

Acute Postoperative Pain of Indonesian Patients after Abdominal

Surgery

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Background: Pain is the most common problem found in postoperative patients.

Purpose: The study aimed to describe pain intensity and pain distress at the first 24-48 hours experienced by the patients after abdominal surgery.

Method: The study employed a descriptive research design. The samples consisted of 40 adult patients older than 18 years who underwent major abdominal surgery under general anesthesia. The patients were admitted at Doctor Kariadi Hospital Semarang, Central Java Province Indonesia during November 2011 to February 2012. A Visual Numeric Rating Scale was used to measure the pain intensity scores and the pain distress scores at the 5th hour after subjects received 30 mg of Ketorolac injection intravenously, a major analgesic drug being used at the studied hospital. Minimum-maximum scores, mean, standard deviation, median and interquartile range were used to describe pain intensity and pain distress.

Result: The findings revealed that on average, postoperative patients had experienced moderate to severe pain, both in their report of pain intensity and pain distress as evidenced by the range of scores from 4 to 9 out of 10 and median score of 5 and 6 (IQR = 2), respectively. It indicated that postoperative pain was common symptom found in patients after abdominal surgery.

Keywords: pain intensity, pain distress, abdominal surgery.

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Background

Pain is a common symptom found in patients with acute and chronic illness that causes personal hardship. Pain is also the main reason encountered by hospitalized patients in general and surgical patients in particular. Patients who have problem with pain have sensational and emotional responses that can be called as pain intensity and pain distress (Smeltzer & Bare, 2004). Tranmer et al. (2003) reported that 74 % of 69 patients including postoperative patients experienced pain. Postoperative pain is caused by tissue damage as a consequence of the surgical procedure.

Despite the pain medications and anesthetic techniques available, the prevalence of postoperative pain is still high. The prevalence of postoperative pain was approximately 80%. Among them 86% expressed moderate, severe, or extreme pain (Apfelbaum et al., 2003). A study found that patients after extremity, abdominal, and spinal surgery expressed moderate to severe pain. Among them 41% expressed moderate or severe pain on day 0, 30% on day 1 and 19%, 16%, and 14% on days 2, 3, and 4, respectively. The prevalence of moderate or severe pain in the abdominal surgery group was high (30-55%) on postoperative days 0-1 (Sommer, de-Rijke, van-Kleef, Kessel & Peters, 2008).

The number of patients undergoing abdominal surgery in Doctor Kariadi Hospital, Semarang, Indonesia increased every year. Approximately 200 – 300 patients per year underwent abdominal surgery in 2008 and 2009. The number increased 10% each year. Those patients suffered from postoperative pain. After surgery, they usually only received pain medication: Ketorolac 30 mg intravenously every 8 hours during the first to third day after surgery in managing pain. Ketorolac is a standard pain medication for patients after abdominal surgery. It is worth investigating that this current practice of pain management is adequately controlled acute postoperative pain at the first 24-48 hours after abdominal

surgery.

Objective

The objective of this study was to describe pain intensity and pain distress at the first 24-48 hours experienced by the patients after abdominal surgery.

Methods

Setting

The study was conducted at Male surgical ward Doctor Kariadi Hospital Semarang, Central Java Province Indonesia during November 2011 to February 2012.

Subjects

Forty male patients after abdominal surgery under general anesthesia who were hospitalized at research setting and met the inclusion criteria were selected as subjects. The inclusion criteria were as follows: Age between 18 - 60 years old, major abdominal surgery, including laparotomy, cholecystectomy, colectomy, gastrectomy, choledoduodenostomy and jejunostomy with midline incision, no history of previous surgery, being Javanese, did not have intellectual or cognitive impairment and communication problems including dyslexia, blindness, or deafness.

Instruments

Patient Information Record Form

The record form was used for collecting the patient's demographic data and surgical-related data comprising of age, marital status, religion, educational level, occupation, type of abdominal surgery and length of incision. These data were collected by the researcher from the patients' medical records.

Measurement of pain

The pain intensity and pain distress were measured by using the Visual Numeric Pain Intensity Scale adopted from McCaffery and Beebe (1993) and the Visual Numeric Pain Distress Scale adopted from Rockville (1992). Each patient was asked to mark on the number that best described how much pain intensity and pain distress he was experiencing at the 5th hour after they received 30 mg of Ketorolac injection intravenously at the first 24-48 hours after abdominal surgery and then the number was recorded.

Study protocol

Validity and reliability

The Visual Numeric Pain Intensity Scale and the Visual Numeric Pain Distress Scale are measuring tools that had been standardized. These tools had been reported to be valid for measuring the pain intensity and the pain distress (Brewer, 2001; Sitepu, 2009; Wang & Keck, 2004; Zhou, Petpichetchian, & Kitrungrrote, 2011). In Zhou, Petpichetchian and Kitrungrrote's study (2011), the VNRS was reported to have high validity and reliability when applied to Asian populations, Chinese postoperative patients in particular.

Study Procedures

The data collection procedures were conducted in the following steps (Figure 1).

1. A letter from the Faculty of Nursing Prince of Songkla University was submitted to the Director of Doctor Kariadi Hospital Semarang, requesting permission for data collection at the hospital.
2. After permission was granted, the researcher met the director of the nursing department and the head of male surgical ward, Doctor Kariadi Hospital to explain details about the objective and process of the study and to obtain the permission from the ward authority.

3. Before surgery, the primary researcher met the subjects, introduced himself, asked the patients for their voluntary participation in this study, gave the simple information about their rights and obtained an informed consent.

4. At the first 24-48 hours after abdominal surgery, if the patients were present with good consciousness, the researcher investigated the patients' record of pain medication, ensuring that the last dose was administered five hours ago.

5. The researcher assessed pain intensity and pain distress to the subjects until achieved forty patients.

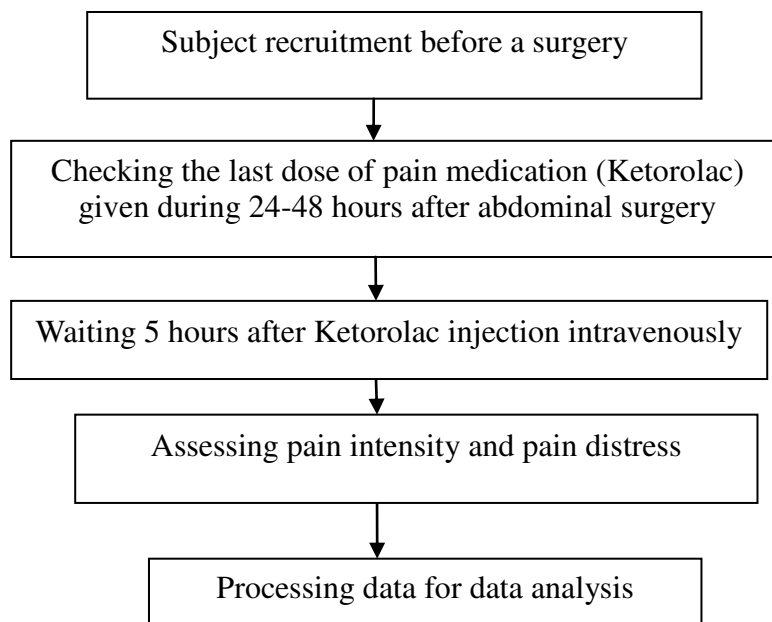


Figure 1

Study procedures

Ethical considerations

This study was conducted with the intention of protecting the human rights of all subjects. The researchers obtained the approval letter from the Institutional Review Board (IRB) of the Faculty of Nursing, Prince of Songkla University, Thailand. The subjects were

approached with all needed information before giving written or verbal consent. They had the right to refuse to participate without any penalty. The identity of all patients was coded anonymously and the data collected from patients were destroyed after completion of the study.

Data analysis

Demographic and surgical related-characteristics including age, gender, marital status, religion, level of education, occupation, type of abdominal surgery and length of incision were analyzed by using frequency, percentage, minimum-maximum, mean and standard deviation. Minimum-maximum scores, mean, standard deviation, median and interquartile range were used to describe pain intensity and pain distress during 24-48 hours after abdominal surgery.

Results

Part 1 Demographic characteristics and surgical-related data

Demographic characteristics and surgical-related data of the subjects are shown in Table 1. The mean age of the subjects were 48.05 years (SD=11.44). The majority of them were married (85%) and Muslim (90%). Only 10% of subjects had level of education higher than high school and approximately 62.5 % worked as a private employee. For the surgical-related data, nearly half of the subjects were undergoing laparotomy (45%). The mean length of abdominal incision was 16.80 cm (SD=4.62).

Table 1

Frequency, Percentage, Mean and Standard Deviation of Demographic Characteristics and Surgical-Related Data of the Group (N = 40)

Characteristics	n	%
Age (years)	M=48.05 SD=11.44	Min-Max= 22 - 60
Marital status		
Single	6	15
Married	34	85
Religion		
Muslim	36	90
Christian/Catholic	4	10
Level of education		
Elementary school	11	27.5
Junior high school	13	32.5
Senior high school	12	30
Diploma	3	7.5
Bachelor	1	2.5
Occupation		
Government employee	3	7.5
Farmer/Gardener	11	27.5
Private employee	25	62.5
Retired	1	2.5
Type of abdominal surgery		
Laparotomy	18	45
Cholecystectomy	7	17.5
Colectomy	6	15
Gastrectomy	5	12.5
Jejunostomy	2	5
Choledeoduodenostomy	2	5
Length of incision (cm)	M=16.8, SD=4.62	Min-Max= 7-20

Part II Pain Intensity and Pain Distress at the First 24-48 Hours After Abdominal Surgery

This part describes pain intensity and pain distress at the first 24-48 hours experienced by the patients after abdominal surgery. The data were collected at the 5th hour after they received 30 mg of Ketorolac injection intravenously, a major analgesic drug being used at the studied hospital. It was found that on average, postoperative patients had experienced moderate to severe pain, both in their report of pain intensity and pain distress as evidenced by the range of scores from 4 to 9 out of 10 and median score of 5 and 6 (IQR = 2), respectively (Table 2).

Table 2

Pain Intensity and Pain Distress Scores at the Fifth Hour After Ketorolac Injection (N=40)

Variable	Min	Max	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>IQR</i>
Pain intensity	4	9	5.30	1.36	5	2
Pain distress	4	9	5.80	1.49	6	2

Min = Minimum score, Max = Maximum score, *Mdn* = Median, *IQR* = Interquartile Range

Discussion

On the first 24-48 hours after abdominal surgery, patients experienced postoperative pain. Even though pain medication of Ketorolac injection intravenously was administered, 5 hours after the pain medication postoperative patients experienced postoperative pain. They reported that the level of postoperative pain was moderate to severe pain, both in their report of pain intensity and pain distress. This is related to the pharmacokinetics of Ketorolac and the pain mechanism.

The half life time of Ketorolac injection intravenous administration is five hours in adult patients. After five hours post injection, the concentration of the drug in the blood decreased. As a result, the effect of the analgesic from the drug decreased. Tissue damage from the abdominal incision led to postoperative pain occurring.

Postoperative pain is very common and develops naturally as a warning symptom that can be predicted and should be prevented and treated (Apfelbaum, Chen, & Mehta, 2003; Power, 2005). Despite the pain medications and anesthetic techniques available, the prevalence of postoperative pain is still high (Apfelbaum, Chen, & Mehta, 2003).

The sense of pain from abdominal surgery is a consequence of tissue damage that induces the release of chemical mediators from the surgical wound. The chemical mediators include prostaglandin, proton, serotonin, histamine, bradykinin, cytokines and neuropeptides generating local pain sensations (Copstead & Banasik, 2005).

The local pain sensation has systemic effects on pain receptors and nerve impulses that are transmitted via nerve fibers A-Delta and C to the central nervous system which has the gate control system. Subsequently activating the T-cells, as a result the gate is open. Therefore, the pain message reaches the brain. Finally postoperative pain is recognized and interpreted. The perception of pain is the end result of the neural activity of pain transmission, that is a conscious experience, and the reticular system is responsible for the emotional and behavioral response to pain (Fields & Basbaum, 2000).

The findings of this present study found that the level of postoperative pain was moderate to severe. Postoperative pain is a very common symptom that is found in patients on the first 24-48 hours after abdominal surgery. The finding was supported by Sommer, de-Rijke, van-Kleef, Kessel and Peters (2008). They reported that the prevalence of postoperative pain in patients after abdominal surgery was high (30-55%) on postoperative

days 0-1 who experienced moderate to severe pain. Similarly Laporte (1999) reported that the percentage of postoperative pain in patients after abdominal surgery varied from 22 to 67% was severe to unbearable pain.

Conclusion

At the first 24-48 hours patients after abdominal surgery reported postoperative pain. Postoperative pain is caused by tissue damage that release of chemical mediators from the abdominal incision wound. Even though pain medication is available, the prevalence of postoperative pain is still high. The findings revealed that postoperative patients had experienced moderate to severe pain, both in their report of pain intensity and pain distress as evidenced by the range of scores from 4 to 9.

Recommendations

Postoperative pain is common symptom and main reason encountered by hospitalized in surgical patients. Postoperative pain must be managed by the surgical nurse. Pain medication only is not fully relieving acute postoperative pain. The nurses can complementarily apply non pharmarmacological intervention in managing patient's pain, for example, foot massage. The findings of the study provide evidence to support another study aimed at testing the effectiveness of foot massage in reducing postoperative pain. Foot massage is one of the appropriate nonpharmacological interventions that can be used in relieving acute postoperative pain in patients after abdominal surgery. The feet are easily accessible and can be massaged without disturbing patient's privacy.

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