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Submission date: 23-Mar-2023 03:52PM (UTC+0900)

Submission ID: 2043534782

File name: Rosita_Irianti_Dehi_Full_paper.doc (330K)

Word count: 1855

Character count: 9732

Patterns Of Antibiotic Prescription For The Treatment Of Urinary Tract Infections In Kotaraja Publical Center Period June – December 2020

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ABSTRACT

Urinary Tract Infection (UTI) is an infectious disease that is often found in general practice. Urinary tract infection (UTI) can be defined as the presence of bacteria in the urine where these bacteria may invade the tissues of the urinary tract. The type of research used in this research is descriptive research. This research was conducted in June 2021, in the medical records section of the Kotaraja Health Center, Jayapura City. The population in this study were all patients with UTI who were treated at the Kotaraja Publical Center in June - December 2020 with a total of 30 patients. The results showed that there were more female patients than male, namely 17 people (57%). most patients came from the age group 26-35 years as many as 11 people (37%). The most dominant type of antibiotic prescribed was ciprofloxacin in 24 patients (80%). The most dominant group of prescribed antibiotics was Fluroquinolone as many as 24 patients (80%). The most widely used dose of antibiotic preparations was Ciprofloxacin 500 mg for 24 patients (80%). The most frequent duration of antibiotic administration was 5 days for ciprofloxacin as many as 20 patients (67%). Conclusion: The most frequently used antibiotic at the Kotaraja Publical Center is Ciprofloxacin

Keywords: **Prescribing Pattern, Antibiotics, Urinary Tract Infection**

Introduction

Urinary Tract Infection (UTI) is an infectious disease that is often found in general practice. Several studies have shown that there are factors that can cause UTIs such as age, gender, insertion of catheterization, the habit of holding urine, genital hygiene, and others (Sholihah, 2017).

Urinary tract infection (UTI) can be defined as the presence of bacteria in the urine where these bacteria may invade the tissues of the urinary tract. Although the urinary tract is normally free of bacterial growth, bacteria that generally ascend from the rectum can cause a UTI. When the virulence is increased or the host defense is decreased, there is bacterial inoculation and colonization, then urinary tract infection can occur. (Dipiro et al, 2015).

Based on data from the Ministry of Health of the Republic of Indonesia in 2014 showed that the number of patients with UTI reached 90-100 cases per 100,000 population per year. The prevalence varies by age and gender, where urinary tract infections are more common in women than men because of the anatomical differences between the two (Mantu et al, 2015).

Drugs used to treat infection problems are antimicrobials or antibiotics. Handling and selection of antibiotics for the treatment of UTI is based on the severity of signs and symptoms, the location of the infection, and whether the infection is complex or simple (Dipiro et al., 2015). According to (European Urological Association, 2019) guidelines for drugs used for UTI therapy are quinolones, penicillins, cephalosporins, aminoglycosides and others.

The use of antibiotics as the main choice in the treatment of urinary tract infections must be used effectively and optimally so that an understanding and understanding of how to choose and use antibiotics is needed correctly. The selection is based on the right indication, determining the dose, method of administration, duration of administration, and evaluation of the effect of antibiotics (Yunita et al, 2015).

It is known that the use of antibiotics that are often used in the treatment of UTIs is the fluroquinolone group with the type of medicine namely ciprofloxacin and the cephalosporin group with the type of medicine namely cefixime. This underlies the researchers to further investigate the prescribing pattern at the Kotaraja Publical Center whether it is in accordance with the guidelines for the drugs used and also to determine the dose and accuracy of the dose given, as well as the duration of administration of drugs prescribed to treat UTIs.

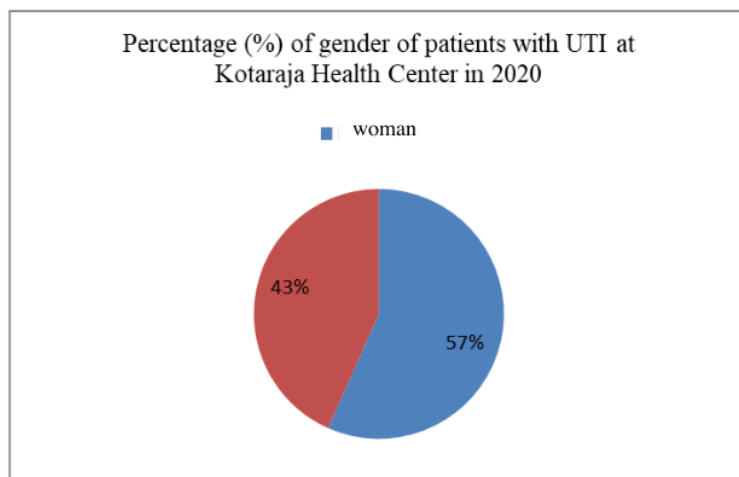
Material and methods

This study is a descriptive study of the description of antibiotic prescribing for the treatment of UTI based on a prescription given by a doctor at the Kotaraja Health Center. The sample used in this study was a total population of 30 UTI patients. The instrument used in this study was an observation sheet to record data from medical records

Results

This research was conducted on June 11, 2021 by taking data directly at the Kotaraja Health Center. The data taken were gender, age, type of antibiotic, class of antibiotic, duration of antibiotic administration and dose.

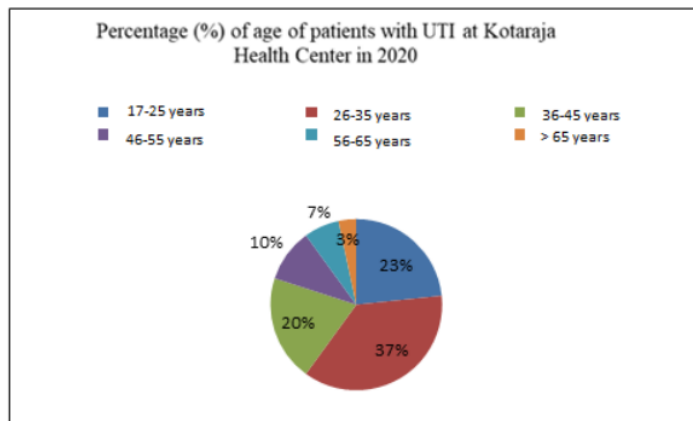
1. Distribution of patients by Gender



Source: Primary Data, 2021.

Figure 4. Distribution of UTI patients by gender at the Kotaraja Publical Center for the period of June-December 2020.

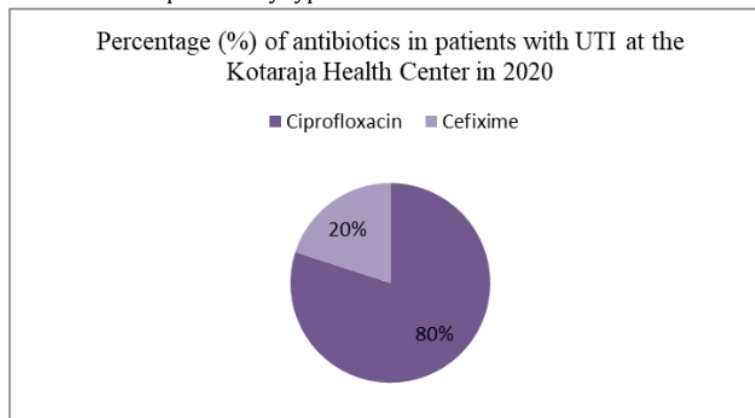
2. Distribution of patients by age



Source: Primary Data, 2021.

Figure 5. Distribution of patients with UTI by age at the Kotaraja Publical Center for the period of June-December 2020.

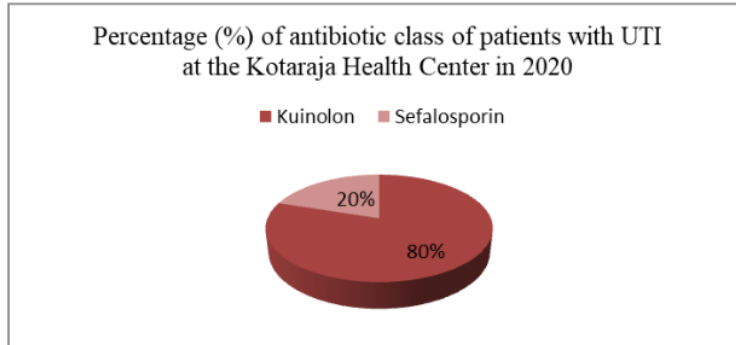
3. Distribution of patients by type of antibiotic



Source: Primary Data, 2021.

Figure 6. Distribution of patients with UTI based on the type of antibiotic at the Kotaraja Publical Center for the period of June-December 2020.

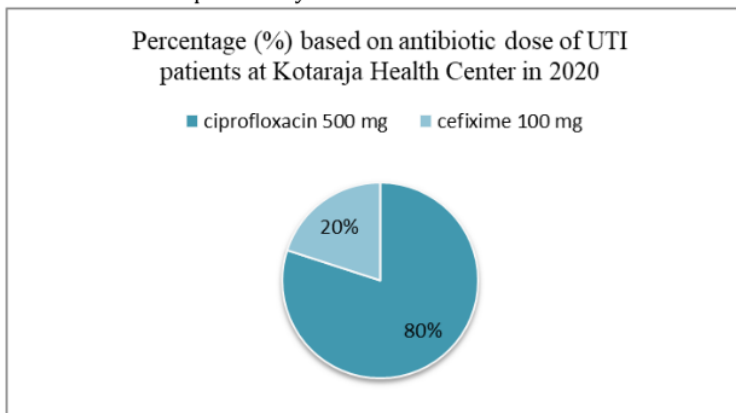
4. Distribution of patients by class of antibiotics



Source: Primary Data, 2020.

Figure 6. Distribution of patients with UTI based on antibiotic class at the Kotaraja Publical Center for the June-December 2021 period.

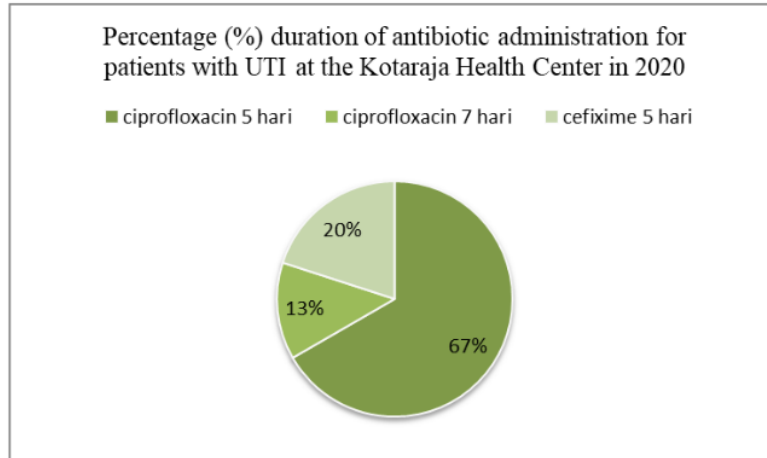
5. Distribution of patients by dose



Source: Primary Data, 2021.

Figure 6. Distribution of patients with UTI based on antibiotic doses at the Kotaraja Publical Center for the period of June-December 2020.

6. Distribution of patients based on the duration of administration



Source: Primary Data, 2021.

Figure 8. Distribution of patients with UTI based on duration of administration at the Publical Center Center for the period of June-December 2020.

Discussion

From medical record data conducted at the Kotaraja Health Center in June-December 2020, there were 30 patients with urinary tract infections, consisting of 17 women (57%) and 13 men (43%) as shown in Figure 4. Urinary tract infections infect more women because women have a shorter urethra than men so that infecting microorganisms more easily enter and infect the urinary tract (Okonko et al, 2010).

Based on the characteristics of the age grouped into 6 groups. Where in Figure 5 shows the most common age characteristics occurring at the age of 17-25 years (23%), 26-35 years (37%), 36-45 years (20%), and 46-55 years (10%). Where this is similar to research conducted by Jenny Pantoan (2017) at Gatot Soebroto Hospital Jakarta showing that 17-45 years of age are susceptible to infection with UTIs because of infections transmitted through sexual intercourse and lack of maintaining the cleanliness of the reproductive organs. Unclean sexual activity is often the cause of the entry of bacteria into the urinary tract (Nofriaty, 2010).

In addition, this age group is vulnerable to productive age where a person is busy working and doing activities, lack of rest, stress, or irregular nutritional intake which can cause a weak immune response so that it interferes with the body's defense system which makes a person susceptible to infection. UTI at a young age is often triggered by factors of intimate organ hygiene, sexual intercourse and contraception or spermicide gel can increase the risk of UTI. (Febrianto et al, 2013).

In patients with UTI, aged 56-65 years (7%), and >65 years (3%) are susceptible to UTI because at that age women experience the menopause or postmanopause phase, causing a decrease in the hormone estrogen which can reduce lactobacilli, resulting in colonization of gram-negative bacteria. In the periurethral area increases. In addition, the elderly can be infected due to a decrease in urinary tract function and decreased production of the hormone estrogen which causes an increase in the pH of the vaginal fluid so that there is an increased risk of the development of microorganisms (Kim et al, 2012).

In the prescription at the Kotaraja Health Center, there were 24 patients (80%) of drugs and antibiotic classes given for UTI, namely ciprofloxacin which is a quinolone group (80%) and cefixime which is a cephalosporin group as many as 6 patients (20%). Ciprofloxacin is used as the first choice because the antibiotic is bactericidal and broad-spectrum, works by inhibiting the DNA topoisomerase enzyme and the DNA gyrase enzyme which functions in the DNA replication process. This drug has the potential to treat gram-negative and gram-positive bacteria, where the cause of UTI is dominated by gram-negative bacteria such as E.coli, Klebsiella pneumonia, Staphylococcus and others (Thai and Zito, 2018).

In this study, there were 30 patients with UTI using a dose of ciprofloxacin 500 mg as many as 24 patients (80%) and a dose of cefixime 100 mg as many as 6 people (20%). For the accuracy of the dose of the antibiotic ciprofloxacin is the

right dose. This is in accordance with the literature from the 2019 Guideline on Urological Infections for the treatment of lower UTIs, namely ciprofloxacin 250-500 mg every 12 hours. And for the antibiotic cefixime, the dose is also right, which is in accordance with the literature from IONI, namely the administration of 100 mg every 12 hours.

Based on the duration of antibiotic administration, the most prescribed antibiotics for UTI patients were 20 patients (67%), for ciprofloxacin for 5 days, then followed for 5 days for cefixime as many as 6 patients (20%) and the last for 7 days for ciprofloxacin as many as 4 patients. (13%). So the interval or duration of administration of antibiotics for UTI therapy in this study was the right time for administration. Because the length of antimicrobial therapy depends on the severity and type of infection. The duration of antibiotics in cystitis depends on the drug used and ranges from 1-7 days. While the duration of administration for pyelonephritis ranges from 10-14 days. (IAUI,2015)

The duration of antibiotics in the management of infection should always be considered. Giving drugs that are too short or too long than they should will affect the results of treatment, because antibiotics are one of the drugs whose duration of administration must be considered so that the bacteria causing UTI can be completely killed so that the risk of antibiotic resistance can be reduced (Gilbert, 2015).

Conclusion

Based on the results of the research on Antibiotic Prescription Patterns for the Treatment of Urinary Tract Infections (UTI) at the Kotaraja Publical Center for the June–December 2020 period, it can be concluded as follows:

1. Urinary tract infection (UTI) patients in the gender group, namely female sex as many as 17 patients (57%) with the highest age range being 26-35 years as many as 11 patients (37%).
2. Based on the type of antibiotic that was most commonly prescribed for the treatment of urinary tract infections, Ciprofloxacin was 24 patients (80%).
3. Based on the class of antibiotics the most prescribed was the fluroquinolone group with 24 prescriptions (80%).
4. Based on the dosage of preparations prescribed to UTI patients at the Kotaraja Health Center, 24 prescriptions of Ciprofloxacin 500 mg (80%) and the correct dose were 30 patients (100%).
5. Based on the duration of antibiotics, the most often given was for 5 days as many as 20 patients (67%).

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