surgical patients.

Research Question

What is the postoperative pain experience and satisfaction with pain control medication among surgical patients?

Operational definition:

Pain experience is defined as feeling of pain due to major or minor surgery that impacted on patients activities, sleep, mood and emotion status throughout the first 24 hours postoperatively.

Materials and Method

Materials

Design: A descriptive study design was used.

Setting: The study was preceded in four surgical departments at Alexandria Main University Hospital, namely the Neurosurgery, Hepatobiliary, Gastrointestinal and Cancer surgery Departments.

Subjects: The study subjects comprised a convenience sample of 135 adult male and female patients who had undergone surgical operations throughout the 1st24 hours at the above mentioned settings.

The statistical program Epi-Info was used to estimate the sample size using the following parameters:

- 1) Population size = 720 over 3 months
- 2) Expected frequency = 50%
- 3) Acceptable error = 10%
- 4) Confidence coefficient = 99%
- 5) Sample size = 135 patients

Subjects' inclusion criteria:

1. Adult patients, with age range from 21 years to 60.
2. Able to communicate verbally
3. Willing to participate in the study
4. Had undergone elective or emergency surgery throughout 1st 24 hours.
5. Free from associated postoperative complications.

Tools: One tool was used to collect the necessary data:

Tool I: Postoperative Patient Pain Experience and Satisfaction Questionnaire

It was adapted from the Revised American Pain Society's Patient Outcome Questionnaires (APS-POQ-R) (2010)⁽²⁰⁾ and was used to measure pain experience and patient satisfaction to pain control medication post-surgery. The questionnaire consisted of 32 items and was split into three parts:

Part 1: This part includes 8 items about biosociodemographic and clinical data. It included age, sex, educational level, occupation, previous operation, categories of current operation, operation status and type of pain control medication prescribed during the first 24 hours post surgery.

Part 2: This part includes 17 items related to patient pain experience during the 1st 24 hours post-surgery, using 0–10 numeric rating scales. These items comprised pain severity (6 statements), pain interference with patient activities, sleep, mood and emotional status (7 statements) and (4 statements) side effects of pain control medications. The measured value is illustrated as none (0), mild (1-3), moderate (4-6) and severe (7-10). The total score of pain experience ranged from 17 to 170. The total pain experience score summed and converted into percent was judged as the following: less than 50% categorized as mild pain experience, from 50% to less than 75% categorized as moderate pain experience and more than 75% categorized as severe pain experience.

Part 3: This part consists of 7 items related to satisfaction with pain control outcomes, decision & information on the 1st24hours postoperatively, among surgical patients, these items are rated using a 2-point Likert scales ranging from not satisfied (1), and satisfied (2). The total score ranged from 7 to 14. The total satisfaction score summed and converted into percent was judged as the following: less than 50% categorized as not satisfied and more or equal than 50% categorized as satisfied.

Method

- An official letter from Alexandria Faculty of Nursing was submitted to the general director of the surgical departments of the Main University Hospital. Permission to carry out the study was secured after complete explanation of the study aim.
- The developed tool was tested for content validity by five experts in the field of Medical Surgical Nursing. The required corrections and modifications were introduced accordingly.
- Reliability of the tool was established using Cronbach's Alpha test ($r=0.799$).
- A pilot study was carried out on 10 % of the sample to ensure the clarity, applicability, relevance, and feasibility of the tool. Necessary modifications were done prior to data collection for the actual study and those patients were excluded from the study sample.
- Every patient was interviewed individually once at the inpatient surgical ward at morning shift after the 1st 24 hrs post surgery to identify patients pain experience and their level of satisfaction with pain control medication. Each interview lasted for around 20 to 25 minutes by using tool I.
- Data were collected throughout a period of 6 months from August 2017 to end of January 2017.

Ethical considerations:

Written consents were obtained from patients after explanation of the aim of the study. Confidentiality and privacy of collected data were assured. Anonymity and right to withdraw from the study was respected.

Statistical Analysis

After data collection, data were fed to the computer and analyzed using Statistical Package for Social Sciences (SPSS) version 20. Raw data was coded and scored and a coding instruction manual was prepared.

Qualitative data were described using number and percent. Quantitative data were described using mean, standard deviation. Significance of the obtained results was judged at the 5% level.

The used tests were:

- **Chi-square test:** For categorical variables, to compare between different groups
- **Fisher's Exact or Monte Carlo correction:** Correction for chi-square when more than 20% of the cells have expected count less than 5.

Results

Table (1) shows frequency distribution of patients related to biosocio-demographic and clinical characteristics among the studied surgical patients. The results revealed that 44.4% of the studied patients were between 31 to less than 41 years old. The highest percentage of patients (77%) was females. Less than half of patients (45.9%) had primary education. Also, it was noticed that more than two thirds (69.6%) were house wife and 68.1% had a history of previous operations. The majority of the studied patients (98.5%) had undergone major surgeries and nearly three quarters (74.07%) their operations were elective. Also, the table revealed that less than half of the sample (43%) had prescribed NSAIDs and paracetamol intravenously to control their pain. Whereas (38.5%) of subjects had been prescribed NSAIDs, only.

Table (2) represents Pain experience related to pain severity on the 1st 24 hours postoperatively among the enrolled surgical patients. In relation to the least pain at rest, most subjects (45.9%) had reported moderate pain. Whereas, the worst pain at rest they described as being severe by the majority (92.6%) of the studied patients. Forty eight point nine percent of patients had experienced severe pain during rest. More than two thirds (68.9%); had experienced severe pain, which was the least during movement. The majority (92.6%) had reported severe pain described

as being the worst pain during movement. As regards to percent of severe pain during movement the majority (83.7%) were severe.

Table (3) displays Pain experience related to impact of pain on activities, sleep, mood and emotional status on the 1st 24 hours post operative among the enrolled surgical patients. Most patients (45.1% & 91.1%) reported severe pain that interfered with in and out of bed activities, respectively. Nearly three quarters (74.1%) had reported that severe pain interfered with falling asleep. Also the table showed that over half (57%) of patients reported feeling moderately anxious due to pain, over one third (39.3%) felt mildly frightened and more than two fifths (43.7%) felt moderately helpless while, the majority (80%) felt neutral depressed.

Table (4) shows frequency distribution of patients in relation to side effects of pain control medication on the 1st 24 hours post-operative among surgical patients. Over half (58.5%) of the subjects complained of moderate nausea, nearly three fifths (60.7%) had moderate drowsiness, the majority (81.5%) had mild itching and less than half (47.4%) had moderate dizziness.

Table (5) illustrates overall percent score of pain experience in relation to pain severity, impact of pain and side effect of pain control medication among surgical patients during the 1st 24 hrs post operatively. In relation to pain severity; the majority of patients (85.9%) had severe pain with severe percent score (90.9%). More than half (51.1%) of patients had severe impacted of pain on activities, sleep, mood and emotional status with moderate percent score (70.8%). More than three quarters (77.8%) of patients were moderate side effects of pain control medications with moderate percent score (62.5%). Regarding overall percent score of pain experience revealed that more than three quarters (76.3%) were experienced severe pain with severe percent score (76%).

Table (6) demonstrates frequency distribution of patients related to

satisfaction with pain control medication on the 1st 24 hours post surgery among surgical patients. All patients (100%) were not satisfied with the response of doctors or nurses to pain complain, their participation in decisions of pain management, with information's received about pain control, with received information's about none medicine treatment or with encouragement of doctors or nurses to non-medicine method. 92.6% and 94.8% of patients were not satisfied with pain control outcomes and with decision about pain medication, respectively. The same table revealed that total satisfaction score to pain control medication was low (0.7%) satisfied and high percent score (99.3%) was not satisfied.

Table (7) shows relation between postoperative pain control medications and pain experience .The results revealed that there was a highly significant effect of narcotics with NSAIDs on mild pain experience, than NSAIDs only and NSAIDs with paracetamol on severe pain.

Discussion

Effective postoperative pain management is a major concern to health care experts⁽²¹⁾. It is not just providing pain relief but also diminishes morbidity, facilitates quick recuperation and decreases hospital stay length. The WHO considers pain relief as a human right and recommends continuing measurements of postoperative pain to guarantee quality and patients' satisfaction⁽²²⁾.

The study findings have shown that the overall percent score of postoperative pain experience was severe in the first 24 hours post surgery. This finding is supported by Subramanian et al. (2016) revealed that the majority of postoperative patients had experienced severe pain in the 1st 24 hours postoperatively⁽²³⁾. In relation to pain severity, majority of studied patients experienced severe pain on the 1st 24 hours post surgery at rest and during movement. This may be attributed to the mechanism of pain caused by surgical tissue trauma which leads to activation and sensitization of peripheral nociceptors and spinal dorsal

horn neurons⁽²⁴⁾. As a result, individuals suffer ongoing pain at rest and during movement. Similar, findings have been reported by Philip et al. (2017) who stated that postoperative pain outcomes from tissue injury during surgical procedure like tissue dissection, skin incision, traction and manipulation⁽²⁵⁾.

Regarding to impact of pain on activities, sleep, mood and emotional status. The results of the present study indicated that the majority of patients experienced severe pain that interfered with in and out of bed activities. No doubt fear of the movement in or out of bed due to surgical incision and attached tubes leads to muscular tension that exaggerates pain perceived. Karabulut et al. (2011) who reported that all of their studied patients revealed similar findings⁽²⁶⁾. Also, the findings of current study revealed that most of the studied patients reported that their pain interfered with falling to sleep. This result is in line with Abdel-Hameed (2015) who reported that most of their surgical patient's experienced severe pain which interfered with sleep⁽²⁷⁾.

Moreover, the findings of the present study showed that majority of the studied patients reported that moderate pain caused them feeling anxious, and helpless. This may be due to the type of surgery. Patients who had major surgeries were found to experience more pain and anxiety post-surgery compared to others who had other types of surgery. These results agree with Woldehaimanot et al. (2014) since they indicated that there were statistical significant correlations between type of surgery a patient underwent with the post-operative perceived pain and anxiety over the first 3 days post surgery⁽²⁸⁾. In this context, Subramanian et al. (2017) indicated that most of the patients in their study reported that they were severely anxious and helplessness due to postoperative pain⁽²⁹⁾.

Concerning pain control medication prescribed on the 1st 24 hours postoperative, the majority of postoperative patients in the current study received combinations of

analgesia as nonsteroidal anti-inflammatory drugs (NSAIDs) and paracetamol intravenously to control pain with moderate side effects as nausea, drowsiness and dizziness. These results are supported by the American Pain Society (2016) which recommended a combination of paracetamol and nonsteroidal anti-inflammatory drugs (NSAIDs) as part of multimodal analgesia for management of postoperative pain. Paracetamol and NSAIDs have different action mechanisms and might be more efficient than either drug alone⁽¹⁹⁾. It has been indicated that administration of analgesic intravenously had faster action than intramuscularly^(30,31). The principle issue with intramuscular course of analgesia is the unpredictable drugs absorption, reduced peripheral perfusion and subsequently uptake of analgesia from muscles is prolonged. Also, paracetamol has minimal adverse side effects and NSAIDs have been related with significant gastrointestinal, cardiovascular, renal, and coagulopathy adverse effects.

The present study findings revealed that the most of enrolled patients were not satisfied with pain control outcome, response of doctors or nurses to pain complains, participation in decisions of pain treatment and with information received about pain control. These patients dissatisfaction may be related to insufficient preoperative education and absence of effective communication between patients and health care providers. This result is in agreement with a study done by Aly (2013) who revealed that the majority of postoperative patients were dissatisfied with pain management⁽³²⁾. On the contrary, Subramanian et al. (2017) declared that the majority of participants were satisfied with all aspects of the pain treatment they received. These results are due to therapeutic communication between patients and care providers which is important for effective medical practice and help to establish trust between patient and care providers⁽²⁹⁾. Comparable findings have been shown by Yorke et al. (2004) who demonstrated patient's satisfaction with

pain management after cardiac surgery and they referred that to information received about pain management⁽³³⁾.

Moreover, the current study revealed that there was a highly significant effect of narcotics with NSAIDs on mild pain experience than NSAIDs only and NSAIDs with paracetamol on severe pain. This is may be contributed to the majority of prescribed post-operative pain control medications was nonopioid medications and this is not adequate. This results is supported by Angst et al. (2012) who reported that the effective acute pain management post operatively must consists of both opioid and non-opioid medications⁽³⁴⁾. Also, this results are in line with Stephan and Parsa (2016) concluded that narcotics with NSAIDs are more effective combination for pain control medication post surgery in spite of having critical unfavorable effects including nausea, constipation, vomiting, dizziness, excessive sedation, clouded sensorium, respiratory depression, and addiction⁽³⁵⁾. So, the pain control medication prescribed for postoperative patient should be modified in order to optimize their pain control effect and satisfaction.

Conclusion

It can be concluded that the majority of the patient's experienced severe pain on the 1st 24 hours post surgery that impacted on activities in and out of bed, sleep, mood and emotional status. Also, most of the enrolled patients were not satisfied with pain control medication.

Recommendations

- Nurses must appreciate the importance of effective pain assessment to determine patient's pain experience after surgery.
- Patients must obtain information about postoperative pain control medication.
- Patients must participate in decisions of pain control management.
- Careful use of a variety of analgesic medications combined with non-pharmacological interventions, for managing postoperative pain as acupuncture, massage, or cold therapy, could be advocated.

Table (1): Frequency distribution of patients in relation to biosocio-demographic and clinical characteristics among surgical patients (N=135)

Biosocio-demographic and clinical characteristics	No.	%
Age (years)		
21-	28	20.7
31-	60	44.4
41-	23	17.0
51≥60	24	17.8
Sex		
Male	31	23.0
Female	104	77.0
Educational level		
Illiterate/read and write	25	18.5
Primary	62	45.9
Secondary	21	15.6
Diploma	17	12.6
University	10	7.4
Occupation		
Private work	29	21.5
Clerical	2	1.5
Retired	10	7.4
House wife	94	69.6
Previous operation		
Yes	92	68.1
No	43	31.9
Categories of current operation		
Minor	2	1.5
Major	133	98.5
Operation status		
Elective	100	74.07
Emergency	35	25.93
Postoperative pain control medications prescribed in the 1st 24hours		
NSAIDs [#]	52	38.5
Paracetamol	6	4.4
NSAIDs [#] & Paracetamol	58	43.0
Antimuscarinic & Paracetamol	9	6.7
Narcotic & NSAIDs [#]	10	7.4

[#] Nonsteroidal Antinflammatory drugs

Table (2): Pain experience related to pain severity on the 1st 24 hours postoperatively among the enrolled surgical patients

Items of pain experience	Severe		Moderate		Mild		None	
	No	%	No	%	No	%	No	%
The least pain the patient had on the first 24 hours post operative at rest	53	39.3	62	45.9	20	14.8	0	0.0
The worst pain on the first 24 hours at rest	125	92.6	10	7.4	0	0	0	0.0
Percent of severe pain during rest on the first 24 hours post operative.	66	48.9	59	43.7	10	7.4	0	0.0
The least pain the patient had on the first 24 hours during movement.	93	68.9	22	16.3	20	14.8	0	0.0
The worst pain the patient had on the first 24 hours during movement.	125	92.6	10	7.4	0	0.0	0	0.0
Percent of severe pain during movement on the first 24 hours post operative.	113	83.7	13	9.6	9	6.7	0	0.0

Table (3): Pain experience related to impact of pain on activities, sleep, mood and emotional status on the 1st 24 hours post operative among the enrolled surgical patients

Impact of pain	Severe		Moderate		Mild		None	
	No	%	No	%	No	%	No	%
Pain interferes with doing activities in bed	61	45.1	43	31.9	21	15.6	10	7.4
Pain interferes with doing activities out of bed	123	91.1	12	8.9	0	0.0	0	0.0
Pain interferes with falling sleep	99	74.1	25	18.5	10	7.4	0	0.0
Pain caused you feel anxious	19	14.1	77	57	29	21.5	10	7.4
Pain caused you feel depressed.	0	0.0	0	0.0	27	20	108	80
Pain caused you feel frightened.	0	0.0	47	34.8	53	39.3	35	25.9
Pain caused you feel helpless.	25	18.6	59	43.7	31	23	20	14.8

Table (4): Frequency distribution of patients in relation to side effects of pain control medications on the 1st 24 hours post operative among the surgical patients

Side effects that the patient had in the 1 st 24 hours postoperatively	Severe		Moderate		Mild		None	
	No	%	No	%	No	%	No	%
Nausea	26	19.3	79	58.5	20	14.8	10	7.4
Drowsiness	4	3	82	60.7	30	22.2	19	14.1
Itching	0	0.0	0	0.0	110	81.5	25	18.5
Dizziness	25	18.5	64	47.4	36	26.7	10	7.4

Table (5): Overall percent score of pain experience in relation to pain severity, impact of pain and side effect of pain control medication among surgical patients

Items	Total score	% score	Mild		Moderate		Severe	
			No	%	No	%	No	%
Pain severity	21.8±2.7	90.9±11.2	0	0.0	19	14.1	116	85.9
Impact of pain on activities, sleep, mood and emotional status	19.8±3.4	70.8±12.2	10	7.4	56	41.5	69	51.1
Side effects of pain control medication	10.0±2.0	62.5±12.8	20	14.8	105	77.8	10	7.4
Overall percent score of Pain experience	51.7±7.6	76.0±11.2	10	7.4	22	16.3	103	76.3

Table (6): Frequency distribution of patients related to satisfaction with pain control medication on the 1st 24 hours post surgery among surgical patients

Items	Satisfied		Not satisfied	
	No	%	No	%
Response of doctors or nurses to pain complain	0	0.0	135	100.0
Outcome of pain control	10	7.4	125	92.6
Participation of patient in decisions of pain treatment.	0	0.0	135	100.0
Decision about pain medication	7	5.2	128	94.8
Received information about pain control	0	0.0	135	100.0
Received information's about none medicine treatment	0	0.0	135	100.0
Encouragement of doctors or nurses to non medicine method	0	0.0	135	100.0
Total score	1	0.7	134	99.3

Table (7): Relation between postoperative pain control medications and Pain experience on the 1st 24 hours post surgery among surgical patients

Postoperative pain control medications	Overall Pain experience						χ^2	(P value)
	Mild 10		Moderate 22		Severe 103			
	n	(%)	n	(%)	n	(%)		
NSAIDS [#]	0	0.0	12	23.1	40	76.9	8.656*	0.013*
Paracetamol	0	0.0	0	0.0	6	100.0	0.837	^{MC} p=0.741
NSAIDS [#] &Paracetamol	0	0.0	10	17.2	48	82.8	8.145*	0.017*
Antimuscarinic&Paracetamol	0	0.0	0	0.0	9	100.0	1.799	^{MC} p=0.438
Narcotic & NSAIDS [#]	10	100.0	0	0.0	0	0.0	63.774*	<0.001*

[#]NonsteroidalAntinflammatory drugs χ^2 : Chi square test. MC: Monte Carlo *: Statistically significant at $p \leq 0.05$

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