Relationship Of LILA And IMT With The Incidence Of Anemia In Pregnant Women At Sungai Bilu Public Health Center Banjarmasin

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ABSTRACT

Objective: To analyze the relationship between LILA and BMI with the incidence of anemia in pregnant women at Bilu Banjarmasin River Health Center.

Method: This research uses quantitative analysis method with Chi-Square statistical test and Cross-sectional design. The population in this study were all pregnant women in Bilu Banjarmasin River Health Center as many as 231 people with a sample size of 40 people. Sampling technique using Purposive sampling.

Results: The results showed that most cases of anemia occurred in pregnant women with abnormal LILA as many as 14 people (73.68%) and in pregnant women with normal BMI of 11 people (34.4%). Based on the result of Chi-Square statistic test, there is a relationship between LILA and the incidence of anemia in pregnant women (p = 0,002) and Fisher's Exact Tostada test relation between BMI with the incidence of anemia in the pregnant mother (p = 0,014).

Conclusion: There is a relationship between LILA and IMT with the incidence of anemia in pregnant women at Bilu Banjarmasin River Health Center.

Keywords: Anemia, LILA, IMT, Pregnant Woman

I. INTRODUCTION

Anemia in pregnancy is a condition of a mother with Hb content below 11 gr% in trimester I and III or less than 10,5 gr% in trimester II. Limit values are different from the condition of non-pregnant women due to the hemodialysis especially in the second trimester [1].

There are several indicators used to measure maternal health status in a region, one of which is maternal mortality (MMR). AKI is one of the indicators that are sensitive to the quality and accessibility of health service facilities. Based on Indonesia Demographic and Health Survey (SDKI) in 2012, AKI (related to pregnancy, childbirth,

and childbirth) amounted to 359 per 100,000 live births. This figure is still quite high when compared with neighboring countries in the ASEAN Region. In 2007, when AKI in Indonesia reached 228, AKI in Singapore was only 6 per 100,000 live births, Brunei 33 per 100,000 live births, Philippines 112 per 100,000 live births, and Malaysia and Vietnam both reached 160 per 100,000 live births [2].

The main causes of maternal mortality were bleeding (28%), eclampsia (13%), unsafe abortion (11%) and sepsis (10%). The indirect cause of maternal death is Chronic Energy Deficiency (KEK) in pregnancy (37%) and anemia in pregnancy (40%). Antepartum and postpartum bleeding is more common in women who are anemic and more often fatal because anemic women cannot tolerate blood loss [3].

Pregnant women with KEK are mothers whose size is <23.5 cm and with one or more of the following criteria: Pregnant mother's weight <42 kg, mother's height <145 cm, maternal weight in third trimester pregnancy <45 kg , body mass index (BMI) before pregnancy <17.00, and mother suffering from anemia (Hb <11 gr%) [4].

The Body Mass Index (IMT) is a simple tool to monitor the nutritional status of adults especially those related to deficiency and overweight, so maintaining a normal weight allows one to reach a longer life expectancy. Weight is seen from Quatelet or body mass Index (IMT) [5].

Pregnant women with below normal weight are often associated with pregnancy abnormalities, as well as low birth weight, whereas excessive weight increases risk or difficulties in labor. Body mass index (BMI) is a mathematical formula related to adult body fat [6].

Measurement of upper arm circumference (LILA) in pregnant women associated with Chronic Energy Deficiency (KEK). SEZ is a problem that often occurs in pregnant women. LILA less than 23.5 cm should be treated to avoid complications in the fetus. Less nutrition in pregnant women needs to get treatment so that no complications occur in mothers such as anemia, bleeding and maternal weight does not increase normally and infected with infectious diseases. Mothers experiencing KEK will be more at risk of giving birth to LBW. Another problem that often occurs during pregnancy is a decrease in hemoglobin levels due to an increase in plasma volume more than the volume of red blood cells. This decrease occurs at 8-32 weeks gestation .

Nationwide coverage of pregnant women gets Fe tablet 2014 by 85.1%, the data has not reached the target program in 2014 by 95%. The provinces in Indonesia in 2014 with the highest Fe coverage were in Bali Province (95%), DKI Jakarta (94.8%), and Central Java (92.5%), while the lowest coverage was in West Papua Province (38.3 %), Papua (49.1%), and Banten (61.4%). The coverage of Fe tablets in South Kalimantan province

was 79.8%, still below the national average coverage [2].

According to the South Kalimantan Provincial Health Profile, Maternal Mortality Rate in South Kalimantan Province in 2007 was still high at 307 / 100,000 live births and infant mortality rate in 2007 was 39/1000 live births (SDKI data, 2007). The number of maternal deaths that occurred from 2007 to 2010 shows that the number of maternal deaths in South Kalimantan Province continues to increase from year to year. Of the number of maternal deaths in South Kalimantan, the percentage of deaths are 35% bleeding, Eklamsia 28%, infection 12% and other causes 25% [7].

Data obtained from the Health Office of Banjarmasin City shows that the number of pregnant women suffering from anemia in January-December 2015 from 26 Puskesmas in Banjarmasin city is the highest in Puskesmas Sungai Bilu which is 46 people (18,85%). Based on preliminary study data at puskesmas Sungai Bilu, it is known that the number of pregnant women with anemia in 2015 increased as much as 46 people (18.85%) compared to 2014 that is as many as 28 people (13.46%). In addition, when conducted data collection at Puskesmas Sungai Bilu, researchers also found some pregnant women who do Antenatal Care (ANC) has a size of the upper arm circumference of less than 23.5 cm. The situation is certainly very unsafe for pregnant women and the fetus.

Based on data from my preliminary study at Bilu Banjarmasin River Health Center in August 2016, we found that 10 pregnant women who had pregnancy examination and Hb examination 4 pregnant women had the chronic energy (KEK) and had abnormal BMI but pregnant women are not anemic. According to the theory of SEZ and IMT that is not normal in pregnant women can cause anemia, so there is a gap between the theory and events in the field.

II. METHODS

This research uses quantitative analysis method with Chi-Square statistical test and Cross-sectional design.

The population in this study is all pregnant women in Bilu Banjarmasin River Community Health Center January to December Year 2016 as many as 231 people.

The sample in this study was taken from a portion of the population that is considered to represent the entire population. Sampling method in this research is Purposive sampling where sampling took for a certain purpose that pregnant women who checked Hb in June until July 2017. The sample in this research is a mother who does pregnancy examination and examination of Hb at Puskesmas Sungai Bilu Banjarmasin in June until July 2017 with a minimum number of 40 people.

III. RESULTS

The results of research conducted on 40 respondents of mothers who conducted pregnancy examination and Hb examination at the Puskesmas Sungai Bilu Banjarmasin in June to July 2017 showed the results of the general overview of respondents as follows:

Table 1 Distribution of Frequency of Respondents by Age in the Public Health Center of Sungai Bilu Banjarmasin

	Age	Frequency	Percentage (%)
1	<20 years	4	10 %
2	20-35 years	36	90 %
3	>35 years	0	0 %
	Total	40	100 %

Source: Primary Data

The table above shows that most pregnant women are pregnant women aged 20-35 years as many as 36 pregnant women (90%).

Table 2 Distribution of Frequency of Respondents by Occupation

No	Jobs	Frequency	Percentage (%)
1	Civil servants	2	5 %
2	Private Company	5	12,5 %
3	Entrepreneurs	10	25%
4	Ousewives	23	57,5%
	Total	40	100 %

Source: Primary Data

The table above shows most pregnant women are pregnant women who work as housewives as many as 23 pregnant women (57.5%).

Table 3 Distribution of Frequency of Respondents by Parity

No	Parity	Frequency	Percentage (%)
1	Nulipara	11	27,5 %
2	Primipara	17	42,5%
3	Multipara	12	30%
4	Grandemultipara	0	0%
	Total	40	100

Source: Primary Data

The number of results showed that most pregnant women are pregnant women who have primipara parity as many as 17 pregnant women (42.5%).

Table 4 Distribution of frequency of respondents by age of pregnancy

No	Age of pregnancy	Frequency	Percentage (%)
1	Trimester I	11	27,5 %
2	Trimester II	22	55%
3	Trimester III	7	17,5%
	Total	40	100

The table above shows that most pregnant women are pregnant women with gestational age entering the second-trimester category that is as much as 22 pregnant women (55%)

Table 5. Distribution of upper arm circumference of pregnant women

No	LILA	Frequency	Percentage (%)
1	Normal	21	52,5 %
2	Not normal	19	47,5%
	Total	40	100

Table 5 shows that the upper arm circumference of pregnant women is mostly pregnant women with normal upper arm circumference as many as 21 pregnant women (52.5%)

Table 6. Frequency distribution of body mass index of pregnant women at Bilu Banjarmasin River Health Center

No	IMT	Frequency	Percentage (%)
1	Normal	32	80 %
2	Not normal	8	20%
	Total	40	100

It is seen that 80% of pregnant women have a normal BMI and 20% of pregnant women have an abnormal BMI.

Table 7. Distribution of frequency based on IMT classification at Bilu Banjarmasin River Health Center

No	IMT	Frequency	Percentage (%)
1	Low	7	17,5 %
2	Normal	32	80 %
3	Obesity	1	2,5%
	Total	40	100

It is seen that 80% of pregnant women have normal BMI, and only 1 pregnant woman has obesity IMT.

Table 8. Distribution of anemia frequency in pregnant women at Bilu Banjarmasin River Health Center

No	Anemia	Frequency	Percentage (%)
1	Anemia	18	45 %
2	No anemia	22	55%
	Total	40	100

It was seen that 22 respondents (55%) were not anemic, and 18 respondents (45%) were anemic.

Table 9. Distribution of the frequency of anemia classification in pregnant women at Bilu Banjarmasin River Health Center

No	Anemic clarification	Frequency	Percentage (%)
1	Not anemic	22	55,5 %
2	Mild Anemia	17	42,5%
3	Moderate anemia	1	2,5%
4	Severe anemia	0	0%
	Total	40	100

It was seen that 22 respondents (55%) did not have anemia, and 17 respondents (42.5%) had mild anemia.

Table 10. LILA relationship with the incidence of anemia in pregnant women at Puskesmas Sungai Bilu Banjarmasin

LILA	Anemic Cases					
	Anemia		Not anemic		Total	
	Frequency	%	Frequency	%	Frequency	%
Normal	4	19.05%	17	80.95%	21	100%
Not normal	14	73.68%	5	26.32%	19	100%
Total	18	45%	22	55%	40	100%
	P Value		0,002< 0,05			

The above table shows that the occurrence of anemia occurred in pregnant women with normal LILA as many as 4 people (19.05%) and abnormal LILA as many as 14 people (73.68%).

Chi-Square statistical test results show the results of the value of sig is 0.002 which means the value of sig <α (5%) so that 0.002 <0.05 which means Ho rejected and Ha received. Based on these results can be concluded that there is a relationship between LILA with the incidence of anemia in pregnant women at the Puskesmas Sungai Bilu Banjarmasin.

Table 11. IMT relationship with the incidence of anemia in pregnant women at Bilu Banjarmasin River Health Center

IMT	Anemia cases					
	Anemia		Not Anemic		Total	
	Frequency	%	Frequency	%	Frequency	%
Normal	11	34,4%	17	65,6%	21	100%
Not normal	7	87,5%	5	12,5%	19	100%
Total	18	45%	22	55%	40	100%
	P Value 0, 0,014 <0,05					

The above table shows that the occurrence of anemia occurs in pregnant women with normal BMI of 11 people (34.4%) and abnormal BMI of 7 people (87.5%).

The result of Fisher's Exact Test statistic test shows the result of sig value is 0,014 which means sig value <α (5%) so that 0,014 <0,05 meaning Ho is rejected and Ha accepted. From these results can be concluded that there is a relationship between IMT with the incidence of anemia in pregnant women at the Puskesmas Sungai Bilu Banjarmasin.

IV. DISCUSSION

a. Correlation between LILA and anemia cases of pregnant women

The result of Chi-Square statistic test about the relationship of LILA with the occurrence of anemia in the pregnant mother showed the result of sig value equal to 0,002 which mean sig value $<\alpha$ (5%) so that (0,002 <0,05) so Ho is rejected and Ha received. Based on these results can be concluded that there is a relationship between LILA with the incidence of anemia in pregnant women at the Puskesmas Sungai Bilu Banjarmasin.

The results of this study are also in line with the theory that pregnant women with malnutrition status or LILA less than 23.5 cm of mothers at risk of anemia, compared to mothers with good nutritional status or LILA more than 23.5 cm [9]. LILA is one way to know the nutritional status of pregnant women. If this size is low or small indicates less nutritional state due to lack of energy and protein suffered at the time of measurement done. The LILA measurement is intended to determine if a person has Chronic Energy Loss. Chronic Energy Deficiency (SEZ) is a condition where pregnant women experience malnutrition (calories and protein) that lasts long or chronic. Pregnant women with nutritional status are less at risk of experiencing KEK resulting in lack of nutrient intake so that the formation of hemoglobin disrupted, while pregnant but also experienced blood dilution because of the process of pregnancy so that there was anemia [1].

The results of this study are in line with research conducted by Marlapan, Sandrayayuk et al. entitled "The Relationship of Nutritional Status With Anemia Occurrence In Pregnant Women In The Work Area of Tuminting Community Health Center of Tuminting Sub-district of Manado City". In this study, the nutritional status was measured by LILA and obtained p-value value 0.005 <0.05 so it concluded there is a relationship of nutritional status with the incidence of anemia in pregnant women in the work area of Tuminting Health Center Tuminting District Manado.

b. Correlation of IMT and anemia cases

The result of Fisher's Exact Test statistic on the relationship of BMI with the incidence of anemia in pregnant women shows the result of sig value is 0,014 which means sig value $<\alpha$ (5%) so that 0,014 <0,05 meaning Ho is rejected and Ha accepted. Based on these results can be concluded that there is a relationship between IMT with the incidence of anemia in pregnant women at the Puskesmas Sungai Bilu Banjarmasin.

The results of this study are in line with the theory that the IMT is not normal can cause anemia due to lack of nutrient intake in pregnant women. However, in this study also a normal BMI is more anemic, so there are other possible factors that also affect anemia even though the pregnant women have

normal BMI. Non-adherence of pregnant women consuming Fe tablets and the lack of knowledge about the importance of iron tablets during pregnancy is one of the factors that can cause anemia. Parity is the number of babies born to a mother, either giving birth who are still alive or stillborn. The risk of a mother having anemia in pregnancy is one of the causes is the mother who often gave birth and in the next pregnancy, the mother is less attention to good nutrition in pregnancy. This is because during pregnancy nutrients will be divided for the mother and for the fetus. The tendency that the more the number of births (parity), the higher the incidence of anemia. Knowledge of pregnant women is very influential on the nutrient of babies contained and also the consumption pattern of foods containing iron, because if iron deficiency during pregnancy in a relatively long time will cause anemia [9].

Another factor that becomes the SEZ parameter other than LILA is BMI which is measured from the ratio between weight and height. If BMI is less then a person is at risk of experiencing KEK. SEZ is one sign of a person experiencing malnutrition. Inadequate nutrition intake in pregnant women will result in the formation of hemoglobin is impaired so that the risk of anemia [1]. The results of this study are in line with research conducted by Utami [10] entitled "The Relationship of Nutritional Status With Anemia Occurrence In Pregnancy In Pregnant Poly RSUD Dr. Soegiri Lamongan ". In this study, the

nutritional status was measured by BMI and obtained p-value value 0.006 <0.05 so it concluded there was a relationship between nutritional status with the incidence of anemia in pregnancy.

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