Research of Service Administration Health and Sains Healthys
Vol. 3 No. 2 Desember 2022
*p-ISSN:*2830-4748 e-ISSN: 2830-4772
DOI: *http://ejournal.mandalanursa.org/index.php/Rehat/issue/archive*

Relationship between history of hormonal contraceptive use and the incidence of preeclampsia in

Mardiyah Hayati[1], Baiq Nova Aprilia Azamti[2], Arista Kusuma Wardani[3]
[1 2 3] Sekolah Tinggi Ilmu Kesehatan Mataram

Article Info

Article history:
Accepted: 01 December 2022
Published: 07 December 2022

Keywords:
Hormonal Contraception, Preeclampsia, Maternity

Abstract

Preeclampsia is one of the causes of maternal mortality that can be prevented by identifying risk factors. Among the causes of preeclampsia are a history of hypertension and the use of drugs in this case contraceptives containing hormones that can trigger an increase in blood pressure. The purpose of this study is to analyze the history of the use of hormonal contraception with the incidence of preeclampsia in women giving birth (maternity) at RSUD Bima. This research is quantitative research with descriptive correlation method using a retrospective research design. The population in this study were mothers who gave birth at RSUD Bima. The sampling technique was total sampling, namely all mothers who had no history of comorbidities and had medical records at the RSUD Bima in the period from November to December 2021. As many as 132 respondents. Data collection techniques in this researchare study documentation and data analysis using the Chi-Square test. The results of this study indicate that there were 73 respondents who did not use hormonal contraception. Of the 132 respondents there where 81 respondents who did not experience preeclampsia. The conclusion of the study using the Chi-Square Test with a significance level of 5% (0.05), the p-value (0.000) is smaller than the alpha value (< 0.05), which means that there is a significant correlation between the history of using hormonal contraception and incidenceof preeclampsia. Based on the Oods ratio (OR) value of 4.480, it shows that mothers with a history of using hormonal family planning have 4 times the chance to experience preeclampsia compared to women giving birth who do not have a history of using hormonal family planning.

Corresponding Author:
Hayati
Sekolah Tinggi Ilmu Kesehatan Mataram
Email : mardiyahayati79@gmail.com

1. INTRODUCTION

Childbirth is a normal physiological event in life. However, complications can also occur during childbirth if one of the complications is found, including preeclampsia during pregnancy (Lestari, 2020). Preeclampsia is a pregnancy complication characterized by high blood pressure and proteinuria. This condition usually occurs when the gestational age reaches 20 weeks (Amelia, 2019). Globally, preeclampsia is still a problem, where 10% of mothers throughout the world experience preeclampsia and is the cause of 76,000 maternal deaths and 500,000 infant deaths every year (Ministry of Health, 2021). According to Indonesian Health profile data in 2019, the most common causes of maternal death were bleeding (1,280 cases), preeclampsia (1,066 cases), infection (207 cases). According to data in NTB, the number of maternal deaths during 2018 was 99 cases, 29 cases were caused by preeclampsia and in 2019 there was an increase in death cases from a total of 97 cases, 39 cases were caused by preeclampsia (NTB Health Department Profile, 2019). Meanwhile, in Bima City, the number of preeclampsia cases among women giving birth in 2019 in Bima

City was 102 cases with 1 death and increased in 2020 to 115 cases. Data from the Bima Regional General Hospital, the number of women giving birth with preeclampsia in 2019 was 572 cases and in 2020 there was an increase, where the number of women giving birth who experienced preeclampsia were treated at 601 cases. So it is very important to have pregnancy checks at least six times during pregnancy and carry out early detection of preeclampsia/eclampsia factors as an effort to prevent the risk of maternal death. Preeclampsia is an event that can be prevented by identifying primary and secondary risk factors that can cause preeclampsia, including a history of hypertension and use of medication, in this case contraceptives containing hormones which can trigger an increase in blood pressure (Rukiyah, 2019).

Hormonal contraceptives such as pills, injections and implants contain the hormones estrogen and progesterone which can increase blood pressure, this is caused by cardiac hypertrophy and an increase in the angiotensin II pressor response involving the Renin Angiotensin System pathway. Apart from that, hormonal contraceptives also contain ethinylestradiol which causes hypertension, while Gestagen has minimal effect on blood pressure. Etinylestradiol can increase angiotensinogen three to five times normal levels (Baziad, 2015). Efforts made by midwives as implementers of family planning services are the need to carry out screening to ensure that there are no contraindications for the use of hormonal contraception. Acceptors with hypertension are advised to regularly check their blood pressure and choose non-hormonal contraception. Looking at the background description above shows that the incidence of preeclampsia is still high and this is directly proportional to the use of hormonal contraception which tends to increase. The aim of this research is to analyze "The relationship between the history of using hormonal contraception and the incidence of preeclampsia in women giving birth at Bima Hospital".

2. METHOD

This research is quantitative research with descriptive correlation methods using a retrospective research design. The population in this study were mothers giving birth at Bima Hospital.

The sampling technique was total sampling, namely all mothers giving birth who had medical records at Bima Hospital and who had no history of comorbidities in the period November to December 2021. This research was carried out in March 2022. The data collection technique in this research was using documentation study methods and univariate data analysis with frequency distribution and bivariate data using the Chi-Square Test.

3. RESULTS

History of contraceptive use

The results of research regarding the history of contraceptive use are presented in the following table:

Table 1. Distribution of Contraceptive Use History Hormones in Mothers Giving Birth at Bim Regional Hospitala (n = 132)

Usage history hormonal contraception	Frequency(n)	Percentage (%)
Yes	59	44.7
Not	73	55.3
Total	132	100

***Source**: Primary Data 2022*

Based on Table 1, it shows that 59 respondents (44.7%) had a history of using hormonal contraception and 73 respondents (55.3%) did not use hormonal contraception.

The incidence of preeclampsia

The results of research regarding the history of hormonal contraceptive use are presented in the following table:

Table 2. Distribution of History of Hormonal Contraception Use among Mothers Giving Birth at Bima Regional Hospital (n = 132)

The incidence of preeclampsia	Frequency(n)	Percentage (%)
Yes,	51	38.6
No	81	61.4
Total	132	100

Source: Primary Data2022

Based on table 2, it shows that there were 51 respondents (38.6%) of birth mothers who experienced preeclampsia and 81 respondents (61.4%) who did not experience preeclampsia.

Relationship between history of contraceptive use and the incidence of preeclampsia

The results of research regarding the relationship between history of contraceptive use and the incidence of preeclampsia are presented in the following table:

Table 3. Cross-Relationship Between History of Hormonal Contraceptive Use and Maternity Preeclampsia Incident at Bima Hospital (n = 132)

Peng Use KB Hormonesnal	The incidence of pre-eclampsia				Total		P value e e-OR (95 %
	Not PE		P.E				
	n	%	n	%	n	%	
No	5	76.7	17	23.3	73	100	0,000 4.5 (2.1-9.5)
Yes	22	42.4	34	57.6	59	100	
Total	81	61.4	51	38.6	132	100	

Source: Primary Data 2022

The results of the research, after carrying out the chi square test, data were obtained as

shown in table 3. Where the P-value was 0.000<0.05, meaning that there was a significant relationship between the variable history of hormonal contraceptive use and the incidence of preeclampsia in women giving birth at Bima Regional Hospital. Based on an OR value of 4.480, respondents who have a history of using hormonal contraceptives have 4 times the chance of experiencing preeclampsia compared to mothers who do not use hormonal contraceptives.

4. DISCUSSION

Based on the research results, it shows that of the 73 respondents who did not have a history of using hormonal contraception, the majority did not experience preeclampsia, namely 56 respondents (76.7%), and of the 59 respondents with a history of using hormonal contraception, the majority experienced preeclampsia, namely 34 respondents (57.6%) with the p-value (0.000) are smaller than the alpha value (< α 0.05). The OR value is 4.480, respondents who have a history of using hormonal contraceptives have 4 times the chance of experiencing preeclampsia compared to mothers who have no history of using hormonal contraceptives.

The results of this study are supported by research conducted by Kusumawardani (2015) in a study entitled Use of Combination Pill Contraception as a Risk Factor for the Incident of Preeclampsia/Eclampsia in Mothers Giving Birth in DIY, that age at risk increases the incidence of preeclampsia by 4.07 (p=0.000; 95%CI: 1926-8615). The use of combination pills increases the incidence of preeclampsia by 4.06 with a p-value of 0.00396 07 (p=0.004; 95%CI: 1.582-10.426). duration of pill contraceptive use ≥4 years increased the incidence of preeclampsia by 14.2 (p=0.006; 95%CI: 2.069-98.140). The conclusion of the research is that the use of combination pills increases the risk of preeclampsia/eclampsia in women giving birth. Side effects of hormonal contraception include increased blood pressure (hypertension), impaired absorption of minerals (folic acid, B12, calcium), mastodynia, nausea, vomiting, headaches, amenorrhea. Increased blood pressure is a sign of preeclampsia. Kassab, et al (2011) reported that low folic acid levels accompanied by high homocysteine levels can cause maternal hypertension, urine protein, kidney damage, intrauterine development retardation and increased fetal death. Very low folic acid levels accompanied by high homocysteine levels cause blood vessels to be more sensitive to oxidative stress. Oxidative stress can cause dysfunction and damage to endothelial cells which is then followed by inflammation. Endothelial cells will be very sensitive to vasoconstrictors due to their reduced cytoprotective properties. So that in the end clinical symptoms appear in the form of hypertension and urea protein. Hypertension and urea protein are signs of preeclampsia. In addition, hormonal contraception reduces vitamin B12 levels (Baziad, 2014). Patrik et al (2013), reported that decreasing levels of folic acid and vitamin B12 caused homocysteine concentrations to increase in preeclampsia. Injectable contraception consists of two types, namely combination injections containing the hormone progesterone, estrogen and progestin injections. Combination pills and combination injections have the same characteristics, namely they contain synthetic estrogen hormones, only the type of synthetic estrogen is different. Almost all estrogen preparations show the same hormonal effects, what differs is the estrogenic potential. The estrogenic potential of ethinylestradiol is almost 20 times that of estradiol. Therefore, the ethinylestradiol contained in combination pills has greater side effects compared to injections combination. The proportion of injections is the largest compared to other contraceptive devices other than combination pills. The side effect of increasing blood pressure in combination injections is higher than in contraceptives that do not contain combination hormones.

This research is in accordance with Baziad's (2015) theory. Hormonal contraceptives such as pills, injections and implants contain the hormones estrogen and progesterone which

can increase blood pressure, this is caused by cardiac hypertrophy and an increase in the angiotensin II pressor response involving the Renin Angiotensin System pathway. Apart from that, hormonal contraceptives also contain ethinylestradiol which causes hypertension, while Gestagen has minimal effect on blood pressure. Ethinylestradiol can increase angiotensinogen three to five times normal levels.

In this study, a history of using hormonal birth control could be one of the factors causing preeclampsia. education about risk factors in pregnancy needs to be improved. Apart from that, regular and regular prenatal care (antenatal care) is very necessary to look for signs of preeclampsia, which is very important in preventing preeclampsia and eclampsia. Family planning counseling also needs to be improved, conveying the side effects of each contraceptive before choosing a method is very important. The government includes the family planning program in 4T prevention in an effort to reduce MMR. The family planning method currently being promoted by the government is to increase acceptors of the Long-Term Contraceptive Method (MKJP) because as women become pregnant less frequently, the maternal mortality rate will automatically decrease.

5. CONCLUSION

Based on the results of research conducted on women giving birth at Bima Hospital, it can be concluded that the majority of respondents did not have a history of using hormonal contraception and the majority of respondents did not experience preeclampsia. There is a significant relationship between a history of hormonal contraceptive use and the incidence of preeclampsia in pregnant women. respondents who have a history of using hormonal contraceptives have a chance 4 times experienced preeclampsia compared with women giving birth who have no history of using hormonal birth control.

6. BIBLIOGRAPHY

Amelia. S. W. 2019. *Asuhan Kebidanan Kasus Kompleks Maternal & Neonatal*. Yogyakarta: Pustaka Baru Press

Baziad, Ali. 2015. *Kontrasepsi Hormonal*. Jakarta: PT Bina Pustaka Sarwono Prawirohardjo. Dinkes NTB. 2019. Profil Kesehatan Provinsi Nusa Tenggara Barat. NTB: Dinas Kesehatan Nusa Tenggara Bara

Kassab, S., Al-Shboul, Q.M., Aminzadeh, M.A., Golbahar, J. 2011. *Association of Methylenetetrahydro folate Reductase (C677T) Polymorphism with Hyperuricemia. Nutrion, Metabolism and Cardiovascular diseases*, vol 17, halaman 462-467.Di unduh pada 5 Juni 2022 dari http://www.sciencedirect.com/science/article/pii/S0939475306000652

Kemkes. 2021. Peringatan Hari *Preeklampsia* Sedunia. Di unduh pada 7 desember 2021 dari https://promkes.kemkes.go.id/peringatan-hari-*Preeklampsia*-sedunia-2021

Kusumawardani. A. W. 2015. Penggunaan Kontrasepsi Pil Kombinasi Sebagai Faktor Risiko Kejadian *Preeklampsia*/Eklampsia pada Ibu Bersalin di DIY. Di unduh pada 16 November2021 dari http://epirints.poltekkesjogja.ac.id > andin-widya-kusuma. PDF

Lestari. H. E. P. 2020. Penapisan Ibu Bersalin.Di unduh pada 20 November 2021 dari https: //www.Informasibidan.com.2020/04/penapisan-ibu-bersalin-html.

Rukiyah, M.R., dan Yulianti. L. 2019. *Asuhan Kebidanan Kegawatdaruratan Maternal danNeonatal*. Jakarta: Trans Info Media.