

THE CORRELATION ABORTION HISTORY WITH LBWI

Ika Septiana Cahyaningtyas¹, Endah Marianingsih Theresia², Wafi Nur Muslihatun³

^{1,2,3}Department of Midwifery, Health Polytechnic Ministry of Health Yogyakarta, Indonesia

Article Info

Article history:

Received Agt 29th, 2018

Revised Oct 6th, 2018

Accepted Oct 24th, 2018

Keyword:

LBWI

**History of Abortion
Infant Mortality Rate**

ABSTRACT

Low Birth Weight Infant (LBWI) is one of the causes of infant mortality. LBWI is a condition where babies born with a body weight less than 2500 grams. The prevalence of LBWI in Special Region of Yogyakarta or DIY in the last three years has fluctuated. Kulon Progo Regency is one of the districts in DIY with the highest prevalence of LBWI and there was also an increase from previous year. One of the risk factors LBWI is abortion history. This study was to know the correlation between abortion histories with LBWI in Wates General Hospital in 2017. This study was an analytic observational study with a cross-sectional design. The sampling technique was purposive sampling. Samples in this study were 177 subjects who had inclusion and exclusion criteria. The data analysis used chi-square. The result of this study showed that LBWI in mothers with a history of abortion (38.6%) was greater than LBWI in mothers with no history of abortion (21.8%). Based on chi-square test known p-value = 0,045 with prevalence ratio 1.809 (CI 95% 1,085-4,701). There was a correlation between abortion history with LBWI in Wates General Hospital in 2017.

Copyright © Jurnal Kesehatan Ibu dan Anak.
All rights reserved.

Corresponding Author:

Ika Septiana Cahyaningtyas,
Department of Midwifery, Health Polytechnic Ministry of Health Yogyakarta,
Mangkuyudan Street, MJIII/ 304, Mantrijeron, Yogyakarta, Indonesia 55143. Telp : [\(0274\) 374331](tel:0274374331)
Email: ikaseptianac1195@gmail.com

INTRODUCTION

One indicator to assess the high and low level of health is the Infant Mortality Rate (IMR). Complications that cause the most infant mortality are asphyxia, Low Birth Weight Infant (LBWI), and infections.¹ LBWI is a condition where babies born with a body weight less than 2500 grams.² Babies with LBWI have a risk of death 20 times greater than babies with normal weight.³ In 2013, Indonesia ranked third as the country with the highest LBWI prevalence (11.1%).⁴ Results of Basic Health Research or RISKESDAS in 2013 showed the prevalence of LBWI in Indonesia was 10,2%,⁵ this has not met the 2015-2019 Strategic Plan or Renstra target by 8%.⁶

Some factors that influence LBWI are obstetrical factors, poor obstetric history (abortion history), social demography, general health and episodic disease, infection and environment, father's factor, habits and characteristics of birth weight.⁷ One of the factors that influence LBWI is the history of abortion. Mothers who have a history of abortion are 1.79 times more at risk of giving low birth weight infant than mothers who do not have a history of abortion.⁸

Based on the results of the study by Linda and Surtiningsih (2016), it showed that there was a correlation between abortion history and the prevalence of low birth weight infant (LBWI) with p-value 0.025. However, a study by Primasari (2013) revealed that

there was no correlation between abortion history and the prevalence of low birth weight infant (LBWI) with OR=1.53 and p-value = 1.00.¹⁰

The prevalence of LBWI in Special Region of Yogyakarta or DIY in the last three years has fluctuated. Kulon Progo Regency is one of the districts in DIY with the highest prevalence of LBWI and there was also an increase in prevalence from 2014-2016. The proportion of LBWI prevalence has also increased in one of the referral hospitals in the Kulon Progo area in the last three years. A preliminary study conducted at Wates General Hospital, through data at the birth register, it was known that the proportion of LBWI prevalence in 2015 was 10.42%, in 2016 was 12.34% and in 2017 was 13.31%, it increased by 0.97% in 2017.

According to the data on the birth register, in 2015, as many as 17.7% of mothers who gave birth with LBWI were mothers who had a history of abortion, 14.28% in 2016, and increased to 17.73% in 2017. Based on this background of the study, researchers are interested in conducting a study on the correlation of abortion history with the prevalence of infants with low birth weight infant (LBWI) in Wates General Hospital in 2017.

The purpose of this study was to know the correlation between abortion histories with the prevalence of LBWI in Wates General Hospital in 2017. The result of this study was expected to enrich information about risk factors of abortion history that affected the prevalence of LBWI. It was also expected to provide additional information for midwives to improve midwifery care services for pregnant women with a history of abortion and additional material or sources of information for future researchers.

METHOD

This study was an analytic observational study with a cross-sectional design. The sampling technique was purposive sampling. The target population in this study was mothers giving birth at Wates General Hospital. Reachable population for the study was 2584 mothers giving birth at Wates General Hospital in 2017. Samples in this study were 177 subjects who had inclusion and exclusion criteria. Inclusion criteria were mothers who gave birth to babies at Wates Hospital in 2017 and complete medical record data. Exclusion criteria were mothers with a gestational age <37 weeks, mothers who had gemelli babies, hypertension, pre-eclampsia, diabetes mellitus, maternal mid-upper arm circumference (MUAC)<23.5 cm and mothers gave birth to babies with congenital abnormalities. The data was taken from secondary data. The study was conducted on the 8th-14th of June, 2018. The data processing techniques were done by coding, transferring, and tabulating. The data analysis used chi-square.

RESULT

The study was conducted on 8th-14th of June, 2018 in the delivery room and medical record which is where all patient records are located. Based on research data from 2584 mothers giving birth at Wates Hospital in 2017 the sample selection was selected according to the inclusion and exclusion criteria with a research sample of 177 respondents. In order to answer the research and achieve the stated goals, it is known the relationship between abortion history and the incidence of low birth weight, characteristics of mothers giving birth at Wates Regional General Hospital in 2017, and the incidence of LBW in labored mothers who have either a history of abortion or not. Researchers have collected data about abortion history with the incidence of LBW in Wates Hospital. The data that has been collected is then analyzed as follows:

Characteristics of the subject

Table 1. Frequency Distribution of Subject Characteristics in Wates General Hospital in 2017

Characteristics	Total (n)	Percentage (%)
Age		
Risky (<20 and >35 years old)	49	27.7
Not Risky (20 – 35 years old)	128	72.3
Total	177	100
Parity		
Risky (1 and ≥4)	64	36.2
Not Risky (2 and 3)	113	63.8
Total	177	100
Abortion History		
Yes	44	24.9
No	133	75.1
Total	177	100
LBWI Prevalence		
Yes	46	26
No	131	74
Total	177	100

Table 1 showed that some subjects had no maternal age risk (72.3%), most of the parity was not at risk (63.8%), most of the subjects had no history of abortion (75.1%) and most of them did not have LBWI (74%).

Table 2. Cross-age Table with The Prevalence of LBWI in Wates General Hospital in 2017

Maternal Age	LBWI Prevalence				Total	
	Yes		No		n	%
	n	%	n	%		
Risky	15	30.6	34	69.4	49	100
Not Risky	31	24.2	97	75.8	128	100
Total	46	26	131	74	177	100

Table 2 showed that LBWI in mothers with a risky maternal age (30.6%) was greater than LBWI in women with no risky maternal age (24.2%).

Table 3. Parity Cross-table with The Prevalence of LBWI in Wates General Hospital in 2017

Parity	LBWI Prevalence				Total	
	Yes		No		n	%
	n	%	n	%		
Risky	22	34.4	42	65.6	64	100
Not Risky	24	21.2	89	78.8	113	100
Total	46	26	131	74	177	100

Table 3 showed that LBWI in mothers with risky parity (34.4%) was greater than LBWI in mothers with no risk of parity (21.2%).

Correlation of Abortion History with The Prevalence of Small for Gestational Age (LBWI) at Wates General Hospital in 2017

Table 4. Cross Table of Abortion History with LBWI Prevalence in Wates Kulon Progo General Hospital in 2017

Abortion History	LBWI Prevalence				Total		p-value	RP	Confidence Interval (CI)	
	Yes		No		N	%			Lower	Upper
	n	%	N	%						
Yes	17	38.6	27	61.4	44	100	0.045	1.809	1.085	4.701

Abortion History	LBWI Prevalence				Total		p-value	RP	Confidence Interval (CI)	
	Yes		No		N	%			Lower	Upper
	n	%	N	%						
No	29	21.8	104	78.2	133	100				
Total	46	26	131	74	177	100				

Table 4 showed that the analysis of p-value= 0.045. This meant statistically there was a correlation between abortion history with the prevalence of LBWI in Wates General Hospital in 2017 (CI 95% 1.085-4.701; RP Equal to 1.809).

DISCUSSION

LBWI was babies born with a body weight less than 2500 grams.² One of the factors that influenced LBWI was poor obstetric history.⁷ Poor obstetric history consisted of a history of premature labor, LBWI history, stillbirth, history of abortion, history of labor with vacuum ecstasy and forceps, and preeclampsia/eclampsia.¹¹ Mothers who had a history of abortion were 1.79 times more at risk of giving birth with small for gestational age than mother who had no history of abortion.⁸

The result of the study showed that the prevalence of LBWI in Wates General Hospital in 2017 was 26%. In correspondence with the results of this study, it could be seen that the prevalence of LBWI was higher than the prevalence rate of LBWI in Wates General Hospital in 2017 (13.31%) and was higher than the prevalence rate of LBWI in Kulon Progo Regency, which was 7.47%.

Based on the result of the study, LBWI in mothers with risky maternal age (30.6%) was greater than LBWI in mothers with no risky maternal age (24.2%). At a risky maternal age of <20 years old, the reproductive organs were not functioning perfectly so there was competition for nutrition for mothers who were still in the stage of development with the fetus. At the age of > 35 years old, the maturity of reproductive organs had decreased resulting in the emergence of health problems during childbirth and the risk of LBWI.¹² Based on the result of study by Mutiara et al (2016), it showed that there was a significant correlation between maternal age and prevalence of LBWI p-value 0.005 and mothers with risky age were 1.9 times more likely to deliver LBWI babies than mothers with healthy reproductive age (OR = 1.996 95% CI = 1.230-3.240).¹³ A study by Tombokan and Veronica (2015), it showed that there was a significant correlation between maternal age and LBWI p-value = 0,001.¹⁴

LBWI in mothers with risky parity, i.e. 1st parity or ≥ 4 (34.4%) was greater than LBWI in women with non-risk parity, 2nd and 3rd (21.2%). The first pregnancy and childbirth increased the health risk because the mother had never had a previous pregnancy, but a new birth could be attempted by the fetus. Conversely, if the mother too often delivered, the uterus would become weaker because of uterine scarring due to repeated pregnancy causing an inadequate supply of blood to the placenta in which the placenta did not get enough blood flow to deliver nutrients to the fetus so that it could cause LBWI.¹² A study by Momeni's et al (2017) showed a significant correlation between parity and the prevalence of LBWI with p-value = <0.00 and OR = 0.85.¹⁵

The result of this study showed that LBWI in mothers with a history of abortion (38.6%) was greater than LBWI in mothers with no history of abortion (21.8%). No LBWI in mothers with any abortion history (78.2%) was greater than no LBWI in mothers with a history of abortion (61.4%). The result showed that there was a correlation between abortion history with LBWI in Wates General Hospital in 2017 (p-value 0.045). Mothers who had a history of abortion had the opportunity to give birth to LBWI 1.809 times greater than mothers who did not have a history of abortion. This study was in line with Momeni's study (2017) that revealed p-value <0.001 and OR = 1.67.¹⁵

Mothers who had a history of abortion had a risk of giving birth to LBWI. The risk experienced by mothers with a history of abortion was intrauterine trauma due to

excessive endometrial curettage or post-abortion endometritis. This could cause adhesion to the uterus. This attachment would cause a decrease in uterine cavity volume and could affect abnormal placental growth. The placenta was an organ that functioned to deliver nutrients and oxygen to the fetus. If the placenta experienced abnormal growth, it could cause the fetus to get insufficient nutrients and oxygen for the process of fetal growth so that baby with small gestation age could occur. It was suspected that women who had had curettage had endometrial wounds which predisposed to placental implantation abnormalities, thus triggering LBWI. Surgical trauma to the cervix during conization, electrosurgical loop excision procedures, and excessive dilatation of the cervix during pregnancy termination could cause damage to the cervix or torn uterus. This caused incompetent cervix which later made it difficult to maintain the weight of the baby in subsequent pregnancies so that it could cause LBWI.¹⁶

This study was in line with the study of Linda and Surtiningsih (2016) with $p= 0.025$ and $OR= 3.792$.⁹ Abortion in pregnant women could occur due to several things, namely genetic disorders, the environment of sticking to fertilization result was not good due to radiation exposure/drugs, maternal chronic diseases, and reproductive organ disorders. A study by Lestariningsih and Duarsa (2014) showed that mothers who had a history of abortion 29% gave birth to LBWI, and 12.9% did not give birth to LBWI ($p = 0.012$) and RP equal to 1.79 times. Mothers who had a history of abortion were 1.79 times more at risk of giving birth with small for gestational age than mother who had no history of abortion.⁸

CONCLUSION

From the results of the study, it could be concluded as follows: most subjects had no risky maternal age, had no risky parity, had no history of abortion, and did not experience LBWI. The prevalence of LBWI in mothers with a history of abortion was greater than LBWI in mothers with no history of abortion. There was a correlation between abortion histories with low birth weight infant. The ratio of abortion history with LBWI was 1.809.

SUGGESTIONS

According to the result of this study, midwives were suggested to increase promotive and preventive efforts with counseling, information, and education regarding LBWI risk factors in mothers with a history of abortion, so as to reduce the prevalence. For the further researcher, it was recommended to conduct research on the prevalence of LBWI by taking factors other than a history of abortion. Researchers could also use the result of this study as additional material or sources of information.

REFERENCES

1. Kemenkes RI. Profil Kesehatan Indonesia 2016. Jakarta: Kementerian Kesehatan R; 2017.
2. Saifuddin, Abdul Bari. Ilmu Kebidanan Sarwono Prawirohardjo. Jakarta: PT Bina Pustaka Sarwono Prawirohardjo; 2009.
3. Kosim MS, Yunanto A, Dewi R, Sarosa GI, Usman A. Buku Ajar Neonatologi. Edisi ke-1. Jakarta: IDAI; 2012.
4. WHO. Feto Maternal Nutrition and Low Birth Weight. 2013. Available from: <http://www.who.int/nutrition/topics/feto-maternal/en/>

5. Balitbang Kemenkes RI. Riset Kesehatan Dasar; RISKESDAS. Jakarta: Balitbang Kemenkes RI; 2013.
6. Renstra Kementerian Kesehatan RI. Rencana Strategis Kementerian Kesehatan tahun 2015-2019. Jakarta: Kemenkes RI; 2015.
7. Ngoma, et al. Young Adolescent Girls are at High Risk for Adverse Pregnancy Outcomes in Sub-Sahara Africa. British Medical Journal; 2016.
8. Sri Lestariningsih dan Artha BSD. Hubungan Preeklampsia dalam Kehamilan dengan Kejadian BBLR di RSUD Ahmad Yani Kota Metro Tahun 2011. Jurnal Kesehatan Masyarakat; 2011;8 No. 1. 22.
9. Linda Yanti dan Surtiningsih. Faktor Karakteristik Ibu Terhadap Berat Bayi Lahir Rendah. Rakernas Aipkema; 2016.
10. Primasari, SI. Analisis Hubungan Anemia pada Kehamilan dengan Kejadian Berat Badan Lahir Rendah di RSUD Jendral Ahmad Yani. Jurnal Kesehatan "Akbid Wira Buana" Vol.I No.I Edisi April 2017 ISSN: 2441-5387.
11. Manuaba, I. A. C., Manuaba, I. B. G. F., Manuaba, I. B. G. Ilmu Kebidanan, Penyakit Kandungan, dan KB Untuk Pendidikan Bidan. Jakarta: EGC; 2010.
12. Damelash, Habtamu., Achenif Motbainor., Dabere Nigatu., Ketema Gashaw., Addisu Melese. Risk factors for low birth weight in Bale zone hospitals, South-East Ethiopia. J Bio Med Central; 2015.
13. Mutiara Fatinah, Endah Marianingsih Theresia, Heni Puji Wahyuningsih. Hubungan Indeks Massa Tubuh Ibu dengan Kejadian Bayi Berat Lahir Rendah di RSUD Wonosari Gunungkidul. Jurnal Kesehatan Ibu dan Anak, Volume 11, No.1 Juli 2017, hal 8-15.
14. Tombokan G.J Sandra dan Veronica Magdalena Pintoan. Hubungan Umur dan Paritas Ibu dengan Kejadian Bayi Berat Lahir Rendah. Jurnal Ilmiah Bidan Volume 3 Nomor 1.
15. Momeni, et al. Prevalence and Risk Factors of Low Birth Weight in the Southeast of Iran. International Journal of Preventive Medicine 2017;8:12.
16. Saifuddin, Abdul Bari. Ilmu Kebidanan Sarwono Prawirohardjo. Jakarta: PT Bina Pustaka Sarwono Prawirohardjo; 2010.