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Study Of Quantitative Use Of Antibiotics In Patients Of Urinary Tract Infection At Rsu X In East Jakarta 2019

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ABSTRACT
Urinary tract infection is a health problem that can increase morbidity and even increase the death rate both in Indonesia and in the world. Urinary tract infection is the second most common infectious disease after upper respiratory tract infection which in its treatment must use antibiotic therapy, so the treatment must be appropriate and rational. The purpose of this study was to determine the use of antibiotics quantitatively using the ATC/DDD and 90% DU methods in patients with urinary tract infections at RSU X in East Jakarta. Methods, This research is a descriptive study using a crosssectional design. Data collection was carried out retrospectively through the medical records of urinary tract infection patients at RSU the inclusion and exclusion criteria. The results showed that the total DDD/100 patientdays in this study was 96.65% with the highest type of antibiotic, namely levofloxacin, 44.07% DDD/100 patientdays. Drugs included in the DU segment 90% were levofloxacin (45.60%), ceftriaxone (21.54%), cefoperazone (11.33%), and amoxicillin clavulanate (9.00%). Keywords: Antibiotics, urinary tract infection, ATC/DDD, 90% DU.

INTRODUCTION

Disease infection is one health problem that causes morbidity and even mortality of millions of residents in various developed and developing countries, including Indonesia (Novard *et al.* 2019). The World Health Organization (WHO) stated that as many as 16 million deaths worldwide in 2016 were caused by disease infection, for one that is infection urinary.

Infection channel Urinary tract (UTI) is a disease infection that occurs Because bacteria inside urine are found in very large numbers (Dipiro *et al.* 2014). Infection channel urinary is the most common second after infection channel upper respiratory (Piraux *et al.* 2021). The incidence rate of infection channel urine in the world is spelled out high Enough; a yield study by the American Urological Association in 2016 stated that around 150 million people experience infection channel, as many as 1.8 million per year (Badalato dan Kaufmann 2017). According to the Centers for Disease Control and Prevention (CDC), in 2007, approximately 8.6 million people in America suffered from infected channel urinary, of which 84% occurred in women (Piraux *et al.* 2021) According to The Ministry of Health of the Republic of Indonesia in 2014, quoted by Irawan E, Mulyana (2018) stated that the amount of infection channel urine in Indonesia is estimated to reach 90100 cases per 100,000 population per year or around 180,000 cases in every the year, where? in the treatment must using antibiotics (Irawan 2018).

Antibiotics used for therapy infection channel urine, in general, are trimethoprimsulfamethoxazole, fosfomycin, nitrofurantoin, ciprofloxacin, levofloxacin, and amoxicillin-

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clavulanate (Dipiro *et al.* 2014). Based on the survey introduction, the use of antibiotics at RSU X January and December 2019 shows that antibiotics used to treat infection channels urinary, including cefixime, ceftriaxone, meropenem, ciprofloxacin, levofloxacin, cefoperazone, clanks (amoxicillin + clavulanate), cefoperazone + sulbactam, fosfomycin, cefepime, cefotaxime, and ampicillin sulbactam.

According to WHO, Antibiotics are a group of drugs used in the world with many incident infections caused by bacteria, so their use must be appropriate and rational (Kemenkes 2011a). Research objectives This is to know the use of antibiotics quantitatively with ATC/DDD and DU methods in 90% of patients with infection channel urine at RSU X in East Jaka in 2019. To reach the objective, a necessary study of the uses of antibiotics in UTI patients at RSU X in East Jakarta (Kemenkes 2011b). The study uses analysis with Anatomical Therapeutic Chemical/Defined Daily Dose (ATC/DDD). This method is a system classification and measurement of the use of drugs WHO recommends. For accuracy, the average dose per day used antibiotics in patients, adults, and DU is 90% (Aprilia 2017).

The results of research conducted at one of the regional hospitals in the Yogyakarta area in 2004, 2006, and 2008 regarding the comparison use of antibiotics for infection channels with the ATC/DDD method shows the total DDD value in 2004 was 105.2 DDD/100 patient days, with DU 90%, i.e., amoxicillin (41.81%) and ciprofloxacin (47.5%). In 2006, the total DDD value was 107.3 DDD/100 patients with DU 90%, i.e., amoxicillin (40.34%), ciprofloxacin (44.89%), and ceftriaxone (9.37%) (Nisa 2012).

Research conducted at a General Hospital in India in 2011 with the same method shows a total DDD value of 2.82 DDD/1000 inhabitants day, with a DU of 90%, namely norfloxacin (24.46%), cefixime (22.34%), amoxicillin (17.02%), metronidazole (15.95%), and ciprofloxacin (14.18%) (Bhamare *et al.* 2011). Research results similar to ATC/DDD method at home illness in Jepara in 2012 showed a total DDD value of 100.61 DDD/100 patients, with a DU of 90%, namely ciprofloxacin (31.74%), amoxicillin (25.72%), ceftriaxone (13.73%), cefotaxime (12.93%), metronidazole (4.48%), and cefixime (2.92%) (Nisa 2012).

Research results from others with a method similar to home Krishna disease in Karad in 2015 showed a total DDD value of 39.60 DDD/1000 inhabitantsday, with antibiotics that are 90% DU ceftriaxone (32.60%), azithromycin (14.34%), ciprofloxacin (10.81%), nitrofurantoin (5.85%), amoxicillin (5.29%), cefixime (4.25%), amikacin (3.76%), levofloxacin (2.98%), amoxicillin + clavulanate (2.81%), cefepime (2.43%), cefodoxime (2.21%) and norfloxacin (1.87%) (Gidamudi *et al.* 2015).

Study others at home Sick tertiary institutions in South India in 2015 shows a DDD value of 47.38 DDD/1000 inhabitants day, with antibiotics that are 90% DU i.e., cefoperazone + sulbactam (37.53%), nitrofurantoin (15.32%), ofloxacin (10.09%), ciprofloxacin (8.08%), amikacin (5.42%), norfloxacin (4.69%), doxycycline (4.60%), and levofloxacin (3.65%) (Sharma dan Oommen 2018).

Results of other studies at home Sick Azeezia, Kollam and Kerala in India in 2018 showed a total DDD value of 21.79 DDD/1000 inhabitants day, with antibiotics that are 90% DU, i.e., ceftriaxone (35.52%), ciprofloxacin (20, 47%), cefotaxime (16.98%), ofloxacin (6.56%), norfloxacin (6.06%), and amikacin (5.14%) (Naik *et al.* 2016).

Study others at RSUD Dr. Moewardi in 2018 showed a total DDD value of 11.45 DDD/100 patient days, with antibiotics that are 90% DU, i.e., ceftriaxone (63.97%), levofloxacin (24.42%), ciprofloxacin (4.34%), meropenem (3.49%), cefoperazone + sulbactam (2.76%), cefazolin (0.58%), and ceftazidime (0.44%) (Efa Ramadhany Nur Insani dan Mutmainah 2018).

The description background above shows that an infection channel urinary is a disease infection caused by bacteria, is dangerous and can cause morbidity and even mortality because of studies of antibiotics in suffering patients with the infected channel. The study was done with the Use of ATC/DDD and DU 90 % methods; the goal is To know the quantity and type of antibiotics used patient infection channel treated bladder and Stayed at RSU X in East Jakarta in 2019.

METHODS

Research Design

Study This use design study crosssectional with data collection retrospective that is with do search document record medical patient infection channel treated bladder Stayed at RSU X in East Jakarta in January December 2019.

Population Study

Population in study This is all over patient mature start age 18 year suffer infection channel treated bladder inpatient at RSU X from January December 2019. Sample size in study This A total of 115 UTI patients were eligible criteria inclusion and exclusion , Data collected besides characteristics patient . Use medication , as well as laboratory data as support (test urinalysis : leukocytes , leukocyte esterase, and bacteria), patient with record medical and patient status load information complete .

Data Analysis

Analysis Univariate

Processed data with use analysis univariate is Characteristics Patients include :

a. Age
b. Gender
c. Disease accompanying
d. Long days take care

Data Analysis using ATC/DDD and DU 90% Methods

Data analysis was carried out with count quantity use antibiotics in patients infection channel urinary in installation take care RSU X stay with processed ATC/DDD method with combination of Microsoft Excel 2007 programs .

Formula :

$$\text{DDD/100 } \textit{patient days} = \frac{\textit{The number of grams of antibiotics used by the patient}}{\textit{WHO standard DDD value for antibiotics in grams}} x \frac{100}{\textit{Total LOS}}$$

RESULTS

Characteristic Data Patient

Table 1. Distribution Frequency Characteristics Patient Infection Channel Urinary at RSU X in East Jakarta in 2019

No.	Characteristics	Frequency (n = 115)	(%)
1.	**Gender :**		
	1. Male	43	37.4
	2. Female	72	62.6
2.	**Age :**		
	1. 1830	19	16.5
	2. 3140	8	7
	3. 4150	19	16.5
	4. 5160	23	20
	3. 6170	30	26.1
	6. >70	16	13.9

3.	**Disease Participants :**		
	1. Yes Disease Participant	112	97.4
	2. Not available disease Participant	3	2.6
4.	**Length of stay (days):**		
	1. 13	21	18.3
	2. 47	75	65.2
	3. >7	19	16.5

Table above show characteristics patient infection channel treated bladder stay at RSU X, type sex most subjects is female (62.6%), age subject range between 1870 years , most range between 5170 years (around 60%), subjects who had disease comorbidities (97.4%), and length of day take care of the most range between 47 days (65.2%).

Description of Disease Types Participant

Table 2. Distribution of Disease Types Participant Patient Infection Channel Urination in the RSU X Inpatient Installation 2019

No.	Disease Participant	Frequency (n= 301)	(%)
1	Hypokalemia	31	10.3
2	Dyspepsia	26	8.7
3	Diabetes mellitus	23	7.6
4	Hypertension	20	6.6
5	Anemia	20	6.6
6	Hematuria	15	5.0

Table 2 shows that type disease the most participants occurs in patients infection channel urinary in installation take care RSU X stays in 2019 are hypokalemia (10.3%), followed dyspepsia (8.7%), diabetes mellitus (7.6%), hypertension (6.6%), anemia (6.6%), hematuria (5%)

Thousands Dist Profile Use Therapy Antibiotics

Table 3. Distribution Profile Use Therapy Antibiotics in UTI Patients in the RSU X Inpatient Installation in 2019

No.	Types of Therapy	Medicine name	Frequency (n=115)	(%)
1.	Monotherapy	**Fluoroquinolones**		
		Levofloxacin	34	29.6
		Cephalosporins		
		Cefoperazone	27	23.5
		Ceftriaxone	24	20.9
		Cefoperazone + Sulbactam	6	5.2
		Cefixime	2	1.7
		Cefepim	1	0.9
		Cefotaxime	1	0.9
		Penicillin		
		Amoxicillin + clavulanate	10	8.7
		Ampicillin + Sulbactam	1	0.9
		Carbapenems		
		Meropenem	3	2.6
		Other Groups		
		Fosfomycin	2	1.7

		Total	**111**	**96.6**
2.	Combination	**Penicillin + Fluoroquinolone** (Amoxicillin + clavulanate) + Levofloxacin	2	1.7
		Fluoroquinolones + Cephalosporins Levofloxacin + Ceftriaxone	2	1.7
		Total	**4**	**3,4**

Table 3 shows that use antibiotics grouped based on type therapy received by the patient , where as many as 96.6% of patients infection channel urinary get monotherapy and 3.4% of patients get therapy combination . Most antibiotics prescribed as monotherapy is levofloxacin (29.6%), followed cefoperazone (23.5%), ceftriaxone (20.9%), and amoxicillin + clavulanate (8.7%). Whereas For therapy combination prescribed antibiotics is (amoxicillin clavulanate) with levofloxacin (1.7%) and levofloxacin with ceftriaxone (1.7 %).

Table 4. Number of Patient Hospitalization Days Infection Channel Urination at RSU X in 2019

No.	Month	n(115)	LOS (days)	Average day
1	January	5	26	5.20
2	February	6	29	4.83
3	March	2	14	7.00
4	April	7	36	5.14
5	May	8	43	5.38
6	June	4	22	5.50
7	July	11	70	6.36
8	August	14	60	4.29
9	September	29	129	4.45
10	October	13	51	3.92
11	November	12	61	5.08
12	December	4	11	2.75
Total		**115**	**552**	**59.9**
Average		**9.58**	**46**	**4.99**

LOS (*length of stay*) is the length of stay stay counted patients since day First patient enter House Sick until with patient go out from House sick . LOS obtained from record medical a total of 115 samples research . Table 4 shows that the average patient LOS infection channel urinary with or without disease included in the installation take care Budhi Asih Hospital's stay in 2018 was 5 days. This thing means that in 2018 from 115 subjects research , the average is treated stay for 5 days with the total amount day take care patient is 552 days.

Quantity Use Antibiotics Patient Infection Channel Urinate in RSU X in East Jakarta 2019

Table 5. Distribution Use Antibiotics and Calculation DDD value /100 patientdays at Budhi Asih Regional Hospital for the 2019 period

Group	Drug Antibiotics	Form Preparation	DDD Standard Value from WHO (g)	Preparation Strength (g)	Amount Usage (g)	DDD/100 *patient days*
Fluoroquinolones	**Levofloxacin**	Tablet	0.5	0.5	2.5	**44.07**

		Injection		0.75	119.25	
Cephalosporins	**Ceftriaxone**	Injection	2	1	230	**20.82**
	Cefoperazone	Injection	4	1	242	**10.95**
	Cefixime	Capsule	0.4	0.2	6.48	**2.93**
	Cefepim	Injection	4	1	6	**0.27**
	Cefoperazone + Sulbactam	Injection	4	1	40	**1.81**
	Cefotaxime	Injection	4	1	27	**1.22**
Penicillin + Beta Inhibitor Lactamase	**Amoxicillin + Clavulanate**	Injection	3	1	144	**8.69**
	Ampicillin + Sulbactam	Injection	6	1	48	**1.45**
Carbapenems	**Meropenem**	Injection	3	1	57	**3.44**
Other Groups	Fosfomycin	Injection	8	2	44	**1.00**

Table 5 above show that there are 5 groups antibiotics used as therapy in patients infection channel urinary. after done analysis with There are 4 major DDD methods the antibiotics used , viz levofloxacin 44.07 DDD/100 *patientdays,* followed ceftriaxone 20.82 DDD/100 *patientdays*, cefoperazone 10.95 DDD/100 *patientdays* , and amoxicillin clavulanate 8.69 DDD/100 *patientdays*.

Table 6. Du Profile 90% Usage Antibiotics in Patients Infection Channel Urination at RSU X East Jakarta 201 9

No.	ATC code	Antibiotics	DDD/100 *Patientdays*	Use (%)	DU segment
1	J01MA12	Levofloxacin	44.07	45.60	**90%**
2	J01DD04	Ceftriaxone	20.82	21.54	
3	J01DD12	Cefoperazone	10.95	11.33	
4	J01CR02	Amoxicillin + clavulanate	8.69	9.00	
5	J01DH02	Meropenem	3.44	3.56	**10%**
6	J01DD08	Cefixime	2.93	3.03	
7	J01DD62	Cefoperazone + Sulbactam	1.81	1.87	
8	J01CR01	Ampicillin + Sulbactam	1.45	1.50	
9	J01DD01	Cefotaxime	1.22	1.26	
10	J01XX01	Fosfomycin	1.00	1.03	
11	J01DE01	Cefepim	0.27	0.28	
Amount			**96.65**	**100.00**	

Table 6 shows that incoming medication to in DU segment 90% after cumulated is levofloxacin (45.60%), followed cetriaxone (21.54%), cefoperazone (11.33%), and amoxicillin + clavulanate (9.00%). Incoming medication to in the 90% DU segment is most medicines its use at RSU X in 2019 .

Discussion

Gender

The table above shows the characteristics of patients with infection channel-treated bladder stays at Budhi Regional Hospital, where the type sex subject most research is female (62.6%). Research results This is to a study previously conducted by Mantu et al. (2015), Insani (2018), and Sharma and Shweta (2018), which stated that patient infection channels urinary Lots manifold female gender. Research results are also appropriate with the results of the Centers for Disease Control (CDC) in 2007, which shows that about 8.6 million people in America suffer infection from the urinary tract, 84% of which occurs in women. Data from The World Health Organization (WHO) in 2011 also stated that as many as 50% of women experienced infection channels in their lives (Organization 2005). According to

theory, This happens Because there exists a difference in anatomy between men and women. By anatomically long urethra, Women are shorter compared to men, so bacteria from outside more easily reach birth where the bladder is located near with anus (Setiati *et al.* 2016). Meanwhile, infection channel urinary p seldom happens for men because men have a fluid prostate. Its antibacterial can hinder growth as well as entry of bacteria into the urinary tract (Wong 2009).

Age

Based on age, it was found that the largest number of research subjects with urinary tract infections at RSU. Based on research conducted, the study results show that the incidence of urinary tract infections has increased at the age of 40 years. This is in line with previous research conducted at the Gatot Subroto Army Hospital, Jakarta, regarding antibiotic prescribing patterns in urinary tract infection patients in 2018, which stated that infections of Urinary tract disease often occur at the age of 40 years and over (Pontoan *et al.*). This is due to a decrease in body resistance in elderly patients; besides that, in elderly patients, there are changes in the urinary system, which can reduce the ability to empty the bladder so that urine in the bladder can cause infection (Hashary *et al.* 2018). Meanwhile, urinary tract infections that occur at a young age are generally caused by a lack of maintaining the cleanliness of intimate organs, sexual activity, and using contraception or spermicidal gel. Sexual activity can cause bacteria to enter a woman's bladder. At the same time, the use of spermicide can increase vaginal colonization with Escherichia coli bacteria to vaginal epithelial cells (Lee 2018).

In general, the risk factors for urinary tract infections can increase in postmenopausal women (women who have been through menopause for one year) because, in postmenopausal women, there is a decrease in the production of the hormone estrogen, which causes the pH of vaginal fluids to increase, thereby increasing the development of microorganisms in the vagina. Meanwhile, in men, the increasing incidence of urinary tract infections is caused by anatomical abnormalities such as prostatic hypertrophy, fecal incontinence, and catheterization (Wong 2009).

Concomitant Diseases

The results of the study showed that more urinary tract infection patients hospitalized at RSU X had comorbidities compared to patients without comorbidities. One of the factors that influences the various types of comorbidities in patients with urinary tract infections is the age of the patients, most of whom are elderly (Setiati *et al.* 2016).

The results of this study are in accordance with previous research conducted at Undata Hospital, Palu regarding the rationality of using antibiotics in patients with urinary tract infections at the inpatient installation of Undata Hospital, Palu in 2012, which stated that there were more patients with urinary tract infections accompanied by comorbidities than without comorbidities (Febrianto *et al.* 2013).

Based on the data obtained, it shows that the type of comorbidity most often experienced by urinary tract infection patients at RSU The results of this research are in accordance with research conducted at RSUP DR. Wahidin Sudirohusodo regarding the analysis of the effectiveness and side effects of antibiotics in urinary tract infection patients in 2018, stated that the comorbidities that often occur in urinary tract infection patients are diabetes mellitus, hypertension and chronic kidney disease. This is because diabetes can increase blood sugar and blood sugar levels in the urine, making it easier for bacteria to reproduce. Apart from diabetes mellitus, hypertension is also a comorbidity which is a risk factor for urinary tract infections, this is because hypertension is one of the causes of chronic kidney disease, where one of the complications of chronic kidney disease is immunological disorders which often cause infections, one of which is infection. urinary tract (Hashary *et al.* 2018).

However, in this study the most common comorbidity in patients with urinary tract infections was hypokalemia. According to research conducted by Nathania (2019) hypokalemia can be caused by several conditions such as diabetes, kidney disease, chronic diarrhea, alcohol withdrawal, hyperthyroidism, acute myocardial infarction, severe head injury, and use of certain drugs26, which in this study contained several comorbidities that are at risk of causing hypokalemia in patients with urinary tract infections, namely diabetes mellitus, chronic kidney disease, acute kidney disease, diabetic ketoacidosis, kidney stones, renal colic, bilateral nephrotoxicity, kidney cysts, renal abscesses, contracted kidneys, and nephritis with a total of 20.1%.

Length of treatment days

Based on the length of daycare stay, the results show that the percentage of patient infection channels undergoing urine take care to stay at RSU X most Lots around 47 days. Research results This is almost The same as research conducted at Undata Hospital Palu in 2012 on patients with channel urinary tract infection (UTI). Results show the length of the day taken care of the most from 3 days (Lee 2018). According to theory, in the general condition, patient infection channel urinary without disease accompanying will improve after three days of antibiotics. Long days take care more stay from 3 days caused Because part big patient accompanied with other possible diseases worsen condition infection, so prolongs the healing process (Setiati *et al.* 2016).

Distribution Profile Use Therapy Antibiotics

Distribution profile uses therapy antibiotics aim For know what antibiotics just used by patients infection channel urinary in installation take care RSU X 2019 stay. Results in the study show that patients Often get therapy single compared to therapy combination, where the antibiotic most used as monotherapy is levofloxacin. Whereas For therapy combination, antibiotics are used amoxicillin clavulanate plus levofloxacin and levofloxacin plus ceftriaxone. The same with research conducted at home by Sick Roemani Semarang in 2015 awarded monotherapy antibiotics in patients with infected channels more Lots used compared to combination therapy (Pratiwi 2017).

According to guidelines for managing infection channel male urinary tract and genitalia, monotherapy is generally given to patients with infection channel urine that doesn't experience abnormality anatomical structure 3. At the same time, therapy combination is usually used To reach effective Work medicine because the right combination will benefit more clinics. Apart from that, therapy combinations are also possible to give effect synergistic and inhibitory emergence resistance bacteria to antibiotics used (Gilbert 2006).

In electing antibiotics as therapy in patients' infection channel, generally, there are several things to consider to reach optimal therapy, including sensitivity to antibiotics, risks, and risk resistance bacteria to antibiotics. Therefore, for each matter, can be done election treatment with monotherapy or combination therapy (Dipiro *et al.* 2014).

Evaluation Use Antibiotics By Quantity In DDD Units

In research This form preparation antibiotics with There are both oral and parenteral routes mark The same Defined *Daily Dose*. During 2019 , there were 11 types antibiotics from 5 groups antibiotics used in patients infection channel urinary , that is antibiotics group penicillins , cephalosporins, fluoroquinolones , carbapenems , and groups other. During the year 2019 from January to December , the total number of days is obtained take care Length of *Stay* of 115 patients is 552 days as shown in table 4. The total LOS used in the study This that is For DDD calculation as divider with mark DDD standard from WHO.

Quantity use antibiotics at RSU X, East Jakarta units DDD/100 *patientdays* shown in table 4. Quantity use antibiotics that have amount the highest in 2019 was levofloxacin . DDD calculation for levofloxacin in 2019 reached 44.07 DDD/100 patient *days* . This thing show that there were 44 patients from all over subject research that consumed 1 DDD levofloxacin as big as 0.5 grams every the day .

Levofloxacin is antibiotics spectrum wide group fluoroquinolones generation third with more activity Good to gram positive bacteria and have level resistance bacteria to more antibiotics low compared to group fluoroquinolones others , p This because Lots study show that as many as 2030% Bacteria reason infection channel urinary resistant to antibiotics group fluoroquinolones, especially ciprofloxacin (Sofyan *et al.* 2014; Adil dan Kundarto 2019).

Levofloxacin is a recommended antibiotic as therapy empiric in patients with infected channels because levofloxacin can reach expected levels both in serum and urine. Levofloxacin is also included in the formulary list as therapy For infection tract (Gilbert 2006; Fiotista 2020).

Mechanism Work levofloxacin as an antibiotic that hinders the formation of bacterial DNA with a method that inhibits topoisomerase II (functional DNA gyrase). To maintain superhelical bacteria, DNA is required For DNA replication and transcription, DNA repair, recombination, and transition), and bacterial topoisomerase IV, to prevent relaxation, requires a DNA chain For transcription and replication.

Levofloxacin is at its peak. It works for 12 hours, is excreted through the kidneys, and has a relative half-life, i.e., 68 hours, so it can given with a dose once a day at (Hardman dan Limbird 1980; Lacy *et al.* 2009). Levofloxacin is an antibiotics spectrum wide group fluoroquinolones generation third with more activity Good to gram-positive bacteria. It has low resistance bacteria to more antibiotics compared to group fluoroquinolones and others. The results of other studies show that about 2030% of bacteria cause infection channel urinary resistance against class antibiotics fluoroquinolones, especially ciprofloxacin (Sofyan *et al.* 2014; Adil dan Kundarto 2019).

Profile Use Antibiotics Based on DU 90%

Drug Utilization (DU) of 90% was obtained with method share number of DDD/100 *patientdays,* based on type antibiotics used at RSU X in East Jakarta with a total of DDD/100 *patientdays* from all over antibiotics used then times 100%. Percentage use antibiotics furthermore cumulated and sorted from percentage highest to percentage lowest . Incoming medication the 90% DU segment is incoming medication in 90% accumulation on usage . DU profile 90% usage antibiotics based on type antibiotics at RSU X 2019 can seen in table 6.

Table 6 shows that incoming antibiotics in segment 90% usage (DU 90%) consists from levofloxacin (45.60%), ceftriaxone (21.54%), cefoperazone (11.33%), amoxicillin clavulanate (9.00%). Whereas incoming antibiotics in DU segment 10% are meropenem (3.56%), cefixime (3.03%), cefoperazone sulbactam (1.87%), ampicillin sulbactam (1.50%), cefotaxime (1.26%), fosfomycin (1.03%), and cefepime (0.28%). Research results This different with research conducted at home sick Dr. Moewardi showed it that antibiotics with DU 90% at home Sick the is ceftriaxone (63.97%), levofloxacin (24.42%), ciprofloxacin (4.34%), meropenem (3.49%), cefoperazone + sulbactam (2.76%),

CONCLUSION

Antibiotics used on patients infection channel urinary in installation take care There were 11 types of inpatient stays at RSU X in East Jakarta in 2019 antibiotics In form single (Levofloxacin , Ceftriaxone , Cefoperazone , Meropenem, Cefixime , Cefotaxime , Fosfomycin , Cefepime , whereas , in form combination Amoxicillin clavulanate , Cefoperazone sulbactam , and ampicillin sulbactam , Analysis results quantitative The total DDD/100 patientdays obtained is 96.65% with each DDD/100 patientdays value levofloxacin 44.07 %, ceftriaxone 20.82 %, cefoperazone 10.95% , amoxicillin clavulanate 8.69 %, meropenem 3.44 % cefixime 2.93 % cefoperazone sulbactam 1.81%, ampicillin sulbactam 1.45% cefotaxime 1.22% fosfomycin 1.00% , and cefepime 0.27%. Incoming antibiotics in

the 90% DU segment is levofloxacin 45.60%, ceftriaxone 21.54%, cefoperazone 11.33%, and amoxicillin clavulanate 9.00%.

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