Midwifery Research Journal, 187-193
Volume 1 Number 6 July 2024
URL: https://jurnal.cakrabirawamedia.com/index.php/mrj/

ISSN 3025-6364 (Print) 3025-6356 (Online)

Preeclampsia and Mother Nutritional Status's Effect on the Pregnancy-Related Incidence of Small Infants (SMI)

Ihrom Fatma Saputri
Department of Midwifery, Universitas Kadiri, Indonesia
Email: ihromfatma@gmail.com

ABSTRACT

This study is that the primary causes of maternal and fetal death, morbidity, or severe disability are preeclampsia and maternal nutritional condition. The World Health Organization (WHO) estimates that in 2020, developing nations would account for the biggest portion of the global maternal mortality rate, with 99% of women dying from problems during and after pregnancy and childbirth. The majority of these issues arise during pregnancy. This study was conducted to determine the impact of preeclampsia and maternal nutritional condition on the occurrence of tiny newborns during pregnancy. Employs a cross-sectional methodology and an observational research design. Secondary data from the Regional Hospital's Medical Records division was used to collect data.

Keywords: maternal nutritional status, preeclampsia, small baby during pregnancy

BACKGROUND

Preeclampsia and maternal nutritional status are the main causes of mortality and morbidity or severe disability of the mother and fetus. According to WHO in 2020 the number of maternal deaths in the world every year, the largest contributor to this figure is developing countries, namely 99% of women die from complications during and after pregnancy and childbirth. Most of these complications develop during pregnancy. The main complications that cause 80% of maternal deaths are severe bleeding, infection (usually after childbirth), high blood pressure during pregnancy (preeclampsia and eclampsia) and unsafe abortion (WHO, 2020).

According to the WHO in 2013, in Southeast Asia, the incidence of at term MNCH was around 21% in 2013, the rate of preterm MNCH was around 3%, and the total incidence of MNCH in Southeast Asia in 2013 was 24% of all infants. The prevalence of infants born with MNCH in Indonesia is around 30-40% (WHO, 2013).

There is a condition where a newborn baby is born either premature, full term or post maturity, but his weight is smaller than his gestational age, then the condition is said to be small for gestational age (KMK) or Small For Gestational Age (SGA). It is estimated that 27% of live born babies are small for gestational age, with 24.7% full term and 2.3% under term, Indonesia is included in 11 countries with more than 15% under term births and is included in 10 countries with the number of small for gestational age babies.

METHODS

This research design uses an Observational quantitative design with a Cross-Sectional approach, which is an approach that is momentary at a time and not continuous over a period of time. Activities carried out include data collection on independent variables and dependent variables

(Notoatmodjo, 2012). Infants with KMK were defined as the condition of babies born with a body weight < 10 percentile of normal birth weight of the population according to gestational age based on the Lubchenco curve (table 1). Maternal age, parity, education, and occupation were defined as external variables in this study.

Data analysis in this study was univariate analysis which analyzed each variable from the results of each study to produce frequency distribution and percentage (Notoatmodjo, 2010). Based on the data from the results of the Influence of Preeclampsia and Maternal Nutritional Status can be categorized in the category of preeeclampsia, not preeclampsia, and good nutritional status and nutritional status less so that the scale is nominal then the statistical test is wilcoxon. This study used the Wilcoxon Signed Rank Test as an analytic test.

This study was conducted to see if there was an effect of preeclampsia and nutritional status of mothers on the incidence of small babies during pregnancy at the Mayjend HM Regional Hospital. Ryacudu Kotabumi Regional Hospital, North Lampung

RESULTS

The total population in this study were all mothers who gave birth to babies with small gestation period (KMK) at the Mayjend HM Regional Hospital. Ryacudu Kotabumi Regional Hospital North Lampung amounted to 65 people. By using the Accidental Sampling technique, the number of samples taken was 34 people.

The tool used is a checklist, namely a list of register books (medical records) that are well organized, mature (Notoatmodjo, 2010). To determine the effect of preeclampsia and maternal nutritional status on the incidence of small babies during pregnancy.

The method of data collection in this study is to use secondary data. The steps of data collection in this study were to record all data of mothers who gave birth to babies with the incidence of small babies during pregnancy and mothers who gave birth with not small babies during pregnancy, obtained from the patient's medical record at the regional hospital mayjend HM. Ryacudu kotabumi north Lampung.

Preeclampsia and eclampsia ranked second as the cause of maternal mortality in Indonesia with a presentation of 26.9% in 2012 and increased to 27.1% in 2013 (Depkes RI, 2015). Based on the results of research at the Mayjend HM Ryacudu Kotabumi Regional Hospital in North Lampung from all 65 respondents, namely the number of mothers giving birth at the Mayjend HM Ryacudu Kotabumi Regional Hospital in North Lampung, 34 respondents with preeclampsia cases gave birth to babies with low birth weight totaling 11 respondents (64.7%). This is

Table 1. Characteristics of Research Subjects

Subject Characteristics		Frequency *(f)*	Percentage *(%)*
Age			
	< 20 Year	22	64,7
	20-35 Year	7	20,6
	>35 Year	5	14,7
Education			
	Elementary	8	23,5
	Junior High	4	11,8
	High School	19	55,9
	College	3	8,8
Jobs			
	Housewife	18	52,9
	Private	12	35,3
	Civil Servant	4	11,8
Amount		**34**	**100,0**

Table 2. Characteristics of Research Subjects Based on Preeclampsia

Characteristics of Preeclampsia Subjects	Frequency *(f)*	Percentage *(%)*
Preeclampsia	11	64,7
Not Preeclampsia	6	35,3
Amount	**17**	**100,0**

Table 3. Characteristics of Respondent Research Subjects Based on Maternal Nutritional Status

Subject Characteristics of mother's Nutritional status	Frequency *(f)*	Percentage *(%)*
Lila < 23,5 Cm	12	70,6
Lila > 23,5 Cm	5	29,4
Amount	**17**	**100,0**

Table 2. below shows that most respondents were <20 years old, as many as 22 respondents (64.7%), most respondents had a high school education, as many as 19 respondents (55.9%), and most respondents were housewives, as many as 18 respondents (52.9%). In this table, it can also be seen that there are significant differences in the proportion of KMK based on age, occupation, education, both in preeclampsia patients, and maternal nutritional status.

Based on the results of research at the Mayjend HM Ryacudu Kotabumi Regional Hospital in North Lampung from all 65 respondents, namely the number of mothers giving birth at the Mayjend HM Ryacudu Kotabumi Regional Hospital in North Lampung, 34 respondents with preeclampsia cases who gave birth to babies with low birth weight were 11 respondents (64.7%) and 34 respondents with cases of maternal nutritional status LILA < 23.5 cm who gave birth to babies with low birth weight were 12 respondents (70.6%).

Table 3. Data Analysis Results Ranks

		N	Mean Rank	Sum of Ranks
Birth weight less	Negative Ranks	5[a]	3.00	15.00
	Positive Ranks	0[b]	.00	.00
	Ties	12[c]		
	Total	17		
Birth weight normal	Negative Ranks	0[d]	.00	.00
	Positive Ranks	4[e]	2.50	10.00
	Ties	13[f]		
	Total	17		
Birth weight less	Negative Ranks	6[g]	3.50	21.00
	Positive Ranks	0[h]	.00	.00
	Ties	11[i]		
	Total	17		
Birth weight normal	Negative Ranks	0[j]	.00	.00
	Positive Ranks	4[k]	2.50	10.00
	Ties	13[l]		
	Total	17		

Test Statistics[c]

	Birth weight less	Birth weight normal	Birth weight less	Birth weight normal
Z	-2.236[a]	-2.000[b]	-2.449[a]	-2.000[b]
Asymp. Sig. (2-tailed)	.025	.046	.014	.046

a. Based on positive ranks.

b. Based on negative ranks.

c. Wilcoxon Signed Ranks Test

Based on the results of the calculation of the Wilcoxon Sign Rank Test, the Z value obtained is (-) with a p value (Asymp. Sig 2 tailed) which is less than the critical limit of the study of 0.05 so that the hypothesis decision is to accept H1 or which means there is a meaningful difference between normal birth weight and low birth weight which means there is an influence of preeclampsia and nutritional status on the incidence of small babies during pregnancy.

Based on the frequency distribution of respondents based on the age of the mother at the Mayjend HM Ryacudu Kotabumi Regional Hospital in North Lampung, it shows that most of the respondents were <20 years old, as many as 14 respondents (42.4%). This is in accordance with the opinion of Prawirohardjo (2019) that the healthy reproductive period is a safe age for pregnancy and childbirth, namely 20-35 years. While unhealthy reproduction is under the age of 20 years and more than 35 years. Obstacles that often arise in pregnancies <20 years are prematurity, preeclampsia / eclampsia and imperfect obstetric disorders. Pregnancy at an advanced age especially after the age of 40 years has a worse risk. This is because it is often accompanied by hypertension, diabetes and uterine myoma. In addition, congenital abnormalities, down syndrome, abortion and hydatidiform mole may occur.

Based on infants with less birth weight on maternal LILA < 23.5 cm shows that in infants born less almost all respondents Lila circumference < 23.5 Cm, y.

DISCUSSION

This is in line with the results of Hidayah's research (2020) in the working area of the sangasangan health center on the incidence of chronic energy deficiency pregnant women with the birth of babies with low birth weight (Kristiyanasari, 2020). The above is also supported by the opinion of Patimah S (2017) that malnutrition in pregnant women is at risk of low birth weight birth. Likewise, the opinion of Natasya Kristanty S. (2018) that the p value is 0.00 (p <0.05) and r 0767 for the relationship between LILA and birth weight with a pr value of 6.475 so that there is a relationship between upper arm circumference and weight gain during pregnancy with the baby's birth weight.

Based on infants with less birth weight in preeclamptic mothers showed that in infants born less most of the respondents with a history of preeclampsia, as many as 11 respondents (64.7%). Based on the results of this study indicate that in normal birth babies, almost all respondents have no history of preeclampsia, as many as 13 respondents (76.5%).

The results of this study are in line with the results of Kun Ika's research in 2009 with a cross sectional method which states that there is a relationship between preeclampsia and LBW in Gambiran Kediri Hospital (p<0.05). Suwoyo's research with cross sectional method also obtained similar results (p<0.05) if low birth weight babies with the criteria of premature babies

(<37 weeks) were also included in the sample criteria. 10 Meanwhile, Beby's research, Dwi Lestatri (2016) based on the results of analysis.

CONCLUSION

1. Based on the results of research at the Mayjend HM Ryacudu Kotabumi Regional Hospital in North Lampung from all 65 respondents, 17 respondents (64.7%) were found to have preeclampsia cases.
2. Based on the results of research conducted at the Regional Hospital Mayjen HM Ryacudu Kotabumi North Lampung, the number of mothers with poor nutritional status amounted to 12 respondents with a percentage of 70.6%.
3. Based on the results of research conducted at the Regional Hospital Mayjen HM Ryacudu Kotabumi North Lampung, it shows that most of the respondents with low birth weight babies in the highest maternal nutritional status were 12 respondents (70.6%), and most of the respondents with low birth weight in the history of preeclampsia were 17 respondents (64.7%).
4. Based on the results of the calculation of the Wilcoxon Sign Rank Test, the Z value obtained is (-) with a p value (Asymp. Sig 2 tailed) which is less than the critical research limit of 0.05 so that the hypothesis decision is to accept H1 or which means there is a significant difference between normal birth weight and less birth weight which means there is an Effect of Preeclampsia and Nutritional Status on the Incidence of Small Babies during Pregnancy.

It is necessary to conduct similar research on preeclampsia in pregnant women, poor maternal nutritional status, poor ante natal care, and the presence of other complications which are also risk factors for babies born with small gestational age.

REFERENCES

Anggita N. (2014). Prevalensi Preeklampsia Berat di Rumah Sakit Cipto Mangunkusumo Tahun 2011 dan Hubungannya dengan Status Paritas, Skripsi, Pendidikan Dokter Fakultas Kedokteran, Universitas Indonesia, Jakarta.

Afridasari, Saimin, dan Sulastrianah. (2015). Analisis Faktor Risiko Kejadian Preeklampsia. Kendari: Pendidikan Dokter & Fakultas Farmasi UHO.

Badan Pusat Statistik. (2013). Survei Demografi dan Kesehatan Indonesia 2012. Jakarta: BPS.

Cunningham FG, Leveno KJ, Bloom SL, John C, Hauth, et al (2013). Obstetri Williams. Edisi 23. Alih Bahasa oleh Brahm U. Pendit, dkk. Jakarta: EGC, pp: 740 – 794.

Damanik SM. (2008). Dalam : Kosim MS, dkk. Buku ajar neonatologi. Jakarta: IDAI, pp: 12-13.

Departemen Kesehatan RI-UKL-Perinatologi IDAI-NNH-JHPIEGO. (2010). Buku Panduan Managemen Masalah Bayi Berat Lahir Untuk Dokter Perawat Bidan Di Rumah Sakit. Kosim MS, Surjono A. Jakarta.

Departemen Kesehatan Republik Indonesia. (2015). Profil kesehatan indonesia 2014. Jakarta: Depkes RI.

Denantika, Serudji, dan Revilla. (2015). Hubungan Status Gravida Dan Usia Ibu Terhadap Kejadian Preeklampsia Di RSUP Dr. M. Djamil Padang Tahun 2012-2013. Padang : Jurnal Kesehatan Andalas 2015; 4(1), pp: 212-217.

Diaz SH, TOH S, Cnattingius S. (2019). Risk Of Pre-Eclampsia In First And Subsequent Pregnancies: Prospective Cohort Study. BMJ, pp: 1-5.

Djannah SN, Arianti IS. (2018). Gambaran Epidemiologi Kejadian Preeklampsia/Eklampsia Di RSU PKU Muhammadiyah Yogyakarta Tahun 2007-2009. Yogyakarta: Buletin Penelitian Sistem Kesehatan, pp: 379 – 382.

Duley, Lelia. (2018). Preeclampsia And Hypertensive Disorders Of Pregnancy. Oxford: British Medical Bulletin, Vol. 67, pp: 161-176.

Evariasari (2017). Hubungan Status Gizi Dengan Preeklamsia, Skripsi, Pendidikan Diploma III Kebidanan, Politeknik Kesehatan, Kendari.

Gunardi H. Is There Any Specific Measurement To Monitor Growth And Development In Infant Born With Small For Gestational Age. (Online). Available: https://www.nestlenutrition-institute.org [11 Maret 2016].

HM Abdoerrachman, BM Affandi, S Agusman, Alatas, Dahlan A, Amirullah A, dkk (eds) (2007). Ilmu kesehatan anak Jilid 3. Jakarta: Bagian Ilmu Kesehatan Anak FK UI, pp: 1055.

Ika K. (2012). Hubungan Antara Preeklampsia Dengan Kejadian Bayi Berat Lahir Rendah. Surabaya : Jurnal Ilmiah Perawatan STIKES Hang Tuah Surabaya Volume 3 No: 2.

Kementerian Kesehatan RI. (2011). Manejemen Bayi Berat Lahir Rendah Untuk Bidan Dan Perawat: Buku Acuan. Jakarta: Kementerian Kesehatan RI.

Kementerian Kesehatan RI. (2013). Riset Kesehatan Dasar 2013. Jakarta : Kementerian Kesehatan RI.

Kementerian Kesehatan RI. (2015). Rencana Strategis Kementerian Kesehatan 2015-2019. Jakarta : Kementerian Kesehatan RI.

Lamminpaa R, Julkunen KV, Gissler M, Heinonen S. (2012). Preeclampsia complicated by advanced maternal age : a registry-based study on primiparous women in finland 1997-2008. BMC Pregnancy & Childbirth, pp: 3 – 4.

Lapidus, A. (2011). Effects Of Preeclampsia On The Mother, Fetus And Child. (Online).Available:http://www.ed.uiuc.edu/EPS/PESYearbook/1998/thompson.html [11 Maret 2016].

Lestari, 2016. Hipertensi dalam kehamilan. Dalam : Sarwono Prawirohardjo. Ilmu Kebidanan.

Loto, Awowole. (2011). Tuberculosis in pregnancy. Journal of Pregnancy, Vol.2012, pp: 1-5.

Mahayana S, Chundrayetti E, Yulistini. (2015). Faktor risiko yang berpengaruh terhadap kejadian berat badan lahir rendah di RSUP Dr. M. Djamil Padang. Jurnal Kesehatan Andalas, pp: 664 – 673.

Mardalena, I. (2017). Dasar-dasar Ilmu Gizi Dalam Keperawatan. Cetakan pertama. Pustaka Baru Press. Yogyakarta.

Marmi, et al., (2013). Hubungan Hemoglobin, Lingkar Lengan Atas, Umur Dan Paritas Ibu Hamil Dengan Berat Badan Bayi Lahir. http://jurnal.akbiduk.ac.id/assets/doc/170223082338-2.pdf.6 Februari 2018 (14.45).

Muazizah. (2011). Hubungan antara kadar hemoglobin ibu hamil dengan berat badan bayi lahir di RS Permata Bunda Kabupaten Grobogan. Skripsi. Universitas Muhamadiyah Semarang.

NHBPEP. (2013). Hypertensive disorder in pregnancy. Guideline Summary. New York : New York State Department of Health, pp: 7-15.

Notoatmojo, Soekidjo. (2012). Metodologi Penelitian Kesehatan. Jakarta : Rineka Cipta. Odegard RA, Vatten LJ, Nilsen ST, Salvesen KA, Austgulen R (2018). Preeclampsia and fetal growth. Obstetric Gynecology. 2018 Dec; 96 (6).

Patimah, S. (2017). Gizi Remaja Putri Plus 1000 Hari Pertama Kelahiran. Cetakan pertama. PT Refika Aditama. Bandung.

Proverawati. (2010). Berat Bayi Lahir Rendah. Yogyakarta: Nuha Medika, pp:5-45.

Rasmussen S, Irgens LM. (2014). Fetal Growth And Body Proportion In Preeclampsia. Obstetric Gynecology. 101 (3), pp: 575 – 583.

Ridlayanti A. (2014). Hubungan Kadar Alfa-Tokoferol Dengan Kejadian Preeklampsia Berat. Tesis. Universitas Brawijaya Malang.

Rozikhan. (2007). Faktor-Faktor Risiko Terjadinya Pre-Eklampsia Berat Di Rumah Sakit Dr. H. Soewondo Kendal. Tesis, Master Epidemiologi Universitas Diponegoro Semarang: s.n.

Saenger P, Czernichow P, Hughes I, Reiter EO. (2017). Small For Gestational Age: Short Stature And Beyond. Endocrine Reviews, pp. 220.

Sari Lintang, Letta. (2013). Gambaran Fraksi Protein Darah pada Preeklampsia dan Hamil Normotensif. Medan : Bagian Obstetri dan Ginekologi Fakultas Kedokteran Universitas Sumatera Utara.

Sastroasmoro, S. (2011). Dasar-Dasar Metodologi Penelitian Klinis. Jakarta : Sagung Seto, pp: 95-96.

Schneider S, maul H, Roehrig S, Fischer B, Hoeft B, Freerksen N. (2011). Risk Groups And Maternal-Neonatal Complication Of Preeclampsia – Current Result From The National German Perinatal Quality Registry. J Perinatal Medical, pp: 257 – 265.

Sinclair C. (2009). Buku Saku Kebidanan. Jakarta : ECG, pp: 24.

Sondari. (2006). Hubungan beberapa faktor ibu dengan kejadian berat bayi lahir rendah (BBLR) Di Rumah Sakit DR Hasan Sadikin pada Januari-Februari 2006. Tesis, Fakultas Kesehatan Masyarakat, Universitas Dipenogoro, Semarang.

Trihardiani, ismi. (2011). Faktor Risiko Kejadian Berat Badan Lahir Rendah Di Wilayah Kerja Puskesmas Singkawang Timur dan Utara Kota Singkawang. Semarang: Program Sarjana Pendidikan Dokter Universitas Diponegoro.

Valenzuela FJ, Sepulveda AP, Torres MJ, Correa P, Repetto GM, Illanes SE (2012). Pathogenesis Of Preeklampsia: The Genetic Component. J Pregnancy, pp: 2.

Wiknjosastro, Hanifa. (2007). Ilmu kebidanan. Jakarta: Yayasan Bina Pustaka Sarwono Prawirohardjo.

World Health Organization. (2014). Dalam (Kementerian Kesehatan RI) InfoDATIN. Jakarta: Pusat Data dan Informasi Kementerian Kesehatan RI, pp: 1.

Wollmann HA. (2009). Children Born Small For Gestational Age : Definitions And Etiology. In: Kiess N, Chernausek SD, Hooken-Koolega ACS (eds). Small For Gestational Age. Switzerland: Karger AG, Basel, pp: 1-2.

Yolanda, Mirani, dan Swany. (2015). Angka Kejadian Persalinan Preterm pada Ibu dengan Preeklampsia Berat dan Eklampsia di RSUP Dr. Mohammad Hoesin Palembang Tahun 2013. Palembang : MKS, Th. 47, No. 1, Januari 2015, hal:31-33. Jakarta: PT Bina Pustaka Sarwono Prawirohardjo, pp: 530 – 559.