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EVALUATION OF DRUG USE IN PATIENTS PREOPERATIVE AT CENTRAL SURGERYCAL INSTALLATION RSUD dr. SOEKARDJO TASIKMALAYA

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ABSTRACT

Surgical services are hospital services which often lead to medical injuries and complications such as wound infection (ILO) and anesthetic complications are becoming one of the most common causes of serious surgical complications. Provision of appropriate drug therapy, safe, effective and patient safety standards and monitoring operations can be reduces the incidence of complications and mortality of patients. The use of appropriate drug therapy, safe and effective can be determined by evaluation of the use of drugs. This study aims to describe the pattern of drug use and appropriateness of using the drug in patients in the preoperative surgical installation of central dr. Soekardjo Tasikmalaya which include proper indications, the exact dosage and drug interactions. This study is a cross-sectional, Data collection was done prospectively and statistical data. Data generated from the 120 patients who met the inclusion criteria preoperative inaccuracy indications showed 22.5%; inaccuracy dose of 22.9% and 87.5% of potential drug interactions.

***Keywords**: preoperative, drug use evaluation, Antibiotic prophylaxis, anesthesia.*

INTRODUCTION

Surgery is an act of treatment using invasive way to open and display the body part to be handled. Surgery aims to prevent disability and complications. Surgery is a treatment choice of a difficult conditions and could not be cured with simple medicines.

World Health Organization(WHO) states that for more than a century, the surgery has become an important component of public health. 11% of the disease burden in the world comes from the actual disease or condition can be addressed with surgery (Sjamsuhidajat and Jong, 2010; Potter and Perry, 2006).

Surgical services are hospital services which often lead to medical injuries and complications. Surgical Site Infection (SSI), for example, remains one of the most common causes of serious surgical complications. Complications of anesthesia also remain a major cause of death during surgery, although the standard of safety and monitoring have reduced the number of unnecessary deaths and disability in industrialized countries (Anonymous, 2009).

Infectious complications can occur in surgical wounds or in other organ systems. Risk factors of postoperative infectious complications can be grouped into risk factors that arise from her surgery or patient's specific risk factors. Surgical risk factors include the type of procedure, the degree of contamination of the wound, duration of surgery and the emergency level. Special risk factors in patients include age, history of diabetes, obesity, malnutrition, infections that have been there before, and chronic diseases (Sjamsuhidajat & Jong, 2010).

SSI incident prevention and interventions can be done in many ways one of them with prophylactic antibiotic therapy. Selection of antibiotic prophylaxis is based on organisms that have the most possibility can cause infection. Indication of prophylactic antibiotic use based on class of operation that is clean wounds, clean-contaminated wounds, contamination wounds and dirty wounds. Clean contaminated wounds and wounds contaminated are grade of surgical which recommended prophylactic antibiotics (Anonymous, 2011).

In addition to the SSI complications from anesthesia also can occur in surgery patients. Anesthetic drug given to surgical patients with a view to eliminating pain arising from surgery. An ideal anesthetic may induce anesthesia quietly and quickly and enables immediate recovery after treatment is completed. The drug should also have extensive security restrictions and does not cause adverse effects (Katzung, BG., 2013).

The hospital is a health care institution that organizes personal health services in plenary that provides inpatient, outpatient, and emergency department (Anonymous, 2009). In this regard the purpose of this study is to describe the pattern of drug use and appropriateness of using the drug in patients in the preoperative surgical installation of central dr. Soekardjo Tasikmalaya which include proper indications, the exact dosage and drug interactions.

METHODOLOGY

This research is a descriptive observational prospective data collection methods and cross-sectional study design. Criteria for inclusion in this study were patients in the preoperative surgical installation of central dr. Tasikmalaya city Soekardjo the period April-May 2017 approved informed consent. The criteria in the evaluation of the use of drugs used include indications, dosage and drug interactions. Criteria for the use of drugs is determined by reference to the various libraries including the American Hospital Formulary Service (AHFS), Stockley's Drug Interaction, Lexi-Comp's Drug Information Handbook 2008, Drug interaction facts etc. Data were collected from medical records of patients include the identity of the patient, date of treatment, diagnosis of disease, a history of illness and drug use. The data obtained were processed statistically.

RESULTS AND DISCUSSION

Demographic Description

The number of samples that met the inclusion criteria were a number of 120 people. Patients consisted of patients under general anesthesia and the patient's 91 regional anesthesia 29. Description contains patient demographic data on address, age, educational level, payment, ASA physical status, diagnosis, type of anesthesia, and the type of the surgical wound.

Table 1. Demographic Description

characteristics	Σ	%
Age		
Children	10	8.3
juvenile	28	23.3
Adult	36	30
Middle-aged	18	15
elderly	28	23.3
ASA physical status		
ASA I	3	2.5
ASA II	108	90
ASA III	9	7.5
diagnosis		
neoplasms	34	28.3
Digestive System	54	45
Disorders	4	3.3
Thyroid Gland	3	2.5
Disorders	11	9.2
Lymph Gland	6	5
Disorders	8	6.7
Infections and Skin		
Disorders		
Genitourinary system		
diseases		
Injury		

type of Anesthesia		
General	91	75.8
Regional	29	24.2
Luka Type of Operation	93	77.5
Clean	27	22.5
clean Contaminated		

Based on the number of surgical patients age most are adults. Age is a factor that affects the health status. In surgery age is of surgery and anesthesia considerations. Elderly patients are at risk of anesthesia and surgery is higher than the age of the adult category. Statistically the risk of perioperative increased in every decade over the age of 60 years because of the decline in organ function (Brunner & Suddarth, 2002).

Surgery patients ASA physical status is an indicator of the risk of perioperative into consideration the benefits of surgery and anesthesia right rencara (Syamsuhidayat &Jong, 2010). Most surgery patients ASA status was ASA II, namely the patients had mild systemic disorder well as due to the disease to be dissected or other diseases. Mild systemic disorders experienced by patients such as hypertension, respiratory system disorders, impaired liver function, renal function impairment, diabetes mellitus, and anemia.

Two major diagnostic research on the subject that is in the category of neoplasms of 34 patients (28.3%), neoplasm is an abnormal tissue that grows past excessive and out of control normal cell growth so that the shape and structure are different from normal cells and digestive diseases or disorders of 54 patients (45%) digestive system diseases encompass all diseases that occur in the digestive system from the mouth to the rectum (Sjamsuhidajat & Jong, 2010).

The most widely used anesthesia is general anesthesia, anesthesia technique produces anesthesia in all parts of the body. The advantage of general anesthesia is working faster procedures, reduced the incidence of hypotension and cardiovascular instability, airway and ventilation is maintained and controlled. The regional anesthesia techniques are performed at the surgical installation of central has a small amount compared to general anesthesia. Intra regional anesthesia techniques produce spinal anesthesia in the lower extremities, perineum and lower abdomen, so it can only be done at certain operations. One of the advantages of regional anesthesia is the patient remains conscious so that the airway and respirasinya system is maintained and aspiration of gastric contents may not occur.

Surgical wound class associated with the degree of contamination of the surgical wound related to the consideration of the use of antibiotics. Surgical procedures that require the use of prophylactic antibiotics include contaminated and clean contaminated wounds. Surgical wound class is the class of the most widely surgery wound clean. Class operation clean the wound with a wound nontraumatic surgery, elective surgery that did not open the gastrointestinal tract, biliary system, respiratory tract, or genitourinary tract. For example, wide excision surgery on breast tumors.(Katzung, 2013).

Drug Use Profile

The drugs used by patients for surgery aims to provide the ideal physiological conditions in surgery patients, according to the triad of anesthesia, including the hypnotic effect, analgesia and muscle relaxation effect. These drugs include:

Table 2. Profile of Drug Use

Medicine name	**General**		**regional**	
	Σ	**%**	**Σ**	**%**
Intravenous anesthesia propofol	87	72.5	4	3.3
Inhalation anesthetics	71	59.2	-	-

isoflurane	20	16.7	-	-
sevoflurane	91	75.9	-	-
N2O				
local anesthesia	-	-	29	24.
bupivacaine	12	10	0	2
lidocaine				
Opioid analgesics	90	75	3	2.5
fentanyl	26	21.7	11	9.2
tramadol				
NSAID analgesic	24	20	7	5.8
Ketorolac				
anticholinergic	4	3.3	-	-
atropine				
muscle relaxants	89	74.2	-	-
Rocurorium	2	1.7	-	-
Atracurium				
antiemetic	80	66.7	29	24.
ondansetron				2
steroids	50	41.7	3	1.7
dexametason				
antifibrinolytic	19	15.8	2	1.7
acid				
Tranexamat				
sympathomimetic	6	5	5	4.2
ephedrine				
sedative hypnotics	1	0.8	3	2.5
midazolam				
antihypertensive	-	-	1	0.8
clonidine				
Antibiotics	-	-	3	2.5
Ceftriaxone				

General anesthetic consisting of the intravenous anesthetic propofol used for induction of general anesthesia and for sedation in patients regional anesthesia and the nitrogen monoxide inhalation anesthetic, isoflurane and sevoflurane are used for maintenance and induction of anesthesia. Local anesthesia is used for induction of anesthesia and regional anesthesia intraspinal peripherals that bupivacaine and lidocaine. Analgesic is used to relieve pain which consists of opioid analgesic fentanyl and tramadol and NSAIDs analgesic ketorolac. Used muscle relaxants rocuronium is nondepolarizing group and atracurium used for skeletal muscle relaxation and to facilitate endotracheal intubation.

Supporting drug such as, ondansetron is used to prevent postoperative nausea and vomiting in addition it is also used drugs known as corticosteroid dexamethasone. Midazolam who have antiansietas sedation is used for patients who experience anxiety before surgical procedures. Antihypertensive clonidine is used in patients who suffer from hypertension, it is also critical to

support neural blockade of spinal anesthesia. Sympathomimetic drugs known as ephedrine is used in patients who have problems hypotension during surgery. Antifibrinolytic tranexamic acid is used for patients who have bleeding during the surgery and antibiotic ceftriaxone used as a prophylactic antibiotic therapy surgical patients.

Evaluation of Drug Use

Evaluation of the use of the drug is a drug use evaluation program that is structured and ongoing qualitative and quantitative. Evaluation of drug use can do with an assessment of drug-related problems. drug related problems are categorized into 7 groups: no treatment indication, no indication of drug, the drug is less effective, doses below the therapeutic dose, dose exceeding the therapeutic dose, patient noncompliance and drug interactions (cipolle et al., 2004; Sastramihardja, 2011). In this study, the evaluation of drug use (EPO) made to the appropriate category of indications, proper dosage and potential drug interactions.

Indications

Table 3. Precise indications

No.	Category	Σ	%
1	Indications without therapy	27	22.5
2	Therapy without indication	-	-
3	Drug ineffective	-	-
amount		27	22.5

The accuracy indication analyzed based on medical considerations and the certainty that pharmacotherapy proven to provide the best alternative therapy. There are three categories used to assess the accuracy of an indication that is indicative of untreated, with no indication of therapy and drug therapy is not effective.

Based on data obtained from the result showed that there were inaccuracies indications with no therapeutic indication category number of 27 patients (22.5%). Declared improper indication for patients undergoing surgery, but did not get the contaminated fresh prophylactic antibiotic therapy prior to surgery.

But nonetheless antibiotic use surgical patients observed itself given when the patient had surgery and in patients who have been identified preoperative infections are characterized by high levels of leukocytes.

Class clean contaminated wound is a wound that is recommended grade received prophylactic antibiotic therapy. Basic selection of antibiotics for prophylaxis can be tailored to the sensitivity and the pattern of most pathogenic bacteria according to the case or the injured area of operation.

Dose

Dose is the amount or dose of a drug that is administered to the patient in a unit of weight, contents (volume) or unit. Doses of drugs is one of the factors that influence the pharmacological effects of the drug, a therapeutic effect will be achieved when a drug is given by the number of doses and the appropriate timing (Jas, 2009).

Table 4. Accuracy of Drug

Medicine name	dose Less		Right dose		dose Excess %	
	Σ	%	Σ	%	Σ	
propofol	27	29.7	60	65.9	4	4.4
bupivacaine	-	-	29	100	-	-
lidocaine	-	-	14	100	-	-

fentanyl	-	-	93	100	-	-
atropine	4	100	-	-	-	-
Rocurorium	58	63.7	33	36.3	-	-
atracurium	2	100	-	-	-	-
tramadol	-	-	37	100	-	-
ketorolac	-	-	31	100	-	-
ondansetron	-	-	105	100	-	-
dexametason	-	-	52	100	-	-
midazolam	-	-	4	100	-	-
ceftriaxone	-	-	3	100	-	-
amount	**91**	**22.6**	**461**	**77.1**	**4**	**0.3**

The accuracy of the dose in patients receiving propofol dianalais by considering the weight and ASA status of the patients. Propofol induction dose for adult ASA I and II is 2 to 2.5 mg / kg; ASA III-IV and the elderly 1 - 1,5mg / kg; children 2.5 - 3.5 mg / kg and a dose of sedation: 0,5- 1mg / kg. In some patients propofol use in the dose above the recommended dose, it is known that these patients experienced an increase in blood pressure during the surgery will be performed so that the dose of propofol was increased from the usual dose. Propofol is an anesthetic that can depress cardiovascular effects of hypotension or decrease in blood pressure, an increase in the dose of propofol may increase the blood pressure lowering effects quickly. In addition there are patients who received propofol dose less than the recommended dose is based on the status of the ASA,

The accuracy of the dose in patients using rocuronium analyzed based on patient weight. Rocuronium recommended initial dose is 0.6 mg / kg or a small dose of 0.45 mg / kg. While atracurium recommended initial dose is 0.4 to 0.5 mg / kg. There are patients who experienced a reduction in the dose of muscle relaxant. Consideration of the muscle relaxant dose reduction is based on consideration of the method of anesthesia or sedation method, duration of surgery, airway used, age, possible interactions with other drugs given simultaneously as well as the patient's condition.

The accuracy of the dose in patients using analgesics is 100% right dose. Dose of fentanyl analgesia by DIH is 50-100 mcg. Fentail dose use can also be customized with tingakat analgesia required. Meanwhile, according DIH as an analgesic tramadol dosage is 50-100 mg and ketorolac 30 mg as a single dose and 120 mg as maximum dose per day.

The accuracy of the dose of local anesthetic in patients using bupivacaine and lidocaine are 100% right dose. Doses of 0.5% bupivacaine for caudal blockade was 15-30 mL dose of lidocaine for anesthesia while the peripheral is is 20-100 mg.

The accuracy of the dose in patients taking atropine is 100% less dose. Premedication dose of atropine to inhibit salivation is 0.4-0.6 mg for adults and 0.01 to 0.02 mg / kg for children.

The accuracy of the dose in patients using antiemetic ondansetron and dexamethasone dose was 100% right. Premedication dose of ondansetron as the prevention of postoperative nausea and vomiting was 4 mg dose while deksametasone 5-10 mg.

The accuracy of the dose in patients taking midazolam dose was 100% right. Dose of midazolam to treat high blood pressure caused by anxiety before surgery is 0:02 to 0:04 mg / kg with the usual dose 0.25 to 5 mg.

The accuracy of the dose in patients using sefriakson is 100% right dose. Dose of ceftriaxone as antibiotic prophylaxis of surgery was 2 g.

Interaction

Drug interaction is one of eight categories of drug-related problems (drug-related problems) that can affect the body's response to treatment. Drug interaction is defined as a modification of a drug effect due to other drugs, given previously or simultaneously given so that the effectiveness or toxicity of a drug can be changed(Baxter, 2008). Based on the survey results revealed that surgery patients experiencing a drug interaction 105 patients (87.5%).

CONCLUSION

Based on the results of the evaluation study of drug use in the installation of a central surgical hospitals dr.Soekardjo Tasikmalaya period april - May 2017 on 120 patients preoperative who met the inclusion criteria in mind that the accuracy of the indications on the category of indications that are not treated as much as 22.5%; drugs without indication of 0% and the drug is not effective 0%; the accuracy of the dose in the category of 22.6% less dose; proper dosage 77.1% and 0.3% excess dose category and the potential for drug interactions occur 87.5%.

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