

CHARACTERISTICS OF PAIN MANAGEMENT BY ACUTE PAIN SERVICE IN POST-OPERATIVE PATIENTS AT SANGLAH GENERAL HOSPITAL FROM JANUARY TO MARCH 2019

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Abstract: Pain is a daily problem in patient encountered by medical practitioner. Postoperative pain that is not managed properly can cause complications and prolonged rehabilitation. Acute uncontrolled pain has a relationship with the development of chronic pain and decreased quality of life. Good pain management is very crucial for pain patients especially in post-operative patients. This study aims to determine the characteristics of pain management by Acute Pain Service team in postoperative patients at Sanglah General Hospital from January to March 2019. This study used a descriptive cross-sectional method. The data used is secondary data from Sanglah General Hospital Acute Pain Service recap. 979 of total study sample divided into 12 surgery departments. From this study, we found that the patients who performed the most surgery were 168 orthopaedic surgery patients. Analgesic administration techniques used were IV syringe pump (76.3%), epidural (17.7%), oral (3.3%), intermittent bolus (1.9%), PCA (0.7%), and PNB (0.2%). The most widely used type of medication is a combination of fentanyl and paracetamol in each surgical department.

Keywords: pain, analgesic administration techniques, type of medication, Sanglah General Hospital.

I. INTRODUCTION

Pain is daily problem encountered by medical practitioner. According to Association for Study of Pain (IASP), pain is an unpleasant sensory and emotional experience associated with either actual or potential tissue damage, or which is explained in the form of such damage. Pain can be caused by surgery, trauma, illness, or when receiving routine care on the ward.^[1] Pain that is not handled properly can affect the physical and psychological condition of patient and their family. Psychological responses that often arise are depression and anxiety.^[2]

Postoperative pain can affect the surgery results, patient satisfaction, cardiovascular, poor wound healing and insomnia.^[3] Postoperative pain that is not managed properly can cause prolonged complications and rehabilitation. Acute uncontrolled pain has a relationship with the development of chronic pain and decreased quality of life.^[4]

The use of opioids, NSAIDs, and paracetamol as analgesic in acute pain patients is inseparable from side effects. Good pain management is very crucial for pain patients especially in postoperative patients. The goal of postoperative pain management is to relieve pain sensation while keeping side effects to a minimum. Appropriate pain relief causes shorter stays to reduce hospital costs and increase patient satisfaction.^[4] Availability of Acute Pain Service (APS) allows the use

evidence based approaches for pain management and reduces variation in pain management while providing broader analgesic technique dan increasing accountability.^[5] This study aims to determine characteristics of pain management by the Acute Pain Service in postoperative patients at Sanglah General Hospital from January to March 2019.

II. METHODOLOGY

This study is a descriptive cross-sectional study. The data used is secondary data obtained from Sanglah General Hospital APS recapitulation using total sampling method. This study was performed in the Anaesthesiology Department of Sanglah Hospital in June to September 2019. The sample used in this study were all postoperative patients in Sanglah General Hospital from January to March 2019, which were divided into 12 departments. Patients with incomplete data were excluded. Then the data processes using SPSS version 23.

III. RESULT AND DISCUSSION

A. Result

In this study, a total of 979 subjects were all postoperative patient at the Sanglah General Hospital from January to March 2019 that fulfilled the inclusion and exclusion criteria. Table 1 showed total of analgesic administration techniques in postoperative patients. We found that the most common use of analgesic administration was by IV syringe pump 747 patients (76.3%) followed by epidural 173 patients (17.7%).

Table 1: Description of Analgesic Administration Technique

Administration Technique	Frequency	Percentage (%)
Oral	32	3.3
Epidural	173	17.7
IV Syringe Pump	747	76.3
Bolus Intermittent	19	1.9
PCA	7	0.7
PNB	2	0.2

Table 2 showed total of drug regimen combination used in postoperative patients. We found that the most common use of drug combination was fentanyl and paracetamol used in 458 postoperative patients (46.8%) followed by the combination of bupivacaine, morphine, and paracetamol used in 161 (16.4%).

Table 2: Description of Drug Regimen

Drug Regimen	Frequency	Percentage (%)
Mefenamic Acid + Paracetamol	4	0.4
Bupivacaine	2	0.2
Bupivacaine + Morphine + Ketorolac + Paracetamol	7	0.7
Bupivacaine + Morphine + Paracetamol	161	16.4
Bupivacaine + Morphine + Paracetamol + Fentanyl	2	0.2
Bupivacaine + Paracetamol	2	0.2
Fentanyl	17	1.7
Fentanyl + Mefenamic acid + Paracetamol	3	0.3
Fentanyl + Ketamine + Mefenamic Acid + Paracetamol	21	2.1
Fentanyl + Ketamine + Ketorolac +Paracetamol	1	0.1
Fentanyl + Ketamine + Paracetamol	34	3.5
Fentanyl + Ketorolac	2	0.2
Fentanyl + Ketorolac + Paracetamol	52	5.3
Fentanyl + Metamizole	9	0.9
Fentanyl + Metamizole + Paracetamol	6	0.6
Fentanyl + Paracetamol	458	46.8
Ketorolac + Paracetamol	8	0.8
Lidocaine + Ketorolac + Paracetamol	1	0.1
Lidocaine + Paracetamol	1	0.1

Metamizole	1	0.1
Metamizole + Paracetamol	3	0.3
Morphine + Ketamine + Ketorolac + Paracetamol	6	0.6
Morphine + Ketamine + Paracetamol	14	1.4
Morphine + Ketorolac + Paracetamol	16	1.6
Morphine + Paracetamol	110	11.2
Drug Regimen	Frequency	Percentage (%)
Morphine + Tramadol + Paracetamol	2	0.2
Paracetamol	2	0.2
Tramadol + Paracetamol	24	2.5
Morphine	5	0.5
Morphine + Ketorolac	2	0.2
Tramadol + Ketorolac + Paracetamol	3	0.3

B. Discussion

From this study, we found that a total 979 postoperative patients with the most frequent surgery was orthopedic surgery of 168 patients and followed by obsgyn 128 patients from January to March 2019. This could be due to Sanglah General Hospital as a type A referral hospital that has specialist and consultant medical staff with adequate facilities.

In all department, the most commonly administration technique of analgesic was syringe pump with a total use of 747 (76.3%). There are slightly different result by Saputra, Suarjaya, and Wiryana who conducted research about utilization of analgesic in postoperative patients at Sanglah General Hospital in September 2013 with this study. They found that 38.89% of patients treated by using IV syringe pump technique and 28.8% by using intermittent bolus technique.^[6]

The most commonly used combination drug regimens are fentanyl and paracetamol in this study (table 2). This corresponds to previous research by Mathiesen et al who conducted a research in postoperative patients in Copenhagen, suggested that 75% postoperative patients use opioid analgesics. Opioid analgesics are still a mainstay in the management of postoperative pain, while the development of pain management has been carried out for many years.^[7] However, there was differences in combination of analgesic drugs for postoperative patients in Sanglah General Hospital in September 2013. In that study it was mentioned that the most commonly used combinations were ketorolac, tramadol and paracetamol.^[6] It can occur because of differences in descriptions of surgery performed also adjust to the development of analgesic use during last 5 years. A study in Iran comparing the use combination of ketamine and fentanyl with paracetamol and fentanyl infusion pump as postoperative analgesic for lower extremity fractures suggested that paracetamol has better analgesic ability compared to ketamine. At 24 hours after surgery found that better pain control in fentanyl with paracetamol group and a significantly lower pain level.^[8]

In table 1, the technique of administering analgesics that is often used after IV is epidural. A total 173 (17.7%) postoperative patients were given epidural analgesia. In this study, epidurals are widely used in obsgyn surgery, orthopaedics and urology (26.6%, 37.5% and 25%, respectively). There are several advantages in use of epidural analgesia, include analgesic effects can be achieved very well without use of systemic opioid, the patient feels comfortable, the combination opioid and local anaesthesia contribute synergistically to produce better analgesia with fewer side effects.^[9]

The use of PCA is still very rare in this study. PCA is used only 0.7% of total analgesic administration i.e. digestive surgery, obsgyn, oncology, and orthopaedic. Hudcova et al. reviewing comparative studies between conventional IV analgesic administration and PCA. The studies suggested that PCA has a better analgesics effect and tend to be preferred by patients.^[11] Currently, PCA is standard method for postoperative pain relief. PCA reduces the unwanted time delay between request and analgesic administration, because patients can titrate the analgesic to the level of pain (in a specific dosage range determine by the lock-out time).^[10] The use of PCA in Sanglah General Hospital only obtained in general patients, this may be the cause of PCA is still rarely used as an analgesic administration technique.

Technique for administering analgesic regimens that are effective and have minimal side effects recommended by the ASA (American Society of Anaesthesiology) are epidural, systemic PCA analgesics, and regional peripheral analgesics.^[9] But, Sanglah General Hospital still has limited analgesics delivery tools so that these recommendations have not been fully implemented.

The limitation of this study is that it cannot be evaluated for suitability analgesic use and the level of pain that perceived by patients. This is due to the unavailability data of measurement of pain and drug side effects on APS data recap but there is a medical record in Sanglah General Hospital.

III. CONCLUSION

In this study, the characteristics of pain management in postoperative patients is seen in analgesics administration technique and type of drug regimen given to patients. Analgesic administration techniques used by APS in postoperative patients in Sanglah Hospital since January to March 2019 were IV syringe pump (76.3%), epidural (17.7%), oral (3.3%), intermittent bolus (1.9%), PCA (0.7%), and PNB (0.2%). Drug regimens in all departments showed that the most widely used drug regimen is the combination fentanyl and paracetamol (46.8%) in the IV syringe pump technique followed by the combination bupivacaine, morphine, and paracetamol (16.4%) in epidural administration technique. ASA recommendation for analgesic administration technique are epidural, systemic PCA analgesics, and regional peripheral analgesics. Sanglah General Hospital still has limited analgesics delivery tools so that ASA recommendations have not been fully implemented.

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REFERENCES

- [1] Shahriari M, Golshan A, Alimohammadi N, Abbasi S, Fazel K. Effects of pain management program on the length of stay of patients with decreased level of consciousness: A clinical trial. *Iran J Nurs Midwifery Res.* 2015;20(4):502–507.
- [2] Pasero C, Paice J, McCaffery M. Basic mechanisms underlying the causes and effects of pain. 2 ed. McCaffery M, Pasero C, editor. St. Louis: MO: Mosby; 1999. 15–34 hal.
- [3] Shoar S, Esmaeli S, Safari S. Pain Management After Surgery: A Brief Review. *Anesth Pain Med.* 2012;1(3):184–6.
- [4] Lovich-Sapola J, Smith CE, Brandt CP. Postoperative Pain Control. *Surg Clin North Am.* 2015;95(2):301–18.
- [5] Nasir D, Howard JE, Joshi GP, Hill GE. A survey of acute pain service structure and function in United States hospitals. *Pain Res Treat.* 2011;2011.
- [6] Saputra IBA, Suarjaya IPP, Wiryana IM. Analgesics Using Profile To The Patients With Post-Surgery Acute Pain In Sanglah General Hospital, September 2013. *E-Journal Madikal Udayana.* 2016;5(2).
- [7] Mathiesen O, Thomsen BA, Kitter B, Dahl JB, Kehlet, Henrik. Need for improved treatment of postoperative pain. *Dan Med J.* 2012;59(4).
- [8] Mahmoodiyeh B, Panahi M, Moshiri E, Marashian SM. Comparison between Infusion Pumps : Fentanyl / Ketamine and Fentanyl / Paracetamol in Pain control Following Tigh and Leg Surgeries. *J Cell Mol Anesth.* 2016;1(4):168-74.
- [9] Holdcrof A, Jaggar S. Core Topics in Pain. 2005. 169 hal.
- [10] Grass JA. Patient-Controlled Analgesia. *Anesth Analg [Internet].* 2005;101(Supplement):S44–61. Tersedia pada: <https://insights.ovid.com/crossref?an=00000539-200511001-00005>
- [11] Hudcova J, McNicol E, Quah C, Lau J CD. Patient controlled opioid analgesia versus conventional opioid analgesia for postop- erative pain. *Cochrane Database Syst Rev.* 2006;4:CD003348