Relationship Between Age of a term Pregnant Women and Infant Birth Weight: A Cross Sectional Study at Maternity Clinic Ambacang Public Health Center, Padang City

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Abstract--Nutrition status of maternal before and during pregnancy is one of the most important factors that influence of intrauterine fetuses growth. Chronic energy deficiency will cause of low birth weight infant. Pregnancy accompanied by anemia will affect the body's resistance and it will affect the childbirth process. Risk factors for low birth weight infant affected by the condition of the mother accompanied by malnutrition, anemia, the presence of worm infections and other maternal factors. The aimed of this research was to determine the age of pregnancies for low birth weight infant in the Ambacang Public Health Center. This research was observational with cross sectional design. The samples used in this research were miscarriage mothers at the maternity clinic in Ambacang Public Health Center, Padang City who fulfilled the inclusion criteria. The sampling technique was consecutive sampling. The number of samples in this research were 50 people. Data analysis was conducted using correlation statistical test and t test. The results showed that there was a significant correlation between age of mothers ($p = 0.012$), toward birth weight of infants. Research conclusion: there is a correlation between the age of mothers and birth weight of infants.

Key words--Age of A term Pregnant Women, Infant Birth Weigh.

I. INTRODUCTION

Neonatal Mortality Rate (NMR) and infant mortality rate (IMR) in the world level are high level, where the NMR were 22 from 1000 of childbirth (WHO, 2013) and IMR were 37 from 1000 Births. Likewise in Indonesia around 32 per 1000 KH, while the 2015 Millennium Development Goals (MDG's) target for IMR decreases to 23 per 1000 KH (SDKI, 2012). Low birth weight babies (LBW) are newborns with birth weight less than 2500 grams (Muslihatun and Nur, 2010). This LBW event is one of the risk factors for neonatal death because 60-80% of the neonatal mortality rate is caused by LBW. The prevalence of LBW in the world is 15.5%, and about 96.5% comes from developing countries (WHO, 2011). In Indonesia It was recorded that the incidence of LBW was 10.2%, in West Sumatra Province at 7.5% in 2013 (Riskesdas, 2013). Whereas the incidence of LBW in Padang City in 2013 was around 2.0% (Padang City Health Office, 2013).

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The growth and development of the fetus in the womb is strongly influenced by the nutritional state of the mother before and during pregnancy which will later affect the baby's birth weight (Gibney et al., 2009). LBW events are influenced by maternal nutrition before pregnancy (Ramakrishan, 2004). Babies born with low birth weight will increase the risk of perinatal death. Weight loss begins during the first trimester of pregnancy where this condition is affected by placental function derived from protein and maternal factors (Bukowski et al, 2007)

There are several other factors that affect a baby's birth weight, namely maternal external factors such as age, parity, pregnancy distance, education, socio-economic. Maternal external external factors have a large influence on the quality of the fetus to be born (Wiknjosastro, 2009). In addition there are several other factors that affect LBW, among others, are environmental factors (smoking, air pollution, and infections such as worm infections and malaria) (Ramakrishnan U, 2004). Based on research by Yanti (2013) as much as (36.85%) low birth weight is influenced by internal factors of the maternal self. Another study conducted by Sistiarani (2008) found that factors affecting low birth weight were age factors with $p = 0.009$, and pregnancy distance $p = 0.004$, both of these factors that influence low birth weight.

Based on the theory and the result of previous studies, this study proposes a hypothesis:

1. The was an relationship between age of a term pregnant women and infant birth weight
2. The was no relationship between age of a term pregnant women and infant birth weight

II. METHODS

Type of the research is observational study with a cross sectional approach. This research was conducted for 1 year. The samples of the research was mother in part who gave birth at a Private Midwife practice site in the Ambacang Public Health Center. The samples of the research were 50 people, It was taken using consecutive sampling technique. The instrument used in this research were questionnaire and baby scales. Data retrieval is carried out when pregnant women who want to give birth come to the practice of a private midwife then are given a questionnaire and after the baby is born will be weighed baby weight

III. DATA ANALYSIS

Data analysis used on research is the use of independent t test. The ratio scale employs a correlation test with a 95% degree of trust.

IV. RESULT

Table 1. Distribution of Frequency of Characteristics of Age of Atterm Pregnant Women

Variable	Total Number	
	F	%
Age < 20	3	6,0
Age >35	1	2,0
Age 20-35	46	92

Based on the table above shows that a term mothers at the age of 20-35 years old are 46 people (92%), age of 20 years is 3 people (6.0%) and age above 35 years is 1 person (2, 0%).
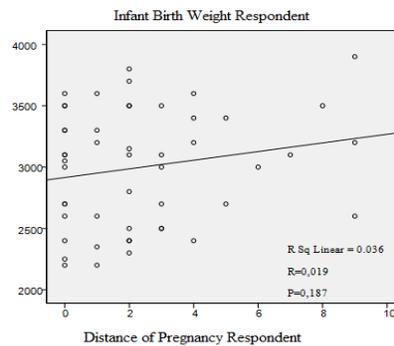

Fig:1 Relationship between Age of A term Pregnant Women and Infant Birth Weight

The picture above shows a positive correlation between the age of a term pregnant women and infant birth weight, with the strength of the medium relationship ($r = 0.352$). And statistically there is a significant relationship between the age of the mother and the baby's birth weight ($p = 0.012$)

V. DISCUSSION

Relationship between Age of A term Pregnant Women and Infant Birth Weight. This study found that there was a significant relationship between the age of pregnant women and newborn birth weight, with the strength of moderate relationships. The age of the mother during pregnancy is very influential on the weight of the baby born, pregnant women at the age of (<20 years and> 35 years) classified as risky pregnant age. Pregnant women at the age of <20 years will experience complications both in labor and childbirth. At this age the body's reproductive organs are not perfect and women really need a lot of nutritional intake for themselves if during this time women have experienced pregnancy, the reproductive organs are not ready to accept pregnancy, this is because the function of reproductive organs is not perfect.

At this stage women still tend to focus on themselves and usually women do not pay too much attention to their pregnancy. Pregnancy at the age of too young often experience pregnancy problems, especially at the beginning of pregnancy, hyperemesis gravidarum usually occurs, where if not handled properly it will affect the nutritional intake of cranial so that it can affect the growth and development of intrauterine fetus with disruption of intra-uterine growth caused by hormonal factors, psychological and other factors that will affect labor outcomes (Prawirohardjo, 2011), such as the results of research conducted by (Sistiarani, 2008) in Banyumas, this study looked for low birth weight risk factors where one of the variables studied was the age of the mother associated with the incidence of low birth weight so that the age of pregnant women> 20 years is at risk of giving birth to LBW babies value (OR = 4.28). Research that is in line suggested by Judith and Linda, (2003) pregnancies at a young age have a risk of giving birth to babies with low birth weight compared to women who are pregnant at the age of adults. The results of Radha's study (2013), in India where there is a significant relationship between the age of the mother and the baby's birth weight, mothers who are under 25 years old tend to give birth to babies with a smaller birth

weight compared to mothers who are pregnant at the age above 25 year. The results of a study conducted by Neeraj and Reddaiah, (2005) pregnant women less than 20 years old will be more likely to give birth to babies with low birth weight compared to women over the age of 20 years (p = 0.005).

Pregnant women at the age of too old> 35 years is a high-risk age range, where at this age the function of female reproductive organs has decreased the condition of the body has decreased function and endurance will also decrease (Fraser and Cooper, 2009). In this age range, diseases tend to appear so that if a woman is pregnant at this age, she is likely to experience problems in her pregnancy. If the function of the organ decreases, the function of the placenta will also be affected so that the transport of nutrients and oxygen will be disrupted and result in the growth of the intra uterine fetus will also be disrupted. Pregnant women at the age of> 35 years have a higher risk of giving birth to babies with low birth weight than women who are pregnant at <35 years of age. The results of a study conducted by Muula et al (2011) on maternal age during pregnancy will affect the birth weight of the babies they contain (p = 0.001). The younger the age of pregnant women, the more at risk of giving birth to babies with low birth weight. Nulliparous women who are less than 18 years pregnant will have the risk of giving birth to babies with low birth weight compared to women who were first pregnant for more than 18 years (Kozuki et al, 2013)

This research is not in line with the research put forward by Loa et al (2000) found that there was no significant relationship between the age of the mother and birth weight with a value of p> 0.05. Eltahir and Gerd (2008), presented a study where there was no correlation between birth weight of infants and maternal age. The research conducted by Suzane et al (2002) has no significant relationship between the age of the mother and the incidence of LBW. Adamson Harlon (2007) also presented the results of his study where there was no significant relationship between the age of the mother and the baby's birth weight.

VI. CONCLUSION

Most pregnant women are 20-35 years old. This study found results that mothers aged 20-35 years will give birth to babies with normal birth weights. It is important to pay attention to health workers, especially midwives, to provide health education in the community so that they can cooperate in reducing marriage rates at an early age, because marriage at an early age will affect maternal health during pregnancy and childbirth and affect the birth weight of their babies.

REFERENCES

1. WHO. (2013). world health statistik 2013.feto maternal nutrition and low birth weight. Retrieved 11 20, 2014, from world health organization: http://www.who.int/gho/publications/world_helath_statistic/EN_WHS2013_full.pdf.WHO.2013
2. WHO. (2011). Retrieved 11 20, 2014, from World Health Organization: http://www.who.int/maternal_child_adolescent/dokuments/9789241548366.pdf
3. Riskesdas. (2013). Badan Penelitian dan Pengembangan Kesehatan Kementrian Kesehatan RI. Retrieved 11 22, 2014, from http;//depkes.go.id/dowloads/riskesdas2013/hasil%20riskesdas%202013
4. Dinas Kesehatan Kota Padang. (2013). Laporan Pemantauan Wilayah Setempat. Padang: Dinkes Kota Padang.
5. M.Santhosh S.Kavitha, R.Keerthana , L.Suganya, S.Krishnakumar. "Electronic Voting Machine Using Internet." International Journal of Communication and Computer Technologies 4 (2016), 72-75. doi:10.31838/ijccts/04.02.03

6. SDKI. (2012). Laporan Pendahuluan.BPS.BKKBN dan Kemenkes RI. Jakarta: KEMENKES RI.
7. Gibney et al. (2009). Introduction to Human Nutrition (2nd Edition). USA: Weley Black Well.
8. Ramakrishnan U. (2004). Nutrition and low birth weight: from research to practice. American Society for Clinical Nutrition , 79, 17-21.
9. Bukowski R., Smith GCS., Malone FD., Ball RH., Nyberg DA., Comstock CH, et al. (2007). Fetal growth in early pregnancy and risk of delivering low birth weight infant: prospective cohort study. BMJ , 10, 1-5.
10. Wiknjosastro, H. (2009). Ilmu Kebidanan. Jakarta: Yayasan Bina Pustaka Sarwono Prawirohardjo.
11. Yanti SA., Harahap AS.,Ariswayo S. (2013). Analisis Faktor Resiko Pada Kejadian Berat Badan Bayi Lahir Dibawah Normal DiRSUP H.Adam Malik Medan. Saintia Matematika , 1 no 6, 557-566.
12. Harikesh maurya, susheel kumar dubey, poonam bisht, monika semwal, sanjay gandhi (2016) an updates on the sepsis causing multiple organ dysfunctions. Journal of Critical Reviews, 3 (3), 31-40.
13. Sistiarani, C. (2008). Faktor Maternal Dan Kualitas Pelayanan Antenatal Yang Beresiko Terhadap Kejadian BBLR. Tesis Universitas Diponogoro Program Studi Magister Ilmu Kesehatan Masyarakat .
14. Prawirohardjo,S. (2011). Ilmu Kebidanan Sarwono Prawirohdjo. Jakarta: Bina Pustaka.
15. Judith BB. and Linda SA. (2003). Assesing The Net Effect Of Young Maternal Age On Birth Weight. American Journal Of Human Biology , 15 (6), 733-740.
16. Radha YA. (2013). Is maternal age risk factor for low birth weight. Archives of Medicine and Health Sciences , 1 (1), 33-37.
17. Amit Dang Veena Shetye Angle. "Utilizing Patient Registries as Health Technology Assessment (HTA) tool." Systematic Reviews in Pharmacy 6.1 (2015), 5-8. Print. doi:10.5530/srp.2015.1.2
18. Neeraj A and Reddaiah V.P. (2005). Factor Affecting Birth Weight In A Sub-Urban Community : A Study In A Secondary Level Hospital In Delhi. Health and Population , 28 (4), 189-196.
19. Fraser DM dan Cooper,MA. (2009). Buku Ajar Bidan Myles (Edisi 14). Jakarta: EGC.
20. Muula AS., Siziya S., Rudatsikira E. (2011). Parity and maternal education are associated with low birth weight in Malawi. African Health Sciences , 11 (1), 65-71.
21. Kozuki N, Anne CCL., Mariangela F S., Ayesha S., Joshua P V., Linda A., et al. (2013). The associations of parity and maternal age with small-for-gestational-age, preterm, and neonatal and infant mortality: a meta-analysis. BMC Public Health , 13 (3), 1-10.
22. Loa TT., Tam KF., Chan LY. (2000). Third Trimester Iron Status And Pregnancy Outcome In Non Anemic Women; Pregnancy Unfavourably Afected By Maternal Iron exces. Human Reproduction, 15 (8), 1843-1848.
23. Eltahir ME., and Gerd S. (2008). The effect of maternal anthropometric characteristics and social factors on gestational age and birth weight in Sudanese newborn infants. BMC Public Health , 244 (8), 1471 - 2458.
24. Suzanne C.T., Christine N.C, David W.J., Lawrence W.S., Sarah R. and Jaques B. (2002). Delayed Childbearing and Its Impact on Population Rate Changes inLower Birth Weight, Multiple Birth, and Preterm Delivery. Pediatrics, 3, 399-403.
25. Adamson Harlon. (2007). Low birth weight in relation to maternal age and multiple pregnancies at Muhimbili National Hospital. DMSJ , 14 (2), 55-58.
26. Vignesh, M. & Jayaseelan, J. (2016).Test Pattern Generation for Transition Faults with Low Power using BS-LFSR and LOC. The SIJ Transactions on Computer Networks & Communication Engineering (CNCE), 4(5), 1-5.
27. Kandavel, B., Uvaraj, G., & Dr. Manikandan, M. (2018). Harmonic Study on DFIG Fed Voltage Source Inverter. Journal of Computational Information Systems, 14(4), 150 – 158.
28. Gawda, B. Dysfunctional love in psychopathic criminals: The neural basis (2012) NeuroQuantology, 10 (4), pp. 725-732.
29. Temkin, A.Y. Information basis of the world structure, universe origin and teleportation phenomenon (2012) NeuroQuantology, 10 (3), pp. 532-536.