PROFILE OF AMOXICILLIN ANTIBIOTIC PRESCRIBING ON ARI THERAPY AT KIMIA FARMA 317 FOR THE PERIOD JANUARY-APRIL 2023

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Abstract

ARI is divided into upper respiratory tract infections and lower respiratory tract infections. Infections that attack the upper respiratory tract include Rhinitis, Sinusitis, Pharyngitis, Common Cold, Otitis Media, Tonsillitis, Rhinosititis and Perintositile Abscess. Antibiotics work by killing and stopping the growth of bacteria in the body. Amoxicillin is a semi-synthetic penicillin derivative that is stable in the stomach. Amoxicillin is excreted unchanged in the urine. The purpose of this study was to describe the administration of amoxicillin antibiotics to patients diagnosed with ARI (Upper Respiratory Infection). This study used a quantitative descriptive method involving the collection of prescribing secondary data and medical record data retrospectively. The results showed that the most patients were children aged 5-13 years with 15 patients with a percentage (40%), for the sex the most women were 27 patients with a percentage (72%), based on the most complaints, namely pharyngitis in 14 patients with percentage (38%). The type of antibiotic used was amoxicillin based on the frequency of administration in 37 patients with a percentage (97%).

Keywords : Amoxicillin, Antibiotic, ARI (upper respiratory tract infection

Introduction

Upper respiratory tract infection (ARI) is a case of acute inflammation of the upper and lower respiratory tract. Symptoms of ARI vary from fever, sore throat, flu, dry cough & phlegm accompanied by itching to stuffy nose and lead to complications such as pheumonia (pneumonia) with signs of shortness of breath. The mode of transmission can be transmitted through respiratory air containing germs inhaled by healthy people, sneezing and blood (Dinkes 2019). One of the ARI treatment therapies is the use of the antibiotic amoxicillin. Germs and bacteria that cause ARI are easily transmitted to homes that have poor ventilation (airflow) and lots of smoke (both cigarette smoke and fire smoke). Apart from that, people who sneeze or cough and spit without covering their mouth and nose will easily transmit germs to other people (Dinkes 2019).

Acute respiratory infections caused by viruses or bacteria, this disease begins with fever accompanied by one or more symptoms, namely sore throat (painful swallowing), flu, dry cough or phlegm. ISPA is always ranked first based on the most common diseases in Indonesia (Kemenkes RI,2017). According to Ministry of Health (2017) ARI cases reached 28% with 533,187 cases found in 2016 with 18 provinces having a prevalence above the national figure (Kementerian Kesehatan RI, 2017).

According data Riskesdas (2018) the prevalence of ARI based on gender in Indonesia is between 11.9-12.9% for women and 12.7-13.7% for men. Meanwhile, the type of bacteria that can cause ARI is Streptococcus, Haemophilus, Staphylococcus Aureus, Klebsiella Pheumoniae, Mycoplasma Pneumoniae, and Chlamydia. Viruses that cause ARI include: Rhinovirus, Respiratory Syntical Viruses (RSVs), Adenovirus, Prainfluenza Virus, Virus Influenza and Virus Corona (Pitaya 2022). One therapy for treating ARI (upper respiratory tract infection) is by administering antibiotics. Antibiotics are able to kill bacteria (bacteriocidal) and inhibit bacterial growth (bacteriostatic). The use of antibiotics must be appropriate therapy, safe and rational if it meets the criteria according to the disease indication, the dose given is correct, the indication is correct, and the drug given must be effective and safe (Drh nofan 2022). High antibiotics can cause various health problems and high expenditure problems. Problems that arise due to irrational antibiotics are resistance (a condition when bacteria in the body cannot be killed using antibiotics) and eliminating the sensitivity of bacteria to antibiotics (Kamal and Hussain 2013).

Based on data at the Kimia Farma 317 Pharmacy for the January-April 2023 period, Based on medical record data, Prescription at Kimia Farma 317 Pharmacy during January - April 2023 was recorded to be most commonly found in children aged 5-13 years, namely 40%. Most patients with ARI (upper respiratory tract infection) in children are treated using the antibiotic drug amoxicillin. In addition, it is necessary to conduct research regarding the description of antibiotic administration in ARI patients (upper respiratory tract infections). This study aims to determine the use of amoxicillin antibiotics which can later be used as reference material in planning.

Research Method

This research was carried out descriptively quantitatively by taking medical record data on patients suffering from ARI (upper respiratory tract infection) at Kimia Farma 317 Pharmacy from January to April 2023. Data was collected based on inclusion criteria, namely respondents with a diagnosis of ARI (upper respiratory tract infection) . Using the antibiotic drug amoxicillin and the patient has complete medical record data.

Research Population

The method used is retrospective because the data collection used is based on past data in the period January-April 2023. The population in this study is prescriptions and medical record data for patients with upper respiratory tract infections (ARI) who use the antibiotic amoxicillin.

A. Research Sample

The sample used by this researcher used patients who were diagnosed with ARI (upper respiratory tract infection) by looking at the health control envelope written or recorded in the patient's medical record by a health worker and who received a prescription for the antibiotic amoxicillin by a doctor at Kimia Farma 317 Pharmacy..

1) Inclusion criteria:

   a) Patients diagnosed with ARI (upper respiratory tract infection) in the period January-April 2023
   b) b. Amoxicillin antibiotic prescription for ARI patients (upper respiratory tract infection)
   c) Medical record data containing patient data such as name, gender, age, frequency of administration and patient complaints

2) Exclusion criteria :

ISPA (upper respiratory tract infection) patients who receive antibiotic therapy but management of ARI (upper respiratory tract infection) is incomplete such as unclear indications and missing doses.

Sampling Technique

This research was conducted retrospectively using a total sampling technique. Total sampling or commonly known as saturated sampling is a sampling technique that is carried out by taking the entire population as a research sample. This technique is usually done when the population is small Pengambilan sampel dalam penelitian ini yaitu sampel yang memenuhi syarat inklusi.

Research variable

The variables used in this study were a description of the use of the antibiotic amoxicillin in patients with ARI (upper respiratory tract infection) which included gender, age, frequency of administration of the antibiotic amoxicillin, and complaints at the outpatient Kimia Farma 317 Pharmacy.

Table 1. Variable Operational Definition

Types and Collection of Data

The type of data used in this research is secondary data. Secondary data, namely researchers do not directly receive from data sources (Sugiyono 2019). Data collection was carried out, namely from prescription recapitulation reports obtained from excel data at the Kimia Farma 317 Pharmacy so that an overview of drug use could be observed through patient prescriptions.

a. Materials and tools Tools :

The tool in this research is a data collection sheet to record data from daily prescription reports.
Material :

The research material is in the form of daily recapitulation report data.

Methods of Data Collection

a) Conducting sampling, namely recapitulation of medical records and prescriptions in patients diagnosed with ARI (upper respiratory tract infection)

b) Tracing and recording the required data includes: gender, age, based on patient complaints and the frequency of prescriptions using the antibiotic amoxicillin in patients diagnosed with ARI (upper respiratory tract infection).
c) Record all the number of recipes and the number of uses in January – April 2023.

After all the data has been collected, the next step is to analyze the data which is processed in an analysis which aims to explain or describe the characters in each research variable.

1. The data obtained is analyzed descriptively, then the data is tabulated.
2. The data that has been processed is presented in the form of a diagram.

Data Analysis

Data analysis was carried out descriptively by systematically describing the facts and characteristics of the objects and subjects studied accurately. Data obtained from prescriptions include age, gender, frequency of use of the antibiotic amoxicillin and based on patient complaints. In patients diagnosed with ARI (upper respiratory tract infection) in January – April 2023.

$$\% = \frac{\text{frequency of each individual}}{\text{Total frequency}} \times 100\ \%$$

Results and Discussion

The results of research regarding the description of the use of the antibiotic drug amoxicillin in ARI (upper respiratory tract infection) patients at Kimia Farma 317 Pharmacy in the period January – April 2023, with a total sample of 38. By taking a total sampling, looking at the characteristics of ARI (upper respiratory tract infection) based on gender, age, frequency of administration of amoxicillin antibiotics and based on patient complaints.

Characteristics of ARI (upper respiratory tract infection) Patients Based on Gender

Research was conducted on a sample of prescriptions regarding patient characteristics based on the gender of patients who were most frequently affected by ARI (upper respiratory tract infections). The data obtained are as follows:

Table 2. Characteristics of ARI (upper respiratory tract infection) Patients Based on Gender

Gender	Number of patients	Presentase (%)
Female	27	72 %
Male	11	28 %
Total	38	100 %

In research conducted at Kimia Farma 317 Pharmacy Clinic, data on ISPA (upper respiratory tract infection) patients was obtained from medical record data in January-April 2023. The results of research regarding patient characteristics based on gender show that there are more female patients than male. There were 27 female patients found with a percentage of 72%. Meanwhile, 11 patients were male with a percentage of 28%.

These results are the same as research conducted (Dian Firza 2018) where the most research based on gender was women, namely 221 patients with a percentage of (55.88%). These behavioral factors worsen environmental factors such as outdoor air pollution, house ventilation and residential density, causing groups who do not have strong immune systems to be susceptible to ISPA (upper respiratory tract infection).

Gender also influences exposure to infectious agents and the management of a disease. In women, it is more common because women travel outside the home more often, such as taking children to school, going shopping at the market and meeting lots of people more often, so the risk of contact with disease agents is higher compared to men..

ARI (upper respiratory tract infection) is a disease that spreads very widely in children and adults. Children usually suffer from ARI (upper respiratory tract infections) more often than adults. This is because the child's body's defense system against infectious diseases is still low (Hayati, 2014).

Characteristics of ARI Patients (upper respiratory tract infection) Based on Age

Research on ARI (upper respiratory tract infection) based on age aims to determine the age group most affected by ARI (upper respiratory infection). The following data was obtained:

Tabel 3 Characteristics of ARI Patients (upper respiratory tract infection) Based on Age

Age (year)_	Number of Patient	Persentase (%)
Toddler 1-5	9	23 %
Children 5-13	15	40 %
Teens 13-18	2	5 %
Adult 18++	12	32 %
Total	38	100 %

Based on the research results, the results of ARI (upper respiratory tract infection) sufferers at Kimia Farma 317 Pharmacy Clinic for the period January-April 2023 based on age groups as shown in the table above can be seen. The highest number is 15 patients aged 5-13 years. with a percentage of 40%. It can be concluded that children aged 5-13 years are very affected by ARI (upper respiratory tract infection). For example, children view play activities as a means of socialization where play can give children the opportunity to explore, express feelings and learn in a fun way, activities that require a lot of energy in a short time, such as jumping, climbing, running. This is because the child's immune system is low so they easily suffer from ARI (upper respiratory tract infection) (Sidik, 2016).

This result is the same as the research conducted (Khairunnisa 2016) where the study found that the most sufferers in the age group were children 5-13 years, namely 58.75%. This is because children's immune systems at the age of 5-13 are lower than those of older children, so they are more prone to suffer from ARI (upper respiratory tract infection). At the age of infants and toddlers, the channel that connects the nose, ears and pharynx (eustacian tube) has not been fully formed so that toddlers are very vulnerable to ARI (upper respiratory tract infection).

Use of Antibiotics Based on Frequency of Administration of Amoxicillin Antibiotics

The purpose of this study was to determine the time interval for administration as seen from the rules for using the drug written in the prescription. The following is the use of antibiotics based on the frequency of administration.

Tabel 4. Use of Antibiotics Based on Frequency of Giving Antibiotics ARI (upper respiratory tract infection)

Type	Dosage	Number of	Percentage (%)
Amoxicillin	2 x 1	1	3 %
	3 x 1	37	97 %
		38	100 %

Based on the research results, it can be seen that the highest frequency of administration of the antibiotic amoxicillin is 3 times a day with a number of patients of 37 and a percentage of 97%, while the frequency of administration is 2 times a day with the number of patients being 1 and the percentage results are 3% seen from the interval of administration. The use of the antibiotic amoxicillin is stated to be at the correct interval of administration if the frequency of the drug is 3 times a day to obtain optimal results (24 hours/3= 8 hours) the medicine is taken every 8 hours.

This is related to the half-life of the drug which will have a long effect in the body if the half-life of the drug is long. The half-life of amoxicillin varies with age and gender. Amoxicillin is a pharmacokinetic-hydroxy derivative of oral absorption of 80%, binds to plasma proteins by 20% and has a half-life of 1-2 hours (Adesanoye et al., 2014).

Characteristics of ISPA (upper respiratory tract infection) patients based on complaints

Research on ARI (upper respiratory tract infection) based on complaints aims to find out what percentage of patients have characteristics such as Rhinitis, Sinusitis, Pharyngitis, Common Cold, Otitis Media, Tonsillitis, Rhinositeitis, Perintosillary Abscess at Kimia Farma 317 Pharmacy Clinic. The following data was obtained:

Tabel 5 Characteristics of ISPA (upper respiratory tract infection) patients based on complaints

Diagnosis	Number of Patient	Persentase (%)
Sinusitis	7	18 %
Rhinitis	7	18 %
Pharyngitis	14	38 %
Commond Cold	10	26 %
Otitis Media	0	0 %
Tonsillitis	0	0 %
Rhinosititis	0	0 %
Peritosillary Abscess	0	0 %
Total	38	100%

Based on the research results, it was found that the highest number of people suffering from ISPA (upper respiratory tract infection) at Kimia Farma 317 Pharmacy Clinic for the period January-April 2023 based on complaints as shown in the table above is that the highest number is Pharyngitis with symptoms of sore throat, itchy throat, fever, headache. rheumatic pain, as many as 14 patients with a percentage of 40%. It can be concluded that patients are often exposed to pollution, have a history of allergies in direct contact with pharyngitis sufferers with low immunity and have stomach acid. This is due to air pollution such as cigarette smoke, vehicle fumes, consuming spicy food, often shouting or talking for too long. So it is very susceptible to pharyngitis.

Conclusions and Recommendations

Conclusion

Based on the results of research regarding the description of the administration of the antibiotic amoxicillin to ARI (Upper Respiratory Tract Infection) patients at Kimia Farma 317 Pharmacy, conclusions can be drawn on each of the following criteria.:

1. Characteristics of the use of Amoxicillin for ARI (Upper Respiratory Tract Infection) patients based on gender, mostly in women with a percentage of 27 patients (72%).
2. Based on age, the use of the antibiotic amoxicillin for ARI (Upper Respiratory Tract Infection) from the data obtained was mostly children aged 5–13 years, 15 patients with a percentage of (40%).
3. Based on the frequency of drug administration, the highest percentage of 3 x 1 tab/spoon of medication per day was 37 patients with a percentage of (97%).
4. Based on the highest number of complaints of ARI (Upper Respiratory Tract Infection), pharyngitis was 14 patients with a percentage of (38%).

Suggestion

For future researchers, it is necessary to study the side effects of ARI (Upper Respiratory Infection) antibiotic drugs, especially for pediatric patients

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