

FACTORS ASSOCIATED WITH INFECTIOUS DISEASE ACUTE RESPIRATORY INFECTIONS (ARI) TO CHILDREN IN THE AREA WORK OF BUKIT HINDU PALANGKARAYA PUBLIC HEALTH CENTER

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Abstract

ARI is the first sequence of infectious diseases and one of the originators malnutrition and infant mortality in developing countries that caused by several factors. This study is to analyze the factors associated with respiratory disease in infants in the area work of Bukit Hindu Palangkaraya Public Health Center.

This research is observational analytic approach using a case-control approach, sampling techniques using a purposive sampling technique which consists of 30 respondent samples of cases and 30 controls.

The results of case respondents showed that the percentage of male infants 57% and female 43%, the mother's last education was elementary school 17%, junior high school 13%, senior high school 43% and college/diploma 27%, 77% in normal nutritional status and 23% was not, presence of family members' working habit by 83% and 17% was not, 100 % was normal birth weight and as much as 77% of cases were not exclusively breastfeed and 17% was exclusively breastfeed. The results of chi-square test found that the family members' smoking habits associated with the incidence of ARI in infants with p-value <0,05 with OR = 3.824 and CI = 95%, while for nutritional status, low birth weight and exclusive breastfeeding does not have a significant association with disease ARI in infants.

Keywords: ARI, nutritional status, smoking habits, LBW, exclusive breastfeeding

A. Introduction

ARI has long occupied the first place in the order of infectious diseases and is one of the originators of malnutrition and infant mortality in developing countries. Data WHO states that 10-15% of infant mortality in developed countries and 27% of infant mortality in developing countries are caused by ARI, especially pneumonia^(1,2).

The incidence of respiratory disease in Indonesia is still high, especially in young children, cases of illness each year reaches 260,000 children under five. ARI is also one of the main causes of patient visits to health facilities is as much as 40% - 60% of visits for treatment in health centers and 15% - 30% of visits for treatment in the outpatient and inpatient hospital. Based on data from Indonesia

Demographic and Health Survey (IDHS) 2002-2003, the prevalence of acute respiratory infection in infants less than one year in Indonesia as much as 7.6%⁽³⁾.

Based on the results of several studies, there are several factors related to the incidence of respiratory disease in infants include nutritional status, low birth weight babies, exclusive breastfeeding, and the smoking habits of family members in the house. Poor nutritional status causing children vulnerable to infectious diseases. Low birth weight babies have a growth and maturation of the organ and the tool - the tool body is not perfect, resulting in low birth weight babies often become infected one ARI. Breast milk contains colostrum immunity and can prevent respiratory disease in infants, toddlers who are not exclusively breastfed ARI

more susceptible than children who were exclusively breastfed. Smoking habits of family members can lead to exposure to cigarette smoke. Smoke more cigarettes smoked, the increased exposure to cigarette smoke can cause respiratory disease in infants ^(4,5).

Palangkaraya city is one of the cities in Central Borneo which has a number of high incidence of respiratory disease. ARI is the first order of 10 diseases in Palangkaraya. One health center in the city of Palangkaraya with the highest number toddlers ISPA is Bukit Hindu Public Health Center. Based on data obtained from Bukit Hindu Palangkaraya public health center, obtained information that in 2010 the prevalence of ARI aged 0-11 months 3.36% and the age of 1-2 years by 3.09% from 3243 toddler ⁽⁶⁾. Based on the preliminary survey conducted in the Bukit Hindu Palangkaraya public health center note that the scope of exclusive breastfeeding in infants is still low at 6.3% and there are still many children under five nutritional status below the red line (BGM) is as much as 8% toddlers ⁽¹⁰⁾, so we need research to prove the relationship between the nutritional status of children, LBW, exclusive breastfeeding, and smoking habits of family members with the incidence of respiratory disease in infants in Bukit Hindu Palangkaraya public health center.

The general objective of this research is to

prove the factors associated with the incidence of respiratory disease in infants in Bukit Hindu public Health Center.

B. Method

The design of this study was observational analytic method case control. Population case approach in this research is all infants aged 10-15 months in Bukit Hindu public health center in the period from May to August 2011. The sampling technique of the subject of research conducted by accidental sampling which meets inclusion criteria for the sample cases. Samples taken in case of a toddler who went to the Bukit Hindu Public Health Center, and recorded in the register book ARI program taken as a minimum of 30

The instrument used in this study is a questionnaire used to gather data about the factors associated with the incidence of acute respiratory infection in infants, KMS is used to determine the weight of the baby at birth, Babyscale to weigh toddlers.

The independent variable in this study is the nutritional status of children, LBW, exclusive breastfeeding, family habit of smoking. The dependent variable in this study was the incidence of acute respiratory infection in infants. Analysis of data using statistical test Chi-Square with $\alpha = 0.05$

Table1. Bivariat analisis ARI risk factor

No	Variable	ARI		Non-ARI		p-value
		n	%	n	%	
1	Nutritional status					
	Normal	7	30,4	1	3	0,052
	Abnormal	23	76,6	29	96,7	
2	Family habit of smoking					
	Smoke	25	83,3	17	56,7	0,049
	Don't smoke	5	16,7	13	43,3	
3	LBW					
	LBW	0	0	0	0	-
	Normal	30	100	30	100	
4	Exclusive breastfeeding					
	Yes	23	76,6	19	63,3	0,398
	Non	7	30,4	11	36,7	

C. Result and discussion

Table 1 shows the results obtained fisher exact test p-value = 0.052 ($p > 0.05$). This shows that there is no significant relationship between the nutritional status of children with respiratory disease incidence. Respiratory disease in infants is not only caused by one factor but it can also come from other factors, such as behavioral factors, neighborhoods that are less healthy and less maternal knowledge about ARI.

Behavioral factors that may be a risk factor for respiratory infection in infants is the behavior of a family member or a mother who gives additional food such as snacks or snack. Snacks or snacks given to children under five mother can make toddlers allergies or inflammation in the respiratory tract. Snacks snacks contain preservatives are added in order to extend shelf life. Likewise synthetic sweetener that is often encountered in snacks, sweet taste and can cause reception sharpen your sense of taste to sweet taste. Artificial sweeteners are often used is cyclamate and saccharin. Giving excessive cyclamate or saccharin causes strep throat. Because the ingredients are so toddlers can suffer respiratory infection. Habits of mothers who are too often provide snacks to their children can also lead to inflammation of the throat in infants^(7,8).

Table 1 shows the results of the analysis obtained by chi square test p-value = 0.049 ($p < 0.05$). This means there is a significant relationship between smoking and the incidence of respiratory disease. The research result is reinforced by research Hidayat in 2006 that the family who smoke, statistically the chances of her having ARI 2-fold compared with children from families who do not smoke. Addition of other studies found that episodes of ARI increased 2-fold as a result of parental smoking. Research Peat et al in the Cleveland Clinic Journal of Medicine in 2005 also states that children whose parents smoke have a 2 times greater chance of infection respiratory infection than children whose parents did not smoke^(9,10).

Cigarette smoke contains thousands of toxic chemicals and substances that can cause cancer

(carcinogens). Even hazardous substances and toxins in cigarettes not only cause health problems in people who smoke, but also to the people around him who do not smoke, mostly infants, children and mothers who are forced to be passive smokers because the father or their husbands smoked at home. Whereas passive smokers have a higher risk of suffering from respiratory infection. This is because as much as 25 percent of the harmful substances contained in cigarettes into the body of active smokers, while 75 percent are circulating in the air that enters the body at risk the people around them (passive smoking)^(9,11).

Cigarette smoke may impair the ability of alveolar macrophages to kill bacteria, a process known as phagocytosis. The study of cigarette smoke extract also showed that extracts of cigarette smoke also affects alveolar macrophage process. In addition, there are also studies that tested the cells were exposed to cigarette smoke extract with glucocorticoids, anti-inflammatory commonly used to treat respiratory conditions. The results show that the drug does not guarantee the recovery of barrier alveolar macrophage phagocytosis induced by cigarette smoke⁽⁹⁾.

Smoke cigarettes smoked, either by active smokers and passive smokers will lead to impaired cilia function, increases mucus volume, humoral antigen modified, as well as the quantitative and qualitative changes in cellular components occurs. Some changes in the defense mechanism will not return to normal before free from exposure to secondhand smoke. Cigarette smoke causes cilia movement is interrupted, then when the virus as an antigen into the respiratory tract, cilia located on the surface of the airways that is supposed to move upward push toward pharing virus or with a catch by laryngeal spasm reflex, reflex will fail. Then the virus will further damage the epithelial lining and mucosal lining of the respiratory tract. Irritation of the virus on the second layer causes dry cough. Damage to structures lining the walls of the airways cause an increase in mucus gland activity which is widely available on the airway walls, resulting in a discharge that exceeds the

normal mucosa. Excessive stimulation fluid that cause the symptoms of cough⁽⁹⁾.

Based on this study can also be known levels of exposure to cigarette smoke are received every day by people with respiratory infections, there are 5 infants not exposed to cigarette, 14 toddlers get exposure to light cigarettes, 5 children receive exposure to cigarette medium and 6 children receive exposure to heavy smoking. The results showed that exposure to cigarette even in light exposure remains a risk to the health of infants.

Based on Table 1 shows that all respondents there are cases and controls who had low birth weight infants, so it can not continue to bivariate analysis and graphs can be assumed based on LBW variables in this study did not affect the incidence of ARI in Puskesmas Bukit Hindu Palangkaraya. Toddlers who at birth have a normal body weight can still be infected with respiratory disease that is not a risk factor for low birth weight in Bukit Hindu Palangkaraya Public Health Center. ARI can be caused by other factors such as environmental factors, knowledge and work with parents. Although not conducted research on these factors but these factors can influence the occurrence of ARI⁽¹²⁾.

According to the table 1 in the case group and the control are still many children who are not exclusively breastfed. Results of the chi-square test analysis was obtained p-value = 0.398. This means there is no significant relationship between exclusive breastfeeding with the incidence of respiratory disease. These findings are consistent with research conducted by Irshad Ahmad, Najma Shaheen, Sabir Khan stating that there is no significant relationship between exclusive breastfeeding with the incidence of acute respiratory infection in infants. This can be due to the protection of breastfeeding only contribute to the first few months since the baby was born^(13,14).

D. Conclusion

Based on the research that has been carried out, it can be concluded that there is a relationship between smoking habits of family members with ARI, and there is no significant

relationship between nutritional status, low birth weight, and exclusive breastfeeding with ARI.

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