



The Relationship of History of Hypertension and Obesity with the Event of Preeclampsia in Pregnant Women

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Abstract. The maternal mortality rate according to the Sample Registration System (SRS) was caused by hypertension in pregnancy 33.7%, obstetric bleeding 27.3%, non-obstetric complications 15.7% and other obstetric complications 12.04%. The cause of preeclampsia is currently not known with certainty, but there are several predisposing factors, namely multiple pregnancy, diabetes mellitus, history of maternal hypertension, molahidatidosa, obesity, low socioeconomic status, maternal parity and young primigravida aged < 20 years and older primigravida aged > 35 years. The purpose of this study was to determine the relationship between a history of hypertension and obesity with the incidence of preeclampsia in Padangsidempuan Hospital in 2020. The research method used was an analytical survey with a cross sectional approach. The population in this study were all 60 pregnant women who visited the Midwifery Clinic at Padangsidempuan Hospital. Sampling technique with a total sampling of all pregnant women, amounting to 60 people. Data were collected, processed and analyzed by univariate and bivariate analysis. The results of the study were from 60 pregnant women, 12 (15.4%) pregnant women with preeclampsia, 14 (17.9%) history of hypertension and 13 (16.7%) obese pregnant women. The results of the chi square test for a history of hypertension with the incidence of preeclampsia with a value of $p = 0.000 < = 0.05$, meaning that there is a relationship between a history of hypertension and the incidence of preeclampsia and obesity with the incidence of preeclampsia, the value of $p = 0.001 < = 0.05$ means that there is a relationship between obesity and the incidence of preeclampsia. Incidence of preeclampsia. The conclusion of this study is that there is a relationship between a history of hypertension and obesity with the incidence of preeclampsia in Padangsidempuan Hospital.

Keywords: history of hypertension · obesity · preeclampsia

1 Introduction

Maternal mortality in the world occurs every day, 830 mothers in the world (in Indonesia 38 mothers, based on the AKI as many as 305/100,000 live births) die from diseases/complications related to pregnancy and childbirth. The Maternal Mortality Rate

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(MMR) in Indonesia is still high compared to ASEAN countries (ASEAN Secretariat 2017). The 2019 Sustainable Development Goals (SDGs) state that the Maternal Mortality Rate (MMR) totals 346/100 thousand births (SDGs, 2019). Data obtained from the North Sumatra Provincial Health Office in two 2019 MMR was still high, namely 301.7/100,000 live births, while the AKI in 2018 was at 209.5/100,000 live births. Based on data from the North Sumatra Health Office as of June 2021, there were 67,345 pregnant women who had received pregnancy services, 65,431 who gave birth and 39,375 newborns with the number of maternal deaths until July 2021 as many as 119 cases. The most common causes of death for pregnant women according to the Sample Registration System (SRS) were hypertension in pregnancy 33.7%, obstetric bleeding 27.3%, non-obstetric complications 15.7% and other obstetric complications 12.04%. The Ministry of Health explained that hypertension is a dangerous disease, especially if it occurs in women who are pregnant. This can cause death for the mother and for the baby to be born. Because there are no typical symptoms or signs as an early warning. Hypertension in pregnancy, also known as preeclampsia, accounts for 12% of maternal deaths worldwide. The Ministry of Health in 2013 stated that hypertension increases mortality and morbidity in pregnant women (Kemenkes 2013). There are many risk factors that can make it easier for pregnant women to fall into preeclampsia. These risk factors include ain primigravida, primipaternity, extreme age, hyperplacensis, history of preeclampsia, family history of preeclampsia, kidney disease and hypertension that existed before pregnancy, and obesity (Manuaba 2014). The maternal mortality rate in the city of Padangsidempuan is 181 in 2020, while the number of pregnant women in the city of Padangsidempuan is 4,849, the number of mothers with obstetric complications is 970 people, including 194 pregnant women with complications of hypertension (Padangsidempuan Health Profile 2020).

2 Methods

This type of research is a quantitative research with an analytical survey design and using a cross sectional study approach. The population in this study were all pregnant women who visited the Midwifery Polyclinic of Pdangsidempuan Hospital as many as 60 people. The sample in this study was taken by total sampling technique. The number of samples in this study were 60 people.

Data analysis with univariate analysis which produces the distribution of frequency and percentage of each variable and Bivariate analysis which is carried out on two variables that are thought to be related to the Chi Square test at the significance level of $p < 0.05$.

3 Result and Discussion

3.1 Univariate Analysis

Based on Table 1, it is known that pregnant women with a history of hypertension were obtained as many as 14 people (23.3%) and pregnant women who did not have a history of hypertension as many as 46 people (76.7%).

Table 1. Frequency distribution of history of hypertension in pregnant women in Padangsidimpuan Hospital

history of hypertension	F	%
yes	14	23,3
No	46	76,7
Total	60	100

Table 2. Frequency distribution of obesity in pregnant women in Padangsidimpuan Hospital

Obesity	F	%
Obesity	13	21,7
Not Obesity	47	78,3
Total	60	100

Table 3. Distribution of the frequency of the incidence of preeclampsia in pregnant women in Padangsidimpuan Hospital.

incidence of preeclampsia	F	%
Preeclampsia	12	20
Not Preeclampsia	48	80
Total	60	100

Based on Table 2, it is known that pregnant women with obesity were found as many as 13 people (21.7%) and pregnant women who were not obese as many as 47 people (78.3%).

Based on Table 3, it is known that there were 12 pregnant women with preeclampsia (20%) and 48 pregnant women (80%).

3.2 Bivariate Analysis

Based on Table 4, it is known that there were 10 pregnant women with preeclampsia with a history of hypertension (71.4%) and 4 pregnant women (28.6%) who did not have preeclampsia and had a history of hypertension. Of the 46 mothers who did not have a history of hypertension, there were 2 mothers (04%) who had preeclampsia and 44 (95.6%) mothers who did not. Based on the results of statistical tests using chi square, the p value of $0.000 < 0.05$ was obtained, so it can be concluded that there is a relationship between a history of hypertension and the incidence of preeclampsia in pregnant women at Padangsidimpuan Hospital.

Table 4. The relationship between a history of hypertension and the incidence of preeclampsia in pregnant women at Padangsidempuan Hospital.

history of hypertension	incidence of preeclampsia				Total		<i>P-value</i>
	Preeclampsia		Not Preeclampsia		n	%	
	n	%	n	%			
Yes	10	71,4	4	28,6	14	100	0,000
No	2	0,4	44	95,6	46	100	
Total	12	100	48	100	60	100	

Based on the results of the study showed that there was a relationship between a history of hypertension and the incidence of preeclampsia in pregnant women at Padangsidempuan Hospital with a value of $p = 0.000$ ($p < 0.05$) where out of 60 respondents showed pregnant women who had preeclampsia with a history of hypertension, 10 people (71,4%) and pregnant women who are not preeclampsia and have a history of hypertension as many as 4 people (28.6%). According to Cunningham (2013), risk factors for preeclampsia include a history of hypertension in some women with a history of chronic hypertension, hypertension can worsen, especially in subsequent pregnancies. A history of hypertension is the strongest risk factor for preeclampsia before pregnancy where a history of hypertension is the most significant risk factor for the incidence of preeclampsia with a 7.38 times risk of experiencing preeclampsia compared to mothers who do not have a history of hypertension (Kartasurya 2019).

According to research from Mamuroh and Nurhakim (2018), the occurrence of preeclampsia in pregnant women who have a history of hypertension is 21 times higher than respondents who do not have a history of hypertension. Research by Kartika et al. (2017) One of the predisposing factors for severe preeclampsia is a history of hypertension, previous hypertensive vascular disease, or essential hypertension. Hypertension suffered before pregnancy causes disruption/damage to important organs of the body.

In this study, from 12 women who had preeclampsia and 10 women who had a history of hypertension, there were still 2 women who had preeclampsia but had no previous history of hypertension. From the data obtained, the two mothers did not have a history of hypertension but experienced that the mother began to experience hypertension after pregnancy or gestational hypertension.

Based on Table 5, it is known that from 13 obese mothers, 7 mothers (53.8%) experienced preeclampsia and 6 mothers (46.2%) did not experience preeclampsia. Of the 47 mothers who were not obese, there were 5 mothers (1.1%) who had preeclampsia and 42 mothers (89.4%) who did not. Based on the results of statistical tests using chi square, the p value of $0.001 < 0.05$ was obtained, so it can be concluded that there is obesity with the incidence of preeclampsia in pregnant women at Padangsidempuan Hospital.

Based on the results of the study showed that there was a relationship between obesity and the incidence of preeclampsia in pregnant women at Padangsidempuan Hospital. With p value = 0.001 ($p < 0.05$) where from 60 respondents showed that pregnant

Table 5. The relationship between obesity and the incidence of preeclampsia in pregnant women at Padangsidempuan Hospital.

Obesitas	incidence of preeclampsia				Total		<i>P-value</i>
	Preeclampsia		Not preeclampsia		n	%	
	n	%	n	%			
Obesity	7	53,8	6	46,2	13	100	<i>0,001</i>
Not obesity	5	1,1	42	89,4	47	100	
Total	12	100	48	100	60	100	

women who had preeclampsia with obesity were found to be 7 people (53.8%) and pregnant women who were not preeclampsia with obesity were 6 people (28.6%).

The results of this study are in line with the theory that pregnant women with excess weight can cause bleeding and pre-eclampsia. Symptoms appear from the results of calculating the BMI in the overweight/overweight category and will then be followed by an increase in blood pressure, edema in the legs, kidney problems, and finally pre-eclampsia can occur. Obesity in addition to causing high cholesterol in the blood also causes the heart to work harder, because the amount of blood in the body is about 15% of body weight, the fatter a person is, the more blood is in the body, which means the pumping function is heavier. Heart. So that it can contribute to the occurrence of pre-eclampsia (Manuaba 2015).

Obesity is a risk factor that has been widely studied for the occurrence of preeclampsia. Obesity triggers the occurrence of preeclampsia through several mechanisms, namely in the form of superimposed preeclampsia, as well as through triggers of metabolites and other micro molecules. The risk of preeclampsia increased by 2 times for every increase in body weight of 5–7 kg/m². In addition, it was found that there was an increased risk of preeclampsia with an increase in BMI. Women with a BMI > 35 before pregnancy had a fourfold increased risk of developing preeclampsia compared with women with a BMI of 19–27.

In line with Melda Meldia's research (2018). Shows that the proportion of 89 pregnant women who There are pregnant women who are not obese with 10.1% mild preeclampsia and 89.9% severe preeclampsia, while from 6 pregnant women who have obesity there are pregnant women with 33.3% mild preeclampsia and 66.7% severe preeclampsia. Obesity in this study there is a significant relationship between obesity and the incidence of preeclampsia with a P value of 0.000. The OR value of 0.225 for obesity is 3%, it shows that obesity will have a 0.225 times greater risk of experiencing preeclampsia compared to mothers who are not obese.

4 Conclusion

History of hypertension and obesity are risk factors that most influence the incidence of preeclampsia because it can affect important organs in the body and plus pregnancy which makes weight gain causing more severe disturbances/damage. So it can be concluded that

there is a relationship between a history of hypertension and obesity with the incidence of preeclampsia in pregnant women.

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