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Patient Satisfaction on Pain Management Post Open Cardiac Surgery at the First 24 Hours after Extubation in Hasan Sadikin Hospital Bandung, Indonesia

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Abstract

Assessment of postoperative cardiac pain management needs to be conducted to evaluate success in pain management after cardiac surgeries. Up to the present time, assessment of postoperative cardiac pain management has not been done in Indonesia. This study aims to determine the level of patient's satisfaction on pain management after having an open cardiac surgery at the first 24 hours post-extubation at Hasan Sadikin Hospital Bandung. A cross sectional study was conducted by using a questionnaire in the ICU of Hasan Sadikin Hospital Bandung from 18th June 2019 until 10th January 2020. The examination of patient satisfaction was carried out through the Indonesian-version of American Pain Society Patient Outcome Questionnaire Revised (APS-POQ-R). All 51 patients in that period agreed to participate in the study. The results showed that patients were satisfied (90.2%) and very satisfied (9.8%) with pain management in the first 24 hours after open cardiac surgery extubation at Hasan Sadikin Hospital. In summary, all patients were highly satisfied with pain management in the ICU of Dr. Hasan Sadikin General Hospital Bandung

Keywords: APS-POQ-R, Pain Management, Patient Satisfaction

1. Introduction

The number of open heart surgeries in the world reaches 800.000 cases each year. One third of open heart postoperative patients experience moderate to severe pain. Chronic pain after open heart surgery occurs around 21% to 51% of patients. The pain experienced is an unpleasant thing due to tissue damage (Lahtinen, Kokki, & Hynynen, 2006; Sattari, Baghdadchi, Kheyri, Khakzadi, & Ozar, 2013; Akhtar, Hamid, & Gangwani, 2015). The intensity of pain is higher in younger subjects. Inadequate postoperative analgesics cause several negative

effects, including chronic pain, tachycardia, increased of oxygen demand, hypercoagulation, pulmonary complications, psychological consequences, and decreased patient satisfaction. Pain at the site of the surgical incision and intubation results in prolonged immobility (Akhtar et al., 2015; Karabulut, Gurcayir, Yaman, Yilmaz, & Gokmen, 2015). Various methods have been used to control postoperative pain by using opioid and non-opioid drugs in bolus doses or intravenously. In addition, non-pharmacological techniques have been implemented to relieve pain, such as cold or hot compresses, meditation, and massage (Katz, & Seltzer Ze, 2009; Choiniere, Watt-Watson, & Victor, 2014).

The American Pain Society Patient Outcome Questionnaire Revised Questionnaire (APS-POQ-R) is the most commonly used instrument in several countries that were designed to assess the quality of pain management in hospitals during the first 24 hours after surgery in adult patients by measuring six aspects of quality, including (1) severity and pain reduction; (2) the impact of pain on activity, sleep, and negative emotions; (3) side effects of treatment; (4) the benefits of information about pain treatment; (5) ability to participate in pain treatment decisions; and (6) the use of non-pharmacological strategies (Akhtar et al., 2015; Gordon et al, 2010). Adequate postoperative pain management is important because it can reduce the risk of patient's morbidity (Karabulut et al., 2015; King, Parry, & Southern, 2008). Monitoring the quality of postoperative pain management needs to be done to minimize the possibility of inadequate pain management. The aim of this study is to determine the level of patient's satisfaction on pain management after having an open cardiac surgery in the first 24 hours post-extubation at Hasan Sadikin Hospital Bandung.

2. Methods

This cross sectional study was conducted from 18th June 2019 until 10th January 2020 in the cardiac intensive care unit (CICU) of Hasan Sadikin Hospital Bandung. Ethical approval has been obtained from Health Research Ethics Committee Universitas Padjadjaran Indonesia with number LB.02.01/X.6.5/191/2019. All post open cardiac surgery patients were between the age of 18 and 65 and agreed to join the study. Informed consent was taken preoperatively. Subject with chronic pain, on antipsychotic drugs, RASS score < 0 or > 0, and on emergency cases were excluded.

APS-POQ-R questionnaire in Bahasa was explained by the researcher and the patients answered the questions. All data were recorded on a questionnaire form. Data collected including socio-demographics, questions related to pain intensity, the effect on activity, side effects, patient's experience and satisfaction. Patient's satisfaction result was classified into poor (score 0-3), satisfactory (score 4-6), good (score 7-8), and excellent (score 9-10). The results of descriptive analysis were displayed in frequency and percentage. Data recording and statistical analysis were performed by using Statistical Packages for Social Science version 16 (SPSS Inc., Chicago, IL).

3. Results

Total 51 subjects participated in the study, among whom 12 (23.5.0%) were males and while 39 (76.5%) were females. Their mean of age was 50.98 ± 13.26 years. Almost 33.4 % of them were obese. Pain medications were varied among participants. There were 16 subjects (31.4%) who received morphine sulfate and 35 subjects (68.6%) who received combination of morphin and paracetamol. 36 subjects (70.6%) or most of the subjects underwent coronary artery bypass graft surgery while 15 subjects (29.4%) had valvular surgery. Other subjects' characteristics are enlisted in Table 1.

Table 1. Baseline characteristics

Characteristics	Value
<u>Age (year)</u>	
Mean±Std	50.98±13.26
Range	18–69
<u>Gender (n, %)</u>	
Male	39 (76.5)

Female	12 (23.5)
<u>Weight (kg)</u>	
Mean±Std	62.43±12.26
Range	42–115
<u>Height (cm)</u>	
Mean±Std	160.8±5.75
Range	150–175
<u>Body Mass Index (BMI)</u>	
Underweight	1 (2)
Normal	22 (43.1)
At risk	11 (21.6)
Obese 1	14 (27.5)
Obese 2	3 (5.9)
<u>Education (n, %)</u>	
Elementary - junior high school	10 (19.6)
High school	19 (37.3)
University	22 (43.1)
<u>Canadian Cardiovascular Society (CCS) grading of Angina (n, %)</u>	
CCS 1	23 (45.1)
CCS 2	28 (54.9)
<u>ASA Classification (n, %)</u>	
ASA II	32 (62.7)
ASA III	19 (37.3)
<u>Smoker (n, %)</u>	
Yes	17 (33.3)
No	34 (66.7)
<u>Type 2 Diabetes (n, %)</u>	
Yes	19 (37.3)
No	32 (62.7)
<u>Hipertension (n, %)</u>	
Yes	35 (68.6)
No	16 (31.4)
<u>Surgery Operation Type (n, %)</u>	
CABG	36 (70.6)
Valve	15 (29.4)
<u>Extubation Period (n, %)</u>	
First 24 hour	44 (86.3)
More than 24 hour	7 (13.7)
<u>Medication Type (n, %)</u>	
Morphin	16 (31.4)
Morphin dan Paracetamol	35 (68.6)

*CABG = Coronary Artery Bypass Grafting; BMI cut off score based on Asian classification

Most of participants stated that pain management was good (46 participants or 90.2%), while 5 participants (9.8%) stated excellent. In severity and pain reduction aspect, data analysis showed that the mean score of mild and moderate pain intensity in subject were 1.14 ± 0.722 and 5.94 ± 1.1 consecutively. The mean score of pain intensity relieved by taking pain medications was 8.84 ± 0.758 . There were several impacts of pain on activity and

negative emotions in patients. The mean score of movement and activity disturbance on the bed due to the pain from a scale of 0 to 10 was 2.47 ± 1.405 . The mean score of anxiety was 2.73 ± 0.568 , while the mean score of stress, fear, and helplessness was 0.73 ± 0.568 , 1.55 ± 0.577 , and 2.53 ± 0.542 respectively.

The mean score of nausea as a pain medication side effect in this study was 2.9 ± 1.025 , while itching was 0.12 ± 0.588 , dizziness was 0.2 ± 0.601 , and drowsiness was 5.78 ± 1.119 . Total 47 subjects (92.2%) received some information about pain treatment options before surgery. The mean score of subject's ability to participate in pain management decisions was 7.84 ± 0.758 . Majority of subjects stated that holding a pillow or scratching the side of pain (72.5%), and praying (80.4%) could minimize the postoperative pain, followed by immobility (51%), and deep breathing (33.3%) as methods of non-pharmacological strategy. The most common pain type was described as sharp by 21 subjects (41.2%). Pain mostly felt at the site of incision found in 24 subjects (47.1%). The most aggravating factor for pain was cough/deep breathing as experienced by 41 subjects (80.4%). Table 2 shows other pain responses of participants. Responses related to side effects of management were enlisted in Table 3.

Table 2. Pain intensity

Pain related interview	Value
<u>Pain intensity (mean score \pm std.dev)</u>	
Mild	1.14 \pm 0.722
Moderate	5.94 \pm 1.1
<u>Percentage of time that was in severe pain during ICU stay (n,%)</u>	
$\leq 30\%$	46(90.2%)
30% to 50%	4(7.8%)
$>50\%$	1(2%)
<u>Alleviating factors</u>	
Pain medications (mean score \pm std.dev)	8.84 \pm 0.758
Rest/staying immobile (n,%)	51(100%)
Breathing superficially (n,%)	17(33.3%)
Rubbing the pain site or holding a pillow on the chest (n,%)	37(72.5%)
Praying (n,%)	41(80.4%)
<u>Factors associated with pain during ICU stay after extubation (n,%)</u>	
Deep breathing	41(80.4%)
Ambulation	18(35.3%)
Turning or change of position	14(27.5%)
Back pain	2(3.9%)
Deep breathing + Ambulation	0
<u>Type of pain (n,%)</u>	
Sharp/cutting	21(41.2%)
Burning	14(27.5%)
Throbbing	16(31.4%)
Pressure	9(17.6%)
<u>Area that patient feel the pain mostly (n,%)</u>	
Incision site	24(47.1%)
Chest tube site	20(39.2%)
Back pain	11(21.6%)
Throat	4(7.8%)

Table 3. Patients satisfaction and responses regarding pain and medication services

Questions	Responses	Value
Receive information about pain management options before surgery (n,%)	Yes	47(92.2%)
Pain was interfering with mobility or movement (mean score \pm std.dev)		2.47 \pm 1.405

Side effects (mean score \pm std.dev)	Nausea	2.9 \pm 1.025
	Itching	0.12 \pm 0.588
	Dizziness	0.2 \pm 0.601
	Drowsiness	5.78 \pm 1.119
Pain causing patient to feel (mean score \pm std.dev)	Anxious	2.73 \pm 0.568
	Depressed	0.73 \pm 0.568
	Frightened	1.55 \pm 0.577
	Helpless	2.53 \pm 0.542
Patient satisfaction on pain treatment during ICU stay (n,%)	Excellent	5 (9.8)
	Good	46 (90.2)
	Satisfactory	0
	Poor	0

4. Discussion

Majority of participants were very satisfied with postoperative pain management in Hasan Sadikin Hospital (Table 3). This result was in line with several studies in Pakistan, Turkey and Bangkok that showed high levels of satisfaction in patients after open heart surgery. This may occur due to the quality of service that is already good, in accordance with pain management procedures (Akhtar et al., 2015; Karabulut et al., 2015; Al-Abri, & Al-Balushi, 2014; Mello, Rosatti, & Hortense, 2014). In this study, the type of medication used in most subjects was a combination of morphine and paracetamol (Table 1). Multimodal administration can reduce side effects of using just one drug. A study in Pakistan used combination tramadol and paracetamol in open heart postoperative patients (Akhtar et al., 2015). Most subjects stated that they felt pain for $\leq 30\%$ within 24 hours. Only a few subjects reported to have experienced pain for a range of 30% to 50% and $>50\%$ within 24 hours (Table 2). A similar result was also found in another study (Akhtar et al., 2015). The results of this study also showed that pain was successfully alleviated by therapies. That was in line with the results of studies in countries mentioned above. It shows the effectiveness of pain reduction with therapy (Akhtar et al., 2015; Karabulut et al., 2015). Data in this study showed that the most aggravating factor for pain was cough/deep breathing, followed by moving, changing positions, and back pain. This result was in line with several other studies in Pakistan, Brazil, and Canada (Akhtar et al., 2015; Mello et al., 2014; Gelinis, 2007). A research conducted in Turkey showed that the most aggravating factor for pain was moving (Karabulut et al., 2015). Another study in Finland showed that pain is especially felt when coughing and moving (Lahtinen et al., 2006).

Majority of subjects in this study stated that the most common type of pain was sharp, followed by throbbing, burning and pressure (Table 2). Another study in Pakistan showed a similar result (Akhtar et al., 2015). On the other hand, a study showed different results in which most of subjects felt throbbing pain with a small number felt sharp pain. Pain expression is very subjective and can be influenced by several factors including social, environmental, psychological, and cultural factors (Aslan, Badir, Arli, & Cakmakci, 2009). The most common site of pain in this study was in the incision area, followed by chest tube area, back area, throat area, and in all areas (Table 2). The findings of this study were in accordance with other studies regarding the location, distribution and intensity of postoperative cardiac pain, with the highest level of pain is in the sternum area, epigastric region, and chest tube placement area (McNeill, Sherwood, Starck, & Thompson, 1998).

Most of subjects in this study claimed that immobility, holding a pillow or scratching the side of pain, and praying could minimize the pain (Table 2). A research in Pakistan showed a similar result and stated that the intensity of pain decreased further after the removal of the chest tube in several subjects (Akhtar et al., 2015). A study in Turkey showed that several subjects mentioned about the use of non-pharmacological interventions for pain management. The most commonly used non-pharmacological method was breathing exercises (Karabulut et al., 2015). A research conducted in the United States showed that more than half of the subjects used praying method, and less than a third of subjects used relaxation techniques, diversion of concentration, warm

compresses, cold compresses, and massage therapy as non-pharmacological methods in pain management (Mueller, Tinguely, Tevacaari, Revelly, & Chiolo, 2000).

In this study, almost all patients received information about pain management options (Table 3). Another study in Pakistan explained that pain control was discussed in only one third of subjects during the preoperative visit. Patients who were given information had a higher level of satisfaction than subjects who were not informed before surgery. Preoperative counseling about the use of analgesics to control pain can reduce the amount of pain killers after surgery (Akhtar et al., 2015). Several studies showed that the use of preoperative counseling in the first 48 hours after surgery decreases the amount of prescription painkillers (Kol, Alpar, & Erdogan, 2014; Silva, Pimenta, & Cruz, 2013).

The side effects that appear due to pain in this study based on mean score from highest to lowest were drowsiness, nausea, dizziness, and itching. It was in line with another study in Pakistan (Akhtar et al., 2015). In contrast to the results of this study, another research showed that the side effect experienced by most of the participants were nausea and vomiting. The higher incidence of nausea in that study population may be due to the fact that intravenous tramadol is the main narcotics given to patients (Karabulut et al., 2015). In this study, it is known that the most common psychological side effect based on mean score was feeling helpless, followed by afraid, and depressed. A study in Pakistan stated that anxiety was associated with pain in some subjects (Akhtar et al., 2015). Another study showed that patients with high levels of depression tend to complain of higher pain levels (Morone et al., 2010).

5. Conclusion

Patients in Hasan Sadikin Hospital from 18th June 2019 until 10th January 2020 were highly satisfied about pain management after open cardiac surgery.

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Conflict of Interest

There is no conflict of interest to declare in this study.

Authorship

R.W.S wrote the manuscript with input from all authors. A.F.H, S, and R.W.S did a survey, analyse and interpret the results. The following participated in the analyses and interpretation of the data, R.H, A.P, R.A, and N.D. All the authors reviewed and approved the final manuscript.

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