



Effectiveness of Postoperative Pain Management and Postoperative Emergency Pain Management at Prof.Dr. I.G.N.G. Ngoerah General Hospital

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ABSTRACT

Background: Early postoperative recovery has undergone many developments. Early mobilization, early nutritional intake, and adequate postoperative pain management are the scope of early postoperative recovery. The principle of postoperative pain management starts from preoperative evaluation which includes medical and psychological conditions, medication history, history of chronic pain, drug abuse, and previous postoperative treatment regiments to guide postoperative pain management plans.

Method: This research is an analytical observational study, carried out at Sanglah Hospital Denpasar from June 2021 to December 2021. The accessible population of this study was all postoperative patients at the Central Surgical Installation and the Emergency Room at Sanglah Hospital Denpasar who were consulted by the Acute Pain Service (APS) team. Inclusion criteria were all patients who underwent surgical procedures under general and regional anesthesia, ASA physical status 1-3, and age above 18 years.

Results: There were 166 patients managed by continuous intravenous postoperative analgesia (73.1%), 43 patients by epidural postoperative analgesia (18.9%), and 18 patient-controlled analgesia/PCA (7.9%). The most widely used intravenous regiment was fentanyl by 85 (37.4%).

Conclusion: This study shows incidences number of acute postoperative pain in the elective and emergency department at Sanglah Hospital Denpasar gave good results with a much lower incidence of pain compared to the existing literature.

Keywords: acute pain service; incidence rate; pain management



Efektivitas Manajemen Nyeri Pasca Operasi dan Manajemen Nyeri Darurat Pasca Operasi pada RSUP Prof. Dr. I.G.N.G Ngoerah

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ABSTRAK

Latar Belakang: Pemulihan dini pasca operasi telah mengalami banyak perkembangan. Mobilisasi dini, asupan nutrisi dini, dan manajemen nyeri pasca operasi yang memadai adalah ruang lingkup pemulihan pasca operasi dini.

Metode: Penelitian ini merupakan penelitian observasional analitik, dilakukan dari bulan Juni hingga Desember 2021. Populasi penelitian ini adalah pasien pasca operasi di Instalasi Bedah Pusat dan Instalasi Gawat Darurat RSUP Sanglah Denpasar yang berkonsultasi dengan tim Acute Pain Service (APS). Kriteria inklusi adalah semua pasien yang menjalani prosedur pembedahan dengan anestesi umum dan regional, status fisik ASA 1-3, dan usia di atas 18 tahun.

Hasil: Terdapat 166 pasien yang ditangani dengan analgesia pasca operasi intravena kontinu (73,1%), 43 pasien dengan analgesia pasca operasi epidural (18,9%), dan 18 analgesia/PCA yang dikontrol pasien (7,9%). Regimen intravena yang paling banyak digunakan adalah fentanyl sebanyak 85 (37,4%).

Simpulan: Penelitian ini menunjukkan angka kejadian nyeri akut pasca operasi di bagian elektif dan gawat darurat RSUP Sanglah Denpasar sesuai dengan pedoman praktik klinik yang diterapkan memberikan hasil yang baik dengan angka kejadian nyeri yang jauh lebih rendah dibandingkan literatur yang ada.

Kata Kunci: insiden nyeri; layanan nyeri akut; manajemen nyeri akut

INTRODUCTION

Pain as defined by the International Association for the Study of Pain (IASP) is an unpleasant sensation and emotional experience associated with, or resembling that associated with, actual or potential tissue damage.¹ However, it is known that not all pains are attributable to the disease. Pain can be caused by medical care and invasive procedures performed by health professionals.² Inadequate postoperative pain management is a major burden for healthcare service.³ Around 75% patients had moderate to severe acute pain after operation but only 50% of them had managed inadequately.^{4,5} Inadequate postoperative pain management is frequently associated with increased morbidity, delayed recovery time, prolonged duration of opioid use, higher health-related cost and quality of life impairment.⁶ Postoperative pain can be prevented by proper preoperative patient evaluation and planning. Pain should be quantified by a patient's self-assessment which is done routinely after surgery to measure the efficacy of pain management. Responsive analgesia management with good communication can help lower postoperative pain incidence.⁷

There is not much data regarding postoperative pain incidence in Indonesia. A study in Soetomo General Hospital at Surabaya had shown 30% of patients had developed postoperative pain after surgery.⁸ As one of the main hospitals in Indonesia, Sanglah Central General Hospital Denpasar, which provides surgical and acute pain services on a large scale for a long time, has no data about postoperative pain incidence and its management for service evaluation.

METHOD

This research is an analytical observational study, carried out at Sanglah Hospital Denpasar from June 2021 to December 2021. The target population of this study was all postoperative patients at the Central Surgical Installation and Emergency Operation Room at Sanglah Hospital Denpasar. The accessible population of this study was all postoperative patients at the Central Surgical Installation and the Emergency Room at Sanglah Hospital Denpasar who were consulted by the Acute Pain Service (APS) team. Inclusion criteria were all patients who

procedures under general and regional anesthesia, ASA physical status 1-3, and age above 18 years. Exclusion criteria were patients who underwent local anesthesia, controlled mechanical ventilation in the ICU, patients treated in the COVID-19 isolation unit, and geriatrics with cognitive impairment. From these criteria, eligible sample will be assessed on a pain scale before surgery, 6 hours, 12 hours, 24 hours, and 48 hours after surgery, and the need for rescue analgesia, using a Numerical Pain Scale. Patients were grouped into 2 groups, namely patients who reported acute postoperative pain and those who did not experience acute postoperative pain.

RESULTS

A total of 227 subjects who met the eligibility criteria were analysed. Statistical analysis was carried out on research subjects. Then the incidence of postoperative acute pain will be obtained during that period. Furthermore, research subjects will be categorized into 2 groups based on complaints of postoperative pain. It is known that the incidence of acute postoperative pain at Sanglah Hospital was 14 patients (6.2%) while 213 patients (93.8%) had no pain. The median age in the group that did not experience postoperative pain ($n = 213$ patients) was 46 years with an IQR of 26 years, while the group reporting pain ($n = 14$ years) was 51 years with an IQR of 45 years. There was no significant difference between the two groups with scores $p = 0,253$.

On gender characteristics, it was found that in the group that did not experience pain, the proportion of males sex was 85 (37.4%) and females were 128 (56.4%). While in the group experiencing pain, the proportion of males was 8 (3.5%) and women by 6 (2.6%). There was no significant difference between the two groups with p -value = 0.204. On the characteristics of ASA physical status, the highest proportion was found to be ASA III patients in both groups.

In the classification of surgery, it is known that most patients underwent digestive surgery with a total of 35 patients (15.4%), while the rest of the classification can be seen in table 2. On the characteristics of the urgency of surgery, the proportion of elective surgery was 169 patients

underwent surgical (74.4%) and the proportion of urgent surgery was 58 patients (25.6%). In this type of anesthesia, 160 patients underwent general anesthesia (70.5%) while 67 patients underwent regional anesthesia (29.5%). In the analysis test, it was known that the urgency of surgery and the type of anesthesia did not give a significant difference in the incidence of acute

postoperative pain with p-value > 0.05. While the duration of surgery, with a median of 300 minutes (IQR 67.50 minutes) gave a significantly different value from the median of 150 minutes (IQR 80 minutes) with p 0.000. This indicates that there is a significant relationship between the duration of surgery and the incidence of acute postoperative pain.

Table 1. Demographic data between two groups

Variables	Group that did not report acute pain 48 hours postoperatively n = 213	Group that reported acute pain 48 hours postoperatively n = 14	p
Age (yrs), Median (IQR)	46.00 (26.00)	51.00 (45.00)	0.253 ^a
Gender			
Male	85 (37.4%)	8 (3.5%)	0.204 ^b
Female	128 (56.4%)	6 (2.6%)	
ASA:			
I	21 (9.3%)	2 (0.9%)	0.860 ^b
II	92 (40.5%)	6 (2.6%)	
III	100 (44.1%)	6 (2.6%)	

^aMann Whitney Test

^bFisher's Exact

Table 2. Surgery, anesthesia technique, and duration of surgery between two groups

Variables	Group that did not report acute pain 48 hours postoperatively n = 213	Group that reported acute pain 48 hours postoperatively n = 14	p
Urgency of Surgery		51.00 (45.00)	0.124 ^a
Elective	156 (68.7%)		0.763 ^b
Urgent	57 (25.1%)	8 (3.5%)	
Anesthesia Type		6 (2.6%)	
GA	149 (65.6%)		0.000 ^b
RA	64 (28.2%)	2 (0.9%)	
Duration of Surgery, Median (IQR)	150.00 (80.00)	300.00 (67.50)	

^aFisher's Exact

^bMann Whitney Test

Based on the analysis of the patients, it was found that 14 patients (6.2%) with NRS 5 required rescue analgesics within 48 hours. Meanwhile, those who did not need rescue analgesics within 48 hours with NRS < 5 were 213 (93.8%). The patient received rescue with intravenous opioids (50 mcg of Fentanyl).

Based on the analysis of the patients, there were

166 patients managed by continuous intravenous postoperative analgesia (73.1%), 43 patients by epidural postoperative analgesia (18.9%), and 18 patient-controlled analgesia/PCA (7.9%). The most widely used intravenous regiment was fentanyl by 85 (37.4%), followed by oxycodone by 54 (23.8%), and finally morphine by 43 (18.9%).

The regiments used as part of multimodal analgesia in Sanglah Hospital mostly used 1-2 additional medications, which were paracetamol in 207 patients (91.2%), while only a small proportion used a single opioid regiment, as few as 10 patients. Adjuvant ketamine was used in 44 patients, in most cases, combined with fentanyl in 19 patients (22.4%). The epidural regiment consisted of 43 patients, all of whom were administered concurrently with the neuraxial morphine adjuvant. The PCA regiment was

administered to 18 patients, of which 15 patients were given morphine and 3 patients were given fentanyl. NSAIDs were given to 48 patients with the majority getting ketorolac (31 patients), mefenamic acid (9 patients), and ibuprofen (8 patients). The results of conversion to morphine doses in the two groups did not show a significant difference between the two of groups, 21.6 mg (12.96 mg) and 24.3 mg (10.24 mg) with p value = 0.557 based on the results of the Mann-Whitney test.

Table 3. Description of pain regime

Variables	Frequency
Regiment	
Continuous intravenous	166 (73.1%)
Epidural	43 (18.9%)
PCA	18 (7.9%)
Intravenous Regiment	
Fentanyl	85 (37.4%)
Oxycodone	54 (23.8%)
Morphine	43 (18.9%)
Number of Multimodal used	
0	10
1	106
2	94
3	17
Adjuvant Ketamine	44
Regiment	
Morphine	15
PCA Fentanyl	3
NSAID	
Ketorolac	31
Ibuprofen	8
Mefenamic Acid	9
Paracetamol	207 (91.2%)

DISCUSSION

This study shows that the incidence of acute postoperative pain in patients undergoing various variants of surgery and administration of analgesics at Sanglah Hospital is 6.2% during the first 48 hours. The prevalence of postoperative pain is lower than that reported by other epidemiological journals, ranging from 19% to 73%. A statistically significant finding in this study was the duration of surgery. The group

that reported postoperative pain had a longer median operation time than the group that did not report pain [300 (67.5) minutes vs. 150 (80); p = 0.000]. Meanwhile, the other variables studied in this study (age, gender, urgency of surgery, ASA physical status, type of anesthesia) did not show any significant difference in the incidence of postoperative pain.

A systematic review by Ip et al (2009) found that several predictors of the occurrence of acute postoperative pain were previous pain history,

anxiety, age, and type of surgery.⁹ Based on the research conducted, the ASA of patients undergoing surgery did not have a significant relationship with the incidence of acute pain 48 hours postoperatively, while based on a systematic review, ASA physical status was not consistently associated with acute postoperative pain.⁹ Some literature supports that higher ASA physical status has a higher chance of developing acute postoperative pain.^{10,11}

Other epidemiological data such as gender and age were not found to be different in this study ($p > 0.05$). Age based on literature has a negative correlation between acute postoperative pain intensity and daily total opioid consumption.^{9,12} However, these findings are also inconsistent, suggest that younger patients require greater analgesic requirements.

Patients with no proven emergency status require more postoperative emergency pain management than elective patients. Patients who underwent elective surgery were 74.4%) and the proportion of emergency surgery was 25.6% and only one of the emergency patients required postoperative emergency pain management.

There was no significant relationship between the type of anesthesia and the need for postoperative pain (GA vs RA, $p = 0.763$). This could be due to the fact that both patients who underwent surgery under general and regional anesthesia received opioid-based multimodal analgesia.

CONCLUSION

This study shows incidences number of acute postoperative pain in the elective and emergency department at Sanglah Hospital Denpasar, in accordance with the applied clinical practice guidelines, gave good results with a much lower incidence of pain compared to the existing literature. The need for emergency pain management in patients who have received a postoperative acute pain management regiment with a rescue regiment of 50 mcg intravenous fentanyl was given to the incidence of patients reporting acute pain (6.2% of 227 patients).

CONFLICT OF INTEREST

There are no conflicts of interest.

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