IOSR Journal Of Humanities And Social Science (IOSR-JHSS)
Volume 23, Issue 1, Ver. 6 (January. 2018) PP 42-45
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

Influence of Children Characteristics to Pneumonia Evening (Case Study of Imelda Human Employees Indonesia Medan 2017)

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Abstract: Pneumonia is the biggest cause of death of infants in Indonesia. Figures Case Fatality Rate (CFR) pneumonia in infants in 2015 was0.17%. The purpose of this study to analyze the influence of infant characteristics on the incidence of pneumonia in infants in Indonesia Workers Imelda Hospital Medan in 2017.The research is a retrospective study design. case control the study was conducted in Indonesian Workers Imelda Hospital Medan, from March to December 2017. The population is all babies with pneumonia and not pneumonia that came to the Indonesian Workers Imelda Hospital. Samples were taken by consecutive sampling with matching the same as the case in terms of age and gender. Large samples of 74 infants, with a sample of 37 cases of infant pneumonia and 37 control infants not pneumonia. Data were collected through interviews using a questionnaire and analyzed by chi-square test and logistic regression method.The results showed that the incidence of pneumonia in infants in the Hospital Imelda Indonesian Workers affected by nutritional status (p = 0.040; OR = 10.652), birth weight (p = 0.005; OR = 11.278), and immunization status (p = 0.003; OR = 7.354). Suggested to the Indonesian Workers Imelda Hospital, Health Department and Community Health Center Medan to conduct counseling on prevention such as pneumonia and improvement of nutritional status, birth weight, immunization, and make training for health workers on Maternal and Child Health Program

Keyword: Pneumonia, Infant, Hospital

Date of Submission: 06-01-2018 Date of acceptance: 22-01-2018

I. INTRODUCTION

Report of the World Health Organization (WHO), 5.9million children under five died some 16% of which are due to pneumonia in 2015 (WHO, 2016). While data Indonesia Health Profile 2015 reported the number of under-five deaths due to pneumonia in Indonesia reached 922,000 children under five (15%). Figures Case Fatality Rate (CFR) from pneumonia in children under five in 2015 amounted to 0.16%, higher compared to 2014 is 0.08%. In the group of infant mortality was slightly higher at 0.17% compared to the age group 1-4 years is 0.15% (MOH, 2016).

The discovery of pneumonia cases in North Sumatra in 2015 in infants, namely 7442 (MOH, 2016). Based on the North Sumatra Provincial Health Profile 2015, the number of pneumonia cases in 2013 were 153 200 cases and increasing to 157 625 cases in 2014. Morbiditi pneumonia in Medan is 20 416 cases (provincial health office. Sumatra, 2015).Medan City Health Bureau data in 2015 showed the number of cases of pneumonia in children under five in July 150 infants, toddlers and September 154 August 151 toddlers. While data Dr.Pirngadi Hospital Medan during August and September 2015 that 41 people died of 113 children suffering from pneumonia (CFR 36.28%)(Yusrianto, 2015).

Based on the initial survey in Indonesia Workers Imelda Hospital Medan in 2016 as many as 239 children under five are pneumonia, 135 of them are babies and as many as seven infants died (CFR 5.2%). Figures CFR at Imelda Hospital is higher than the CFR in North Sumatra (0.05%) and the national CFR (0.17%). This study aimed to analyze the influence of infant characteristics on the incidence of pneumonia in infants in Indonesia Workers Imelda Hospital Medan in 2017.

II. METHODS

The research is a retrospectivestudy case control design and conducted in Indonesian Workers Imelda Hospital Medan, in March until December 2017. Population in this study were all infant pneumonia and not pneumonia that came to the Indonesian Workers Imelda Hospital in August -November 2017. The study sample consisted of:

a. Samples taken atcases consecutive sampling with inclusion criteria of which infant pneumonia patients who come for treatment to the Indonesian Workers Imelda Hospital, stated in a letter by medical personnel and supported by results of laboratory tests and X-rays are recorded in the record in 2017. While the medical criteria of Exclusion is a baby who has a heart defect, HIV or other diseases that aggravate the disease pneumonia.
b. The control samples were infants not pneumonia which is the patient's treatment to the Indonesian Workers Imelda Hospital with the same as the case in terms of age and gender.

The sample size was calculated using the formula (Sastroasmoro,2013), namely:

$$n1 = n2 = \frac{[Z\alpha/2 + Z\beta\sqrt{pq}}{p\frac{1}{}2]^2}$$

$$\text{where, } p = \frac{OR}{1 + OR}$$

Description:
n1 = n2 = sample size
α = significance level of 5%
Zα = deviation value normal Zα 5% = 1,960
Zβ = deviation value normal Zβ 20% = 0.842
OR =Odds Ratio (OR = 2.619) (the Goddess, 2013)
p = proportion of risk factors
q = 1-p

The sample, with 74 infants, with a sample group of cases as much as 37 babies with pneumonia and a group of 37 control infants not pneumonia. Analysis Datausing statisticaltest, Chi-Squarewith α = 0.05. Multivariate data analysis was performed using multiple logistic regressionmethod (Dahlan, 2008).

III. Methods

1. Bivariate Data Analysis

Table 1. Characteristics Factor Relationships Infants with Genesis Pneumonia in Infants Hospital Workers Imelda Indonesia Year 2017

No.	Factor Infant	Pneumonia		No Pneumonia		Total		OR (95% CI)	*p value*
		n	%	n	%	n	%		
	Nutrition Status								
1.	No Good	14	18,9	2	2,7	21	21,6	10,652	
2.	Good	23	31,1	35	47,3	53	78,4	(2,211-51,315)	0,001
	Birth Infant								
1.	< 2500 gram	29	39,2	9	12,2	38	51,4	11,278	
2.	≥ 2500 gram	8	10,8	28	37,8	36	48,6	(3,812-33,367)	0,0001
	Immunization Status								
1.	Not Completed	19	25,7	7	35,1	26	35,1	4,524	0,003
2.	Complete	18	24,3	30	40,5	48	64,9	(1,591-12,865)	
	Breast Milk Status								
1.	No Exclusive	28	37,8	10	13,5	38	51,4	8,400 (2,956-23,867)	0,0001
2.	Exclusive	9	12,2	27	36,5	36	48,6		

Based on table 1 shows the results of statistical tests for nutritional status obtained p value of 0.001 <0.05 means that there is a relationship with the nutritional status of pneumonia in infants. Statistical test results obtained for birth weight p value of 0.0001 <0.05 means that there is a correlation with the incidence of birth weight infant pneumonia. Statistical test results for immunization status obtained p value of 0.003 <0.05 means that there is a relationship with the immunization status of pneumonia in infants. Statistical test results to be obtained exclusive breastfeeding p value of 0.0001 <0.05 means that there is a relationship of exclusive breastfeeding with the incidence of pneumonia in infants.

2. Multivariate Data Analysis

Table 2. Multivariate Data Analysis

Variable	B	p *value*	Exp (B)	95% CI
Nutritional Status	2,171	0,040	8,763	1,101-69,716
Birth Weight Infant	2,144	0,005	8,531	1,935-37,621
Immunization Status	1,874	0,024	6,515	1,284-33,066
Constant	-3,126	0,0001	0,0001	

Based on the test results of the multiple logistic regression method, known to three variables that have an influence on the incidence of pneumonia in infants, the nutritional status (p = 0.001), birth weight (p = 0.002), and immunization status (p = 0.043). The independent variables with Exp\(β) is greatest nutritional status (Exp(β)= 8.763), which means that the nutritional status of the most dominant variable affecting the incidence of pneumonia in infants.

IV. DISCUSSION

1. Effect of Nutritional Status of Genesis Pneumonia in Infants Hospital of Indonesian Workers Imelda

Statistical test result explains that there is a significant effect of nutritional status on the incidence of pneumonia in infants. Babies who have no good nutritional status 10.652 times (95% CI: 2.211 to 51.315) likely to suffer pneumonia than babies who have a good nutritional status. Nutritional status is the most dominant variable affecting the incidence of pneumonia in infants. A poor diet can aggravate the disease pneumonia because of the complex interaction between basic disease, metabolic changes due to the disease, and reduced availability of nutrients due to reduced intake and absorption disorders (Trihono, et al, 2013). Malnutrition weakens the immune system as a whole, due to the formation of immune require the amount of protein and energy. Nutritional deficiencies also can weaken the muscles of respiration thus inhibiting clearing airway (WHO, 2006). Improving nutrition is one way to control the incidence of pneumonia in infants (Said, 2010).This is in line with research Hartati (2011) states that affect the nutritional status of pneumonia in infants (p = 0.000) and toddlers suffering from pneumonia 6.52 times probability have malnutrition than children who are not suffering from pneumonia.

2. Influence Birth Weight Infants of Genesis Pneumonia in Infants Hospital of Indonesian Workers Imelda

Statistical test result explains that there are a significant influence on the incidence of birth weight infant pneumonia. Babies who had a low birth weight 11.278 times (95% CI: 3.812 to 33.367) probability suffering from pneumonia compared to infants who had normal birth weight infants.Babies with low birth weight (LBW) reflects the results of development of the fetus and the nutritional adequacy fetus during pregnancy. LBW if the baby is said to be the birth weight of less than 2500 grams. The impact of low birth weight babies making organ and its function is less than perfect, especially the respiratory organs. LBW not only affect the condition of a baby being born but also the health and even survival in the future (Jamaan,2017).In addition, babies with low birth weight have a low immune system. This is due to the formation of an anti-immunity is less, so are more susceptible to infectious diseases, especially pneumonia (Maryunani, 2010).Arminingrum (2016) showed that children who have a history of low birth weight are at risk of 3.028 times to suffer from pneumonia than children who do not have a history of low birth weight. The statistical results are known to exist relationship with the incidence of LBW history of pneumonia in infants Bergas District Puskesmas Semarang (p = 0.028). Fulfillment of adequate nutrition during pregnancy to prevent maternal LBW and reduce the risk of pneumonia in infants.

3. Effect of Immunization Status of Genesis Pneumonia in Infants Hospital of Indonesian Workers Imelda

Statistical test result explains that there is a significant effect of immunization status on the incidence of pneumonia in infants. , Infants with incomplete immunization status 4.524 (95% CI: 1.591 to 12.865)probability suffering from pneumonia compared to infants with complete immunization.Immunization helps prevent babies from infections that cause pneumonia, such as Haemophilus influenzae type b (Hib). Immunization can prevent infection that can cause pneumonia as a complication of diseases (e.g., measles and pertussis). DPT is one of the effective immunization to reduce the factors that increase mortality due to pneumonia (WHO 2006). The results of this research study is in line with Annah (2012) that the risk of children aged 6-59 months who have incomplete immunization status that is equal to 2.39 times greater than children who received complete immunization status

4. The effect of exclusive breastfeeding on the incidence of Pneumonia in Infants at Home Indonesian Workers Imelda sick

Bivariate analysis results explained that there was a significant relationship with the incidence of pneumonia Exclusive breastfeeding in infants with a p-value of 0.003. While the multivariate analysis showed that there was no significant effect of exclusive breastfeeding on the incidence of pneumonia in infants with p value of 0.181. Babies who are not breastfed Exclusive 8.400 (95% CI: 2.956 to 23.867) probability suffering from pneumonia than babies who breastfed exclusively. Breast milk contains nutrients, antioxidants, hormones and antibodies that children need to grow, and in particular that a child's immune system to function properly. However, only one third of infants in developing countries are exclusively breastfed during the first six months of life. Babies under six months who are not breastfed five times the risk of dying from pneumonia than babies who were exclusively breastfed during the first six months of life. Furthermore, infants aged 6-11 months who are not breastfed are also at high risk of dying from pneumonia than those who are breastfed (WHO, 2006).

V. CONCLUSION

There is an effect of nutritional status, birth weight and immunization status with the incidence of pneumonia in Indonesia Imelda Hospital Medan in 2017. The most dominant variable affecting the incidence of infant pneumonia is nutritional status.

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MiraIndrayani "Influence of Children Characteristics to Pneumonia Evening (Case Study of Imelda Human Employees Indonesia Medan 2017)." IOSR Journal Of Humanities And Social Science (IOSR-JHSS). vol. 23 no. 1, 2018, pp. 42-45.