The Correlation Between Birth Weight and Incidence of Neonatal Jaundice at Rskia Sadewa Babarsari Sleman in 2014

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ABSTRACT

Background: Birth weight is one of the main factors contributing to perinatal mortality, especially in low birth weight caused by accompanying diseases such as hyperbilirubinemia in 25-50% of term infants and 80% low birth weight infants. Newborn babies in RSKIA SadewaBabarsari were 2,868; 194 of them were infants with neonatal jaundice.

Aim: To identify the correlation between birth weight and neonatal jaundice incidence at RSKIA Sadewa Babarsari Sleman in 2014.

Method: This research is analytical observational research with a case-control approach. Samples were taken using purposive sampling—statistical test analysis employed chi-square test.

Results: From 194 birth weight, there were 62 (32.0%) who experienced Low Birth Weight (LBW), with 52 pathological jaundice categories (83.9%), and 132 (68.0%) who were born with average birth weight (NBW), and with neonatal jaundice in 87 physiological categories (65.9%). Test results using chi-square statistics showed the value of OR = 2.460.

Conclusion: There is a correlation between birth weight and incidence of neonatal jaundice at RSKIA Sadewa Babarsari Sleman in 2014, with the value of OR of 2.460, which means LBW babies have 2.4 times chance to experience pathological neonatal jaundice compared to babies with NBW.

Keywords: Low Birth Weight, Normal Birth Weight and Incidence of Jaundice

INTRODUCTION

Infant and under-five mortality rates over five years (2008 - 2012) that all 2012 infant mortality and infant health outcomes (IDHS) were lower than the results of the 2007 IDHS, namely 35 deaths per 1,000 live births and under-five deaths were 45 death per 1,000 live births. The infant mortality rate from the 2012 IDHS is 32 deaths per 1,000 live births. The under-five mortality rate is 40 deaths per 1,000 live births, and the majority of infant deaths occur in neonates; the cause of sepsis is infant mortality is 20.5%, congenital abnormalities 18.1%, pneumonia 15, 4%, prematurity and low birth weight 12.8%, and respiratory disorders 12.8%. According to the Ministry of Health (Minister of Health), in 2010, the direct causes of infant mortality were Low Birth Weight Babies (LBW) and lack of oxygen (asphyxia). In 2012 the highest infant mortality rate in Indonesia was occupied by Gorontalo and West Papua, with 67 deaths and 74 people from 1,283 [1]. The infant mortality rate (IMR) in the Sleman district is the lowest mortality rate of all counties. From 2007 to 2011 showed a declining trend, in 2010 the infant mortality rate in Sleman by 31% of the number of live births in 2011 to 21% of the number of live births, whereas in 2012, an increase that is LBW by 48%, jaundice by 20% and others 32% [2].

Some neonatal death investigation in several hospitals in Indonesia showed that the factors that cause neonatal mortality are the maternal factors that enhance neonatal or perinatal mortality (High-Risk Mother) and factors that enhance infant perinatal or neonatal death (High-Risk Infant). Which is included in the high risk include low birth weight infant, premature, asphyxia and jaundice Neonatorum [3]. Neonatal jaundice is a liver disease that resembles a state contained in the newborn due to hyperbilirubinemia. Jaundice is one of urgency that often occurs in newborns, as much as 25-50% in term infants and 80% in low birth weight babies [4]. Based on the

preliminary study on the 1st through August 5th, 2015 at RSKIA Sadewa Babarsari to see the medical records the period of January to June 2015, that of the various types of birth weight, there are 100 cases of infants with neonatal jaundice, 1703 live births during 2015. Based on the above, the author is interested in researching the relationship between birth weight and neonatal jaundice in Sleman Babarsari Sadewa RSKIA 2014.

METHOD

This type of research is analytic observational with a case-control study design. The research was conducted from January 11 to January 16, 2016. The population in this study were all infants who were treated in RSKIA Sadewa Babarsari Sleman from 1 January to 31 December 2014 amounted to 2868 with a complete medical record. The sample used was 194 people who met the inclusion criteria. The sampling technique in this study using purposive sampling. The independent variable in this study is that the baby's weight is born. The dependent variable was the incidence of neonatal jaundice, which was statistically analyzed using a chi-square person.

RESULTS

1. characteristics of Respondents

Based on Table 1. Known that the majority of 194 respondents aged between 20-35 years of the 179 respondents (93.3%), and most of the gestational age of the infant at term (37-42 weeks) of 142 respondents (73.2 %).

2. Univariate analysis

Birth Weight Babies: Table 2 shows that the majority of the weight of babies born in the BBLN category (Normal Birth Weight Infants) of 132 infants (68.0%).

Table 1.The frequency distribution characteristics of respondents in Sleman Babarsari Sadewa RSKIA 2014

Characteristics	Amount	Percentage (%)
Maternal Age		
20-35 years	179	92.3
> 35 years	15	7.7
Age Pregnancy		
Less Months Babies (<37 weeks)	52	26.8
Pretty Baby Month (37-42 weeks)	142	73.2
Total	194	100

Table 2. Birth weight frequency distribution in Sleman Babarsari Sadewa RSKIA 2014

No	Birth Weight Babies	Frequency	(%)
1.	LBW	62	32.0
2.	BBLN	132	68.0
	Total	194	100

Jaundice Neonatorum: Table 3 shows that 97 infants (50.0%) had jaundice physiologists and 97 infants (50.0%) had pathologic jaundice. The research subject is 50.0% for infants with physiological jaundice and 50.0% for infants with pathological jaundice. This matter is used to compare potentially by the same risk factors and the case group but not experiencing neonatal jaundice, which has the same criteria as the case group—Cross-tabulation of respondents' characteristics to neonatal incidence jaundice in RSKIA Sadewa Babarsari 2014.

Table 3: Distribution of the frequency of neonatal jaundice in Sleman Babarsari Sadewa RSKIA 2014

No.	Jaundice Neonatorum	Frequency	(%)
1.	Physiological	97	50.0
2.	pathological	97	50.0
	Total	194	100

Based on Table 4 can be seen that out of 179 women who had a healthy reproductive age (20-35 years) the majority of physiological neonatal jaundice baby suffered as many as 91 infants (50.8), and of the 142 respondents who gave birth at full term gestational age infants (37-42 weeks), the majority of physiological neonatal jaundice baby suffered as many as 97 infants (68.3%).

Table 4: Frequency of neonatal jaundice

Characteristics	Jaundice Neonatorum					
	Physiological		pathological		Total	
	f	%	f	%	F	%
Age Mothers						
20-35 years	91	50.8	88	49.2	179	100
> 35 years	6	40.0	9	60.0	15	100
Age Pregnancy						
BKB (<37mgg)	0	0	52	100. 0	52	100
BCB (37-42mgg)	97	68.3	45	31.7	142	100
Total	97	50.0	97	50.0	194	100

3. Bivariate analysis

The relationship between birth weight and the incidence of neonatal jaundice in Sleman Babarsari Sadewa RSKIA 2014.

Based on table 5 can be seen that of 62 infants with birth weight category Infant Low Birth Weight (LBW) more experience in the category of pathological neonatal jaundice as many as 52 infants (83.9%), and of the 132 infants who experience severe baby born in category Normal birth weight infants (BBLN) more experience in the category of physiological neonatal jaundice as many as 87 infants (65.9%).

The results of the Chi-Square test obtained by value p = 0,000, which is where the value is <0.05, the condition is if the p-value <0.05 means the hypothesis is accepted, which means there is a relationship between birth weight with the incidence of neonatal jaundice in RSKIA Sadewa Babarsari, Sleman 2014. The analysis results mean that the value of OR = 2,460 infants who had birth weights in the category of LBW have a chance of 2.4 times compared to the pathological neonatal jaundice babies. The latter have birth weights in the BBLN category.

Table 5: The relationship between birth weight with the incidence of neonatal jaundice in Sleman Babarsari Sadewa RSKIA 2014.

Birth Weight Babies	Jaundice Neonatorum						OR	P (95% CI)
	Physiological		pathological		Total			
	f	%	f	%	f	%		
LBW	10	16.1	52	83.9	62	100	2.460	.000
BBLN	87	65.9	45	34.1	132	100		
Total	97	50.0	97	50.0	194	100		

DISCUSSION

Characteristics of Respondents: Age, the results showed that the majority of women giving birth in RSKIA Sadewa Babarsari, Sleman aged 20-35 years in 2014 as many as 179 women giving birth (92.3%). According to Hammarberg, an excellent reproductive age in women at the age of 20-35 years, where age is the best period for pregnancy, childbirth, and breastfeeding [5]. This is in line with the results of research that is of 179 respondents aged 20-35 years who have a majority of physiological jaundice baby suffered as many as 91 infants (50.8%), while 15 respondents who had aged> 35 years the majority of pathologic jaundice baby suffered as many as nine respondents (60.0%). There are still pregnant women aged> 35 years as many as 15 women giving birth (7.7%). Old age needs considerable energy because organ function is weakened and is required to work up to require then additional energy is sufficient to support ongoing pregnancy [6]. Pregnancy age, the results showed that women giving birth in RSKIA Sadewa Babarsari, Sleman 2014 gave birth gestation Pretty Baby Moon (BCB) (37-42 weeks) as many as 142 women giving birth (73.2%). Devi's study states that there is a significant relationship between the baby's maturity with the incidence of neonatal jaundice [7]. The study is in line with the results of 142 infants were included in the term infant majority in the category of physiological jaundice were 97 infants (68.3%) and from 52 infants were included in all preterm infants jaundiced in the category of pathological as many as 52 babies (100.0%). In the research, there are still mothers who gave birth at gestational age Infants Less Month (BKB) that as many as 52 infants (26.8%). Factors affecting predispose preterm birth is a history of premature birth before,haemorrhageantepartum,malnutritionabnormalities of the uterus, hydration, heart disease / other chronic diseases, hypertension, maternal age <20 years or> 35 years, spacing pregnancies too close, infection, congenital

malformations, multiple pregnancies, premature rupture of membranes, low economic, social .circumstances, strenuous physical activity, and smoking [8].

Infant Birth Weight: The survey results revealed that most of the 194 maternal births to babies with average birth weight (BBLN) of 132 infants (68.0%). Birth weight is the weight of a baby who weighed within 1 hour after birth. In the research, some babies have birth weights in low birth weight (LBW) as many as 62 infants (32.0). Low birth weight is an essential issue in its management because it tends to increase infection incidence, the body regulates breathing difficulty, and quickly happens hypothermia. Besides, LBW infants are susceptible to certain complications such as neonatal jaundice and hypoglycemia, leading to death. This is in line with research conducted by Maisels, which states that there is a significant relationship between low birth weight infants with jaundice events [9].

Jaundice Neonatorum: The survey results revealed that 97 infants (50.0%) had physiological jaundice and 97 infants (50.0%) had pathologic jaundice. The researchers deliberately determine the study sample is 50.0% for infants with physiological jaundice and 50.0% for infants with pathological jaundice. This mattered as a comparison that potentially by the same risk factors and the case group but not experiencing neonatal jaundice, which has the same criteria as the case group. Zuppa's results show that birth weight influenced the incidence of neonatal jaundice [10]. Factors affecting jaundice that there are three, maternal factors (race or a particular ethnic group, complications of pregnancy, use of oxytocin in olutionshiotonik, ASI), perinatal factors (birth trauma and infection), and neonatal factors (prematurity, genetic factors, medications, low intake of milk, hypoglycemia, and hypoalbuminemia).

Relationship Between Birth Weight Babies With Jaundice Genesis Neonatorum: Based on the analysis of hypotheses for each variable, and then test the relationship between birth weight with the incidence of neonatal jaundice using chi-square test p-value of 0.000 was obtained which p-value <0.05 then the hypothesis is accepted with OR of 2.460, which means baby having a birth weight category 2.4 times LBW have the opportunity to experience pathological neonatal jaundice than babies who have birth weights in BBLN category. Birth weight is closely related to the incidence of neonatal jaundice. Birth weight less than usual can lead to various disorders that arise from him, one of them a baby would be susceptible to infection, which can cause neonatal jaundice.

The results showed that of 62 infants with low birth weight (LBW), there were 10infants (16.1%) who experienced physiological neonatal jaundice, and of 132 babies with average birth weight, there are still 45 infants (34.1%) who experience pathological neonatal jaundice. This is due to neonatal jaundice is not only influenced by birth weight alone, but other factors could affect jaundice which there are three, maternal factors (race or a particular ethnic group, complications of pregnancy, the use of ketosis in olutionshiotonik, ASI), a factor perinatal (trauma birth and infection), and neonatal factors (prematurity, genetic factors, medications, low intake of milk, hypoglycemia, and hypoalbuminemia [11].

CONCLUSION

Based on data analysis of research that has been conducted, the conclusions in this study are the characteristics of respondents in Sadewa Babarsari Hospital, Sleman in 2014 aged 20-35 years, the majority of 179 respondents (92.3%), and most pregnancies are Pretty Baby Moon (BCB) as many as 142 respondents (73.2%). The weight of a baby born in Sadewa Babarsari Hospital, Sleman in 2014 the majority of Normal Birth Weight Babies (BBLN) Normal Infant Birth Weight of 132 babies (68.0%) and the incidence of neonatal jaundice in Sadewa Babarsari Hospital, Sleman 2014 totaled 194 infants with jaundice percentage of 97 pathological neonatal infants (50.0%). There is a relationship between birth weight and the incidence of neonatal jaundice in Sadewa Babarsari Hospital, Yogyakarta 2014. The results of the analysis of OR = 2.460. From the results of the analysis obtained, the value of OR = 2.460 means that babies who have birth weight in the LBW category have 2.4 times the chance of experiencing pathological neonatal jaundice than babies who have a baby's weight born in the BBLN category

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