Systematic Review: The Effect of ARI Recurrence on Unhealthy Lifestyles

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Abstracts: ARI is a very serious infectious disease that occurs when the body's immune system weakens, for example due to illness or stress. Viruses are the most common cause of ARI. The most common types of infection are Rhinovirus (RhV), Respiratory Syncytial Virus (PSV), Influenza (IFN), Parainfluenza Virus (PIV), Covid (CoV), Human Metapneumovirus (hMPV), Heterovirus (EV), Adenovirus (AdV) and Bocavirus (HBoV). Antibiotics are substances or ingredients used to prevent and treat infections caused by bacteria. In the United States there are 50 million unnecessary antibiotic prescriptions out of 150 million prescriptions each year, the use of antibiotics continues to increase, which causes, among other things, inappropriate use of drugs will cause many problems in terms of effectiveness, side effects, interactions, economics and drug abuse, thus providing many negative impacts including quality and management of drug services, drug resistance, side effects on patients, allergies for alergicpatients and psychosocial. This study aims to determine the relationship between the use of antibiotics and the recurrence rate of ARI. The research method used was a systematic review by searching for published articles related to the intensity of recurrence in ARI patients who received antibiotics. Literature searches were conducted in July-August 2023 using electronic database searches, namely ProQuest and google scholar. The next international journal search was conducted by the researchers through ProQuest with the keywords "relationship between the use of antibiotics and recurrence in ARI patients" and the search year was limited from 2010 to 2017. The results of the systematic review of 2 published journals showed that statistically there are factors that influence ARI recurrence, namely cigarette smoke is very influential in ARI recurrence, and food intake patterns can also affect nutritional status, and frequent interaction with people who have symptoms can increase the risk of recurrent relapse.

1 INTRODUCTION

In developed countries, ARI is often caused by viruses, whereas in developing countries it is caused by bacteria such as Streptococcus pneumoniae and Haemoplus influenzae, and is responsible for 10-25% of deaths in developing countries. The incidence of ARIs is also influenced by several factors, including poor nutrition, indoor air pollution, measles vaccination and lack of exclusive breastfeeding. ARIs are generally mild in nature and are usually caused by infections and microorganisms. ARI is a disease caused by various microorganisms and can cause contamination. Deaths from the disease are 2-6 times higher in developing countries. Contamination is one of the variable causes of death in children under five (Ministry of Health, 2018).

ARI is a very serious infectious disease caused by a weakening of the body's immune system, for example due to illness or stress. In the early stages, symptoms include nasal pain, dryness and irritation, followed by persistent wheezing, nasal congestion with runny nose, fever and migraines. The outer layer of the nasal mucous membrane appears red and enlarged. As the disease progresses, mucus thickens and nasal congestion increases. If there are no problems, the symptoms disappear after 3-5 days. Acute respiratory infections are a major cause of death in agricultural countries. In general, ARI is a disease of the upper or lower respiratory tract that is usually contagious and can cause a variety of illnesses, ranging from mild or asymptomatic contamination, to asymptomatic or mild disease, to persistent, severe and fatal disease, depending on natural factors.

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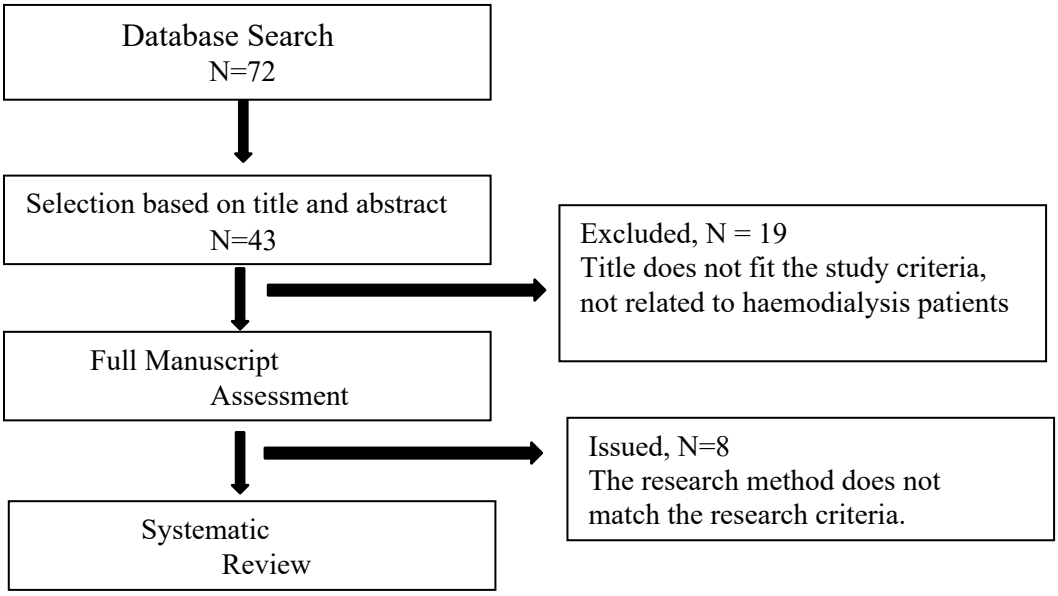
The availability of different antibiotics requires better knowledge to choose the right antibiotic to treat ARI. Health education about ARI is an effort or activity to help individuals, groups or communities, especially parents, to improve their knowledge and skills in caring for infants with ARI so that optimal quality of health is achieved. ARI is one of the infectious diseases that is a national priority. Similarly, ARI is often characterised as a severe respiratory illness caused by an intolerable specialist sent from one person to another. Onset is usually rapid, within a few hours to a few days. Symptoms include fever, sore throat, coryza (runny nose), shortness of breath, wheezing or difficulty breathing. Unwanted natural conditions also build up diseases that experts breed and work with the course of disease transmission. One of the factors causing ARI is also the actual climate conditions and the support of the home climate. Supporting the home climate by keeping the house tidy, controlling the air trade in the house, keeping the home climate tidy and seeking sunlight into the house during the day, keeping the air guard in the house clean to prevent microbes and including trying not to pack as it is seen as a risk of expanding the incidence of ARI. Viruses are the most common cause of ARI. The types of infections that commonly cause ARI are Rhinovirus (RhV), Respiratory Syncytial Virus (PSV), Influenza (IFN), Parainfluenza Virus (PIV), Covid (CoV), Human Metapneumovirus (hMPV), Heterovirus (EV), Adenovirus (AdV) and Boca Virus (HBoV) infection (Organisation, 2007).

About a third of antibiotic prescriptions for children with URI may be inappropriate. A Finnish study monitored antibiotic prescribing for children with upper urinary tract infections over seven years. During this time, the number of paediatric visits for which antibiotics were prescribed increased. This happens when the procedure for using antibiotics is not appropriate. Inappropriate use of antibiotics can lead to bacterial resistance to antibiotics, which allows bacteria to adapt to their environment. Several factors can increase the incidence of recurrent ARI in young children, one of which is parental smoking habits, as cigarette smoke is very influential in the recurrence of ARI. Feeding patterns can also affect nutritional status, and frequent interaction with people who have symptoms can increase the risk of relapse (Chand et al, 2023).

2 RESEARCH METHODS

The research method used was a systematic review by searching for published articles related to the intensity of relapse in ARI patients who received antibiotics. Literature searches were conducted in July-August 2023 using electronic database searches, namely ProQuest and google scholar. The next international journal search was conducted by the researchers through ProQuest with the keyword "relationship between the use of antibiotics and the recurrence of ARI patients" and the search year was limited from 2010 to 2017. The national journal search was conducted through Google Scholar with the keywords "Relationship between the recurrence rate of ARI patients and the use of antibiotics" and the search year was limited from 2010 to 2017. The journals and articles obtained were then filtered by title and abstract. The articles selected by the researcher were based on the desired criteria, namely the relationship between recurrence and antibiotic use. Journals that were not relevant to the research topic were excluded. The selected journals were evaluated according to the inclusion and exclusion criteria of the study, and based on the sorting of these criteria, journals suitable for the systematic review were obtained. The inclusion criteria used in the systematic review are journals published from 2010 to 2017, the use of antibiotics, patients with a primary diagnosis of ARI, the intensity of relapse in patients, socio-demographics of patients. Literature search results, obtained 72 articles in ProQuest and google scholar data. By selecting the title and abstract of the article, 43 articles were obtained. From this evaluation, 19 articles were excluded. The remaining 10 articles had full manuscripts. From the ten articles obtained, 4 articles were suitable for systematic review.

Research design. The systematic review identified four articles that used a cross-sectional study design.



3 RESULTS AND DISCUSSION

The results of the analysis of several articles conducted in a systematic review, the factors that influence the recurrence rate of patients who use antibiotic therapy in ARI patients were obtained. Factors that influence the recurrence of ARI are cigarette smoke is very influential in the recurrence of ARI and food intake patterns can also affect nutritional status, and frequent interaction with people who have symptoms may increase the risk of recurrent relapse. Based on the results of a systematic review of two articles, antibiotics are one of the most commonly used treatments in healthcare settings. However, it is important that antibiotics are used rationally to provide optimal benefit according to the patient's clinical needs, including the right dose. Therefore, the rationality of antibiotic administration is crucial (Ramlah et al., 20-21). Research using respondent characteristics, namely age, sex, diagnosis, antibiotic administration, number of visits. Research (Tomatala et al., 2019) suggests that respondent characteristics after chi-squared test obtained significant results with the recurrence rate of ARI patients, namely p value less than 0.05. Patients who are male are 51-54.84% more than patients who are female, and the age of patients is more at the age of over 41 years (Reza et al., 2020).

Research (Riswanto et al., 2018) shows that the perception of one form of irrational prescribing is the use of drugs when the indication of the disease is needed, as in this study the use of antibiotics in patients with ARI instead of pneumonia. The more compliant respondents are in carrying out the steps to establish the diagnosis of ARI. Factors influencing the use of antibiotics include factors related to prescribing, drug manufacturing and patients. Prescribing factors can be influenced by things such as the level of knowledge about the use of antibiotics, where a low level of knowledge about the use of antibiotics can lead to misdiagnosis and difficulty in distinguishing between bacterial and viral infections. The availability of diagnostic facilities and supporting investigations, patient demand, drug promotion, level and frequency of supervision in this case seen from the level of supervision whether strict or not strict and the frequency of supervision. Supervision by superiors may increase the rationality of antibiotic use or, conversely, may lead to under- or over-prescription of antibiotics due to concerns about prescribing. The high prevalence of ARIs and their impact leads to high consumption of over-the-counter medicines (such as anti-influenza, cough medicines, multivitamins) and antibiotics. The high incidence of ARI, including pneumonia, in children under five is due to the high frequency of recurrent ARI in children under five. The use of antibiotics for acute respiratory infections, especially in patients under five years of age, who are the most affected by ARI, requires special attention.

The results obtained the use of antibiotics against ARI infants as much as 53.95%, infants experienced

a recurrence of 46.34% and Chi Square test obtained a p value of 0.004 (p = <0.05). In this study, the use of antibiotics in ARI is often irrational. Data from the Ministry of Health in 2011 showed that 60% of patients with ARI used antibiotics inappropriately, i.e. too high or inappropriate dosage, inappropriate duration of use, prescription of drugs not according to diagnosis and self-medication with drugs that should be obtained by prescription. Taking antibiotics too often means killing all the good bacteria that are beneficial to the body. When the population of benign germs that are beneficial to the body is wiped out, the balance of the body's microorganisms can be disturbed, so that fungi that were previously afraid of germs in our bodies have the opportunity to attack more easily, causing recurrences or new diseases (Tomatala et al., 2019). The use of antibiotics that are not in accordance with therapeutic studies will increase negative effects, such as bacterial immunity to some antibiotics, increased incidence of drug side effects, high health care costs. On the basis of all this, the use of antibiotics needs to be regulated so that it can be used appropriately with a structural approach. If antibiotics are widely used in hospitals and other health services in inaccurate doses and for long periods, resistance will develop (Riswanto et al., 2018).

If antibiotics are administered at too low a dose, bacterial resistance to the drug will develop, leading to increased healthcare costs. Factors that affect the maximum effect of drugs include determining the correct dose, route and duration of administration. The pharmacokinetic and pharmacodynamic properties of the drug will affect the amount of dose and the method and frequency of administration, while the duration of drug administration is based on the nature of the disease, such as acute, chronic or recurrent. The main cause of antibiotic resistance is the widespread and irrational use of antibiotics. Approximately 80% of antibiotic consumption is for human use and at least 40% is based on inappropriate indications such as viral infections. Factors that can lead to failure of antibiotic therapy include the emergence of resistant organisms or organisms that infect changes that can cause disease recurrence (MOH RI, 2013). Standard prescribing is rational drug prescribing, i.e. prescribing drugs according to the standards used. Standard drug prescribing means prescribing drugs that are correct, clear and in accordance with patients' needs, taking into account the type of drug, dosage, duration of administration and affordability for the community. Inappropriate drug prescribing leads to inappropriate treatment, which can have consequences such as the emergence of antimicrobial resistance, the occurrence of adverse effects, excessive financial expenditure and relapse due to the use of drugs that exceed the limit.

Antibiotics are a class of drugs used to treat and prevent infections, so antibiotics are used when there is an infection or for prophylactic purposes (to prevent infection). Antibiotics are drugs that are widely used to treat infections caused by bacteria. Various studies have shown that about 40-62% of antibiotics are used inappropriately, including for conditions that do not require antibiotics. The use of antibiotics that is not in accordance with therapeutic studies will increase negative effects, such as bacterial immunity to some antibiotics, increased incidence of drug side effects, and high health care costs. On the basis of all this, the use of antibiotics needs to be regulated so that it can be used appropriately with a structural approach. If antibiotics are widely used in hospitals or other health services in inaccurate doses and for long periods, they will become resistant (WHO, 2021). In the study (Azzahra et al., 2023) The data collection process used secondary data, then the data were processed using univariate analysis and bivariate analysis, this analysis was used to determine the hypothesis by determining the relationship between variables with the antibiotic.

Chi-square analysis test. Based on the bivariate analysis of the relationship between antibiotic use and ARI recurrence, it shows that out of 106 samples given antibiotics, 80 (49.7%) experienced a recurrence and those who did not relapse were 26 (16.1%). While the group of samples that were not given antibiotics there were 53 samples consisting of 49 (30.4%) who relapsed and 6 (3.8%) who did not relapse. From the results of the statistical analysis to see the relationship between antibiotic use and ARI recurrence, a value of p=0.040 was obtained, indicating a significant relationship between antibiotic use and ARI recurrence. The high prevalence of ARI in the study area has an impact on increasing the use of antibiotics and over-the-counter medicines and increasing the risk of ARI recurrence, especially in children under five. These effects significantly increase the incidence of ARI in the area. The results of Kausar's research (Kausar, 2020) showed that out of 137 populations, 70 patients diagnosed with ARI and using antibiotics, with an age category ≤5 years, 38 (54.28%) of them were infants. This shows that there are still many young children diagnosed with ARI who are given antibiotics. In addition, the study also showed that

young children aged 1-5 years are at high risk of relapse because their immune system is not fully developed and their age of growth and development increases their exposure to the outside world. Therefore, it is important to consider these risk factors when treating ARI in young children, as the disease may have a worse clinical impact in infants and children compared to adults (Yoon et al., 2017).

4 CONCLUSION

Based on research from systematic reviews that cigarette smoke is very influential in the recurrence of ARI, and food intake patterns may also affect nutritional status, and frequent interaction with people who have symptoms may increase the risk of recurrence. The use of antibiotics that are not in accordance with therapeutic studies will increase negative effects, such as bacterial immunity to some antibiotics, and giving antibiotics that are under-dosed will cause bacterial resistance to these drugs, which will cause health to deteriorate and the intensity of relapse to increase. There is a relationship between the use of antibiotics and the relapse rate of ARI, where the higher the use of antibiotics in patients with non-pneumonia ARI, the more likely they are to relapse.

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