



Characteristics of Patients with Acute Respiratory Infections Using Antibiotics at Hospital X

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Abstract

Infection channel Respiratory acute (ARI) includes a number involving infections various part channel breath, of nose and throat until bronchi and lungs. Use antibiotics often required For treat ARI, though approach prevention like promotion cleanliness hands, management environment, and education society is also very important. Factors like type gender, age, education, occupation, marital status, and smoking status join in role in increase risk affected by ISPA. Study This aim For identify characteristics patients suffering from ARI with various aspect covers type gender, range age, level education, type employment, marital status, and smoking status. Study This use design descriptive observational that utilizes secondary data from notes document medical ARI patients at the center record Hospital. Total samples observed in study This is as many as 110 patients. Analysis show domination patient women (56.3%), which is possible influenced by factors biological, hormonal, and social. Age patients at Hospital X are dominated by groups age 18-30 years (50%), which is likely big influenced by style life and activities population on a range age This. Majority patient in study This own education undergraduate level (33.6%). Patients with work as employee private reached 30%, meanwhile percentage patients who smoke reached 54.5%, which shows significant prevalence in population This. In research This, of the total 110 patients at Hospital X, the majority is Woman. Group age the most is 18-30 years old, which is often active in a way social and productive. By education, in part big patient own background behind education high.

Introduction

Indonesia, which is located in the region tropical, has potency become area endemic For various disease possible infection threaten health public throughout year. One of a striking example is Infection Channel Respiration Acute (ARI), which is not only become reason main level pain and death consequence disease spread throughout the world, but also shows level significant mortality especially in children and groups age further, especially in countries with economy intermediate to lower. ISPA can happen in two forms main, namely upper ARI which includes influenza, rhinitis, sinusitis, pharyngitis, laryngitis, epiglottitis, tonsillitis, and otitis, as well as lower ARI which involves infections of the bronchi and alveoli such as bronchitis, bronchiolitis, and pneumonia (Yunus et al., 2020). Viruses often become reason major ISPA, though bacteria such as streptococcus pneumoniae and haemophilus influenzae also contribute to some case. Use antibiotics often required For overcome infection this, though approach prevention includes promotion cleanliness hand, control environment, and education society is also crucial. Factors like type gender, age, education, occupation, marital status and style life join in influence risk affected by ISPA (Nurjanah & Emelia, 2022).

Based on ISPA prevalence data from Riskesdas DKI Jakarta 2018, recorded that ISPA cases in DKI Jakarta province reached 2.7%. This figure varies in each administrative region, with amount highest ARI patients occurred in the Islands One thousand, reaching 11.12% of the total cases. Temporary that, level ISPA cases in Central Jakarta City reached 3.65%, in North Jakarta 3.62%, in East Jakarta 2.70%, in South Jakarta 2.50%, and in West Jakarta 1.96%. This data reflect different distributions from ISPA in various part of DKI Jakarta, which can influence prevention policies and strategies as well as treatment in each of these regions.

When treating ARI, antibiotics are often used without do inspection moreover formerly to microorganisms reason infection. Principle main in use appropriate antibiotics is choose specific antibiotics For microorganisms reason infectious and effective in overcome infection the. Giving antibiotics are not in accordance can cause bacteria develop resistance to antibiotics. Mechanism This happen Because bacteria can adapt with the environment, changing system enzyme or structure wall the cell, so become not enough responsive to effect antibiotics given (Teheni & Ilham, 2022).

With consider background behind that has been mentioned and its height ARI rates in adults, research required For identify characteristics patients suffering from ARI. Study This will covers various aspect, incl type gender, range age, level education, type employment, marital status, and smoking status. Information obtained from study This expected can give more picture comprehensive about influencing factors prevalence of ARI in adults, as well help in develop more prevention and management strategies effective.

Methods

Study This use design descriptive observational that utilizes secondary data from notes document medical ARI patients at the center record X Hospital medical. Research sample consists from recorded data medical ARI patients who have undergo visit or treatment at the Inpatient Installation of Hospital X in period January 2022 to May 2024. All information patient in record medical This used as sample study. Collected data Then processed in accordance with covering criteria type gender, age, level education, employment, marital status, and style life like habit smoking. Next, do it data tabulation as well analysis statistics descriptive For explain and evaluate characteristics ARI patients based on collected data.

Result and Discussion

Characteristic data respondents taken covers type gender, age, education, occupation, and smoking status. Factors This influence risk infection beginning as well as possibility recurrence through various mechanism, incl exposure environment, behavior health, and access to service health. Table 1 shows distribution of data on ISPA patients, where 110 ISPA patients were recorded being treated in the ward House sick X.

Table 1. Usage antibiotics in ARI patients

Characteristics	Frequency (110 Patients)	Percentage (%)
Gender		
Man	48	43.7
Woman	62	56.3
Total	110	100
Age		
18 – 30	55	50
31 – 40	27	24.5
41 – 50	17	15.5
>50	11	10
Total	110	100
Educational status		

elementary school	21	19.1
JUNIOR HIGH SCHOOL	8	7.3
SENIOR HIGH SCHOOL	35	31.8
D3	8	7.3
S1	37	33.6
S2/S3	1	0.9
Total	110	100
Job status		
Doesn't work	19	17.3
Housewife	14	12.7
Self-employed	3	2.7
Student / Student	29	26.4
Employee Private	33	30
Government employees	12	10.9
Total	110	100
Smoking Status		
Smoke	60	54.5
Do not smoke	44	40
Stop Smoke	6	5.5
Total	110	100
Status of Other Participants		
With Other Participants	20	40
Not with Other Participants	30	60
Total	50	100
Drug Discipline Status		
Medicine finished	56	49.1
Medicine doesn't spent	54	50.9
Total	110	100

Based on Table 1 of research at Hospital X, the majority ARI patients are Woman with the number was 62 people (56.3%), whereas man as many as 48 people (43.7%) from a total of 110 patients. Findings This show that circles Woman more often affected by ARI compared with circles men at Hospital X. Research This consistent with research conducted in the Netherlands, where it was recorded symptom Respiratory more often happen in a way significant in women than man. Factors like difference biological, hormonal, and role social influence findings This. Difference biological and hormonal, in particular role hormone estrogen and progesterone in the system immunity and response inflammation female, it is believed role in matter This. Hormones the can influence response body to infections, including them mechanism inflammation in the lungs (Groeneveld et al., 2020).

Other research is in line with findings This done in Hawaii, shows that types of respiratory viruses certain show prevalence varies based on group age and type sex. Although studies This No in a way explicit mention more prevalence higher in women, however highlighting that factors certain can influence variation in prevalence infection Respiratory based on type sex. Factors This including difference anatomy and physiology, where women generally own channel more breathing small compared to with man. This matter can result less than optimal ventilation and distribution air that doesn't evenly, improve risk obstruction and ARI infections. There are also more women Possible experience decline function more lungs fast Because factor risk like smoke or exposure pollution air. Decline This can increase vulnerability against ISPA as well worsen symptoms (Stover & Litwin, 2014).

Some genes regulate response immune located on the X chromosome. Because women has two X chromosomes and can own variation different genetics in response immune compared to

man, here can influence vulnerability to infection and response body to pathogen. Apart from that, composition microbiota in women can different from men, which also influences How system immune respond infection Respiratory. Healthy microbiota can help protect to pathogenic, transient imbalance (dysbiosis) can increase vulnerability against ISPA (Somayaji & Chalmers, 2022). Patients are grouped based on age For compare amount patients who experience ARI as well see influence age to ISPA cases. From the data presented in the table, it can be seen that majority patients at Hospital in range aged 18-30 years. This matter can linked with style live on the range age the, where is mobility tall often happen. Individual in group age This tend active in education, employment, or activity social, which improves possibility exposure to various pathogen breathing in various environment. Lots of insiders group age This work in a busy environment or being at school / college with population dense, which increases risk ARI transmission through contact near with many people (Yunus et al., 2020).

As for research others show results similar with research at Hospital X stated that at age this, individual Possible more often involved in improving habits ARI risks, such as smoking, use transportation public, and attending major events. Besides, often exposed pollution air in urban areas also becomes factor risk. Another thing that is one factor the majority of ISPA at age This that is aged 18-30 years is the period in which the individual often experience stress Because demands work, education, and life personal. Stress chronic can weaken system immune, make body more prone to to infection breathing (Kim et al., 2023).

Causes of ARI in age mature often related with habit smoking and exposure against cigarette smoke. Exposure This can cause change structure and function channel Respiratory as well as network lungs. Change anatomy channel Respiratory can bother function lungs, improve production mucus excessive, and triggering symptom like cough, which is at the end can increase risk affected by ISPA. Risk worker against ISPA can grouped to in three category main : characteristics individual, behavior workers, and factors environment. Characteristics individual covers factors like age, type gender, length of service, and nutritional status. Behavior workers, like habit smoking, also become factor important influences risk affected by ISPA. In addition, factors environment like humidity and level pollution air, incl exposure to cigarette smoke inside room, also plays a role in increase vulnerability worker against ISPA (Ananda et al., 2016).

The table shows that 54.5% of people with smoking status including in ARI patients at Hospital X and 40% of patients with status no suspected smoking Because smoker passive. Smoke own significant impact to Infection Channel Respiration Acute (ARI) via mechanism complex pharmacology and pathophysiology . Nicotine, which is component main in cigarettes, no only cause effect addictive but also annoying system Respiratory with increase activity sodium channels- epithelium and stimulate release of neurotransmitters such as noradrenaline. Substance chemistry other in cigarette smoke, such as tar and particles others, act as irritating irritant cells channel breathing, triggering inflammation chronic, and annoying mechanism experience cleaning lungs, such as mucociliary clearance. Apart from that, carbon dioxide (CO) produced by cigarettes tie hemoglobin more tightly than oxygen, reducing capacity oxygenation blood, which is important For metabolism optimal mobile. By Simultaneously, smoking is also detrimental structure and function system immune, inhibit response T cells and NK cells are important in defense body to infection. Production of inflammatory mediators like cytokines and chemokines also increase, which can worsen inflammation and affect quality function channel Respiratory. Period long, smoking can cause damage lungs like emphysema and bronchitis chronic, which makes it worse capacity lungs For works optimally. With So, smoking No only increase risk individual against ISPA through decline function immune and system defense body, but also damage structure channel Respiratory in a way straight away,

improve profitability to infection and reduce ability body For overcome infection with effective (Safitri, 2015).

Patients are grouped based on education For compare amount patient based on education that experiences ISPA. Majority patient with a Bachelor's degree experience ISPA. There are some explaining reasons education with Bachelor's degree, more Lots experienced ARI compared with those who have level education more low. That matter related with exposure and environment where people are educated more tall tend working in an urban environment or industries where pollution air more high, which is factor risk significant for ISPA. Research in Nepal shows that exposure to PM_{2.5} (particulate matter measuring 2.5 micrometers or more small) related with enhancement risk enter House Sick due to ARI (Ghimire et al., 2022). Individual with more education tall Possible more aware will health and more Possible report ARI symptoms and looking for treatment medical. This can leading to improved diagnosis and reporting ISPA cases among educated people more tall. More stress levels tall and stylish a life that doesn't healthy, like not enough sleep and patterns eating badly, which is frequent linked with demanding job in a way academic and professional, too increase risk of ARI (Nishikawa et al., 2021; Ackon, 2020).

Patients are grouped based on education For compare amount patient based on jobs that experience ISPA. Majority working patients as employee private experiencing ISPA. Many of they experiencing ARI is caused by various reasons factors, such as condition environment work, knowledge about ISPA prevention, and behavior health. Exposure pollutant air in place work, especially in industries that don't use Personal Protective Equipment (PPE) with true, greatly improved risk affected by ISPA. Apart from that, conditions physique like temperature, humidity, ventilation, and density Occupancy also has an influence to ARI events. Conditions that are not healthy in place Work or around place stay can increase ISPA risk. Lack of knowledge about prevention of ARI and behavior that is not healthy, like not enough guard cleanliness or not using PPE, also contributes significant to its height ISPA incident. Findings This consistent with research in Cimahi which researched employee private sector in Bandung settlement, where the environment work and conditions physique play role important in risk of ARI (Mulyati et al., 2024). Majority patient Infection Channel Respiration Acute (ARI) originates from circles employee private Because Lots from they work in crowded offices with insufficient ventilation Good. Condition This facilitate spread of viruses and bacteria causes of ISPA among they. Employee private often work in the area affected urban areas level pollution high air . Pollution air This can irritate channel breathing and improve risk caught infection. Apart from that, employees private often ignored symptom beginning disease Because busyness high work . They Possible postpone search treatment, which can worsen condition them and expand spread infections in the environment Work. Long working hours can cause fatigue and lack time For rest and recovery, so reduce ability body For oppose infection (Hernandez-Avila et al., 2022).

In research this, found that a number of factor influence recurrence in ARI patients (Infection Channel Respiration I). Style factor life like smoke show significant results : from 60 patients who smoked active, 36 experienced relapse, temporary of the 44 patients who did not smoking, 21 experienced recurrence. Although No There is difference significant between smoking status and relapse, smoking own connection tightly with possibility recurrence in ARI patients. Smoke can weaken system immunity body, improve risk infection channel breathing, as well aggravated and frequent give rise to complications in ARI (Muriithi, 2023). Study show that smoker own risk more tall For experience recurrence after healed from ISPA because smoke damage lungs and hinder the healing process. In addition, ARI patients who smoke generally show lack of response Good to treatment and have a health prognosis more lungs bad. Therefore that's very important for smoker For stop smoke To use reduce risk recurrence of ARI, increasing effectiveness treatment, and repair condition health lungs (Safitri, 2015).

Other factors can be cause recurrence in ARI patients is obedience in consume drug. In research this, obedience drink drug assessed based on is prescribed antibiotics finished or No. From the group patients who spend antibiotics (49.1%), 15.5 % experienced recurrence. Rather, in between patients who do not use up antibiotics, 40.9% experienced recurrence, with a total of 50.9% of patients not use up antibiotics experience recurrence. This matter show exists difference significant between compliant patients rule consumption antibiotics and those who don't. Patients who don't use up antibiotics tend experience recurrence more often compared to with those who spend antibiotics. Didn't finish antibiotics can increase risk recurrence of ARI due to bacteria reason infection Possible No erased completely. remaining bacteria Can become more strong and resistant to antibiotics, or even develop return after treatment stopped. As a result, infection Can relapsed with symptoms appear return or even worsening, and recurrence This Can become more critical or difficult treated consequence resistance growing bacteria (Fomnya et al., 2021; Savitri et al., 2022).

In research this, found that a number of patient with disease diagnosis companion, like hypertension, diabetes, failure heart disease, and hyperglycemia, are involved experience Infection Channel Respiration Acute (ARI). The presence of disease accompanying This can related with ISPA conditions experienced patient (Bidaya, 2023). Patients with hypertension as comorbidity own risk more tall For experience complications Serious due to ARI, especially Because impact to system cardiovascular. Hypertension influence function heart and vessels blood, so ARI infections can add stress on the system This (World Health Organization, 2023). Patients with hypertension Possible own lack of response adequate to burden addition this, that can increase risk complications Serious like fail heart, respiratory failure, or attack heart. Hypertension is also related with inflammation chronic and changing in response system immunity body, which can worsened by ISPA. Infection This can increase release pro inflammatory and stimulating cytokines response immunity more body broad, potential cause response inflammation that is not controlled and destructive network as well as body organs (Pratama et al., 2024).

Use drug such as ACE inhibitors (Enzyme Inhibitors Angiotensin Modifiers) or ARBs (Antagonists Angiotensin II receptor) in management hypertension also has researched, esp related with response inflammation and viral replication in ARI. Drugs This influence track biochemistry involved in response inflammation body (Bosma-den Boer et al., 2012). Study show that ACE inhibitors and ARBs can modify rate pro- inflammatory and anti- inflammatory cytokines, which play a role in response immune to viral and bacterial infections. Although drug This sometimes show beneficial anti - inflammatory effects, impact can varies depending on conditions Specific patients and the type of ARI experienced. ACE inhibitors and ARBs play a role in arrange Renin-Angiotensin- Aldosterone system (RAAS), which does not only influence pressure blood but also the system immune. Change in RAAS regulations can influence response inflammation to infection, though mechanism the details Still in research (Yang et al., 2020)

Temporary That is, patients who experience ARI and also suffer fail heart, diabetes, or hyperglycemia own risk more complications tall compared to with they're the only ones experiencing ISPA. Fail heart disease, diabetes and hyperglycemia is conditions that can weaken system immunity body and improve inflammation chronic. When the patient with conditions This exposed to ARI, body they face challenge possible additions bother response immunity. For example, ARI infections in patients with fail heart can cause decompensation serious heart, where is the heart No can pump blood with efficient. Diabetic patients are also possible experience enhancement insulin resistance as response to infection, which can bother blood sugar control and worsening complications more continued (Vishwakarma et al., 2021).

Conclusion

Based on characteristics patient at Hospital X, type sex patient dominated by women (56.3%), which is influenced by factors biological, hormonal, and factors social. Characteristics age patient dominated by range aged 18–30 years (50%), who can influenced by style life and activities in the population age This. Majority patient own Bachelor's degree education (33.6%), shows level more education tall in study This. Work employee private sector (30%) also dominates characteristics patient, which reflects age productive everywhere individual working in the sector private. More from half patients (54.5%) in study This is smoker, pointed out significant prevalence from habit smoking in between ISPA patients at Hospital X Jakarta.

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