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History of Hypertension is The Most Influential Factor in Increasing The Occurrence of Preeclampsia in Lumajang Regency

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ABSTRACT

Hypertensive disorders of pregnancy, including preeclampsia, are significant contributors to maternal mortality and morbidity globally. The study's objective was to investigate the most important factors that contribute to preeclampsia. in Lumajang Regency. The research design is a case-control study. The research location is at Rogorunan Health Center and Kunir Health Center. The sample in this study was determined using saturated sample techniques or total sampling. samples at the Rogotrunan Health Center totaled 80 respondents and the Kunir Health Center which amounted to 75 respondents, totaling 155 respondents. Data collection using questionnaires. Analysis using logistic regression. The results of the study of variables that have a significant influence are on the variables of age (p-value = 0.070), history of hypertension (p-value = 0.000), pregnancy pause (p-value = 0.002), body mass index (p-value = 0.045), and hereditary hypertension (p-value = 0.000). A history of preeclampsia (p-value = 0.255) on the variable was excluded. Multivariate results between preeclampsia occurrence and history of hypertension obtained a value of p = 0.000, OR = 6.004 (1.549-5.065) meaning that The incidence of preeclampsia is influenced by a history of hypertension and history of hypertension affects 6.004 times the incidence of preeclampsia. Conclusion A history of hypertension is the most significant risk factor for preeclampsia, so the recommended advice is the importance of a healthy lifestyle, a balanced diet, exercise regularly, avoiding stress, avoiding smoking, not consuming harmful substances, monitoring blood pressure regularly, and regular treatment. All of these actions are a preventive effort so that during pregnancy preeclampsia does not occur.

Keyword: History of hypertension, Most influencing factors, Preeclampsia, Lumajang Regency

ABSTRAK

Gangguan hipertensi pada kehamilan, termasuk preeklampsia, merupakan kontributor signifikan terhadap mortalitas dan morbiditas ibu secara global. Tujuan penelitian ini adalah untuk mengetahui faktor terpenting yang berkontribusi terhadap preeklampsia di Kabupaten Lumajang. Desain penelitian ini adalah studi kasus-kontrol. Lokasi penelitian di Puskesmas Rogorunan dan Puskesmas Kunir. Sampel dalam penelitian ini ditentukan dengan menggunakan teknik sampel jenuh atau total sampling. sampel di Puskesmas Rogotrunan yang berjumlah 80 responden dan Puskesmas Kunir yang berjumlah 75 responden, sehingga total 155 responden. Pengumpulan data menggunakan kuesioner. Analisis menggunakan regresi logistik. Hasil penelitian variabel yang memiliki pengaruh signifikan adalah pada variabel usia (p-value = 0,070), riwayat hipertensi (p-value = 0,000), jarak kehamilan (p-value = 0,002), indeks massa tubuh (p-value = 0,045), dan riwayat hipertensi (p-value = 0,000). Riwayat preeklampsia (p-value = 0,255) pada variabel tersebut tidak disertakan. Hasil multivariat antara kejadian preeklampsia dengan riwayat hipertensi didapatkan nilai p = 0,000, OR = 6,004 (1,549-5,065) yang berarti bahwa kejadian preeklampsia dipengaruhi oleh riwayat hipertensi dan riwayat hipertensi berpengaruh 6,004 kali terhadap kejadian preeklampsia. Kesimpulan Riwayat hipertensi merupakan faktor risiko yang paling signifikan terhadap kejadian preeklampsia, sehingga saran yang dianjurkan adalah pentingnya pola hidup sehat, diet seimbang, berolahraga secara teratur, menghindari stress, menghindari rokok, tidak mengkonsumsi zat-zat yang berbahaya, memonitor tekanan darah secara teratur, dan berobat secara teratur. Semua tindakan tersebut merupakan upaya pencegahan agar selama kehamilan tidak terjadi preeklampsia

Kata Kunci: Riwayat Hipertensi, Faktor yang paling mempengaruhi, Preeklampsia, Kabupaten Lumajang

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Introduction:

The term "maternal mortality" refers to deaths attributable to problems during pregnancy and childbirth, and the postpartum period. These complications can include conditions such as preeclampsia, hypertension, bleeding, and infections. Maternal mortality rates vary across countries and regions, with developing countries experiencing higher rates compared to developed countries (Farzaneh, 2019; Mou et al., 2021; Singh et al., 2023). In 2013, approximately 289,000 maternal deaths occurred worldwide, with 99% of them occurring in developing countries (Walle & Azagew, 2019). Hypertensive disorders of pregnancy, including preeclampsia, are significant contributors to maternal mortality and morbidity globally (Mou et al., 2021). The diagnosis of preeclampsia is established through the discovery of hypertension (systolic >140 mmHg and diastolic >90 mmHg) in pregnant women accompanied by one or more other clinical symptoms, such as proteinuria, dysfunction of the liver, kidneys, and nerves (Tasnim et al., 2022)

Preeclampsia is a serious condition that can have a big effect on both the mother and the fetus' health. It is associated with an increased risk of cardiovascular disease and type 2 diabetes later in maternal life and is the leading cause of maternal morbidity and mortality worldwide (Mou et al., 2021). Preeclampsia can also cause severe complications like damage to the liver and kidneys, eclampsia (seizures), and even death (Alers et al., 2023). The condition can also result in short-term complications for the fetus, including fetal growth restriction, premature birth, and chronic intrauterine hypoxia (Zhang & Zhong, 2023). Preeclampsia early detection and treatment is essential to reduce the risk of this severe complication (Zwertbroek et al., 2021).

Preeclampsia is a complex condition that can have a variety of impacts on both infant and mother It is not only connected to the possibility of giving birth to a premature baby but also with chronic hypertension and kidney disease, which can have an impact on a mother's and baby's health (Tasnim et al., 2022). Preeclampsia mothers are more likely to give birth to having low birth weight and are more likely to suffer from metabolic disorders in later life (Mou et al., 2021). Preeclampsia can also contribute to impaired fetal growth and development, leading to increased perinatal morbidity and mortality (Kassa et al., 2023).

Preeclampsia is a specific pregnancy disorder that is characterized by new-onset hypertension and proteinuria during pregnancy and is associated with adverse outcomes such as maternal and infant morbidity and mortality. This condition can lead to complications like preterm labor, chronic intrauterine hypoxia, and fetal growth restriction. Preeclampsia is caused by hypoxia, abnormal placentation, and endothelial dysfunction. Understanding the risk factors and mechanisms underlying preeclampsia is essential for proper intervention and management during pregnancy (Haile et al., 2021; Zhang & Zhong, 2023).

Data on the incidence of preeclampsia varied across studies. In a study conducted in Bangladesh, the overall prevalence of preeclampsia was found to be 14.4% (Lewandowska, 2021). Another study in Ethiopia reported a combined prevalence of 11.51% (Mou et al., 2021). The East Java Health Profile also reports that Lumajang Regency is ranked 17th out of 38 regencies/cities with a Maternal Mortality Rate (MMR) of more than 300 cases of Maternal Mortality per 100,000 Live Births in 2021 (Dinkes Jatim, 2022). From 2016 to 2020, the Lumajang Regency Government has always succeeded in suppressing MMR according to the strategic plan target. However, in 2021, the same thing was not done even though the Maternal Mortality Rate (MMR) increased more than three times from the previous year, from From 97 deaths per 100,000 live births in 2020 to 309 deaths per 100,000 live births in 2021, maternal mortality has increased. Despite the MMR target of 218 maternal deaths per 100,000 live births in 2021 (Dinkes Lumajang, 2021; Dinkes Lumajang 2022).

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Preeclampsia is one of the causes of death, several factors influence, among others: Age of pregnant women < 20 years and > 35 years, a history of hypertension prior to pregnancy), a pregnancy break lasting more than ten years, and a body mass index (BMI) with values above 30 kg / m2 which is categorized as obesity, History of Preeclampsia in previous pregnancies, Ante Natal Care (ANC) integrated visits, hereditary factors from families suffering from hypertension coupled with the presence of hereditary preeclampsia from parents of pregnant women or parents of husbands, Of these factors, it will be examined what factors most influence the occurrence of preeclampsia.

Research into the factors that most influence preeclampsia is important because it helps cut down on the disease's prevalence as well as its negative effects, like maternal mortality. Understanding the determinants of preeclampsia can help in increasing knowledge of the condition and designing effective Policies and programs for policymakers regarding maternal health (Mou et al., 2021). Several risk factors have been identified in studies, including a family history of high blood pressure and preeclampsia, diabetes and anemia, preeclampsia in previous pregnancies, primigravida, and alcohol consumption during pregnancy (Haile et al., 2021). Vegetable intake is a preventative against the development of preeclampsia during pregnancy (Demissie Beketie et al., 2022). However, there may be variations in different study findings due to factors such as sample size and geographic location (Mou et al., 2021). Further research in this area is needed to validate these findings and provide more comprehensive insight into the determinants of preeclampsia (Haile et al., 2021).The novelty of this study is to analyze the influence of risk factors (age, history of hypertension, pregnancy interval, parity, Body Mass Index (BMI), history of preeclampsia, Ante Natal Care (integrated ANC) and heredity of hypertension and heredity of preeclampsia on the incidence of preeclampsia in Lumajang District. the purpose of this study is to analyze the most influential factors on the incidence of preeclampsia in Lumajang District.

Methods:

The research design is a case-control study. The research location is at Rogorunan Health Center and Kunir Health Center. The sample in this study was determined using saturated sample techniques or total sampling. samples at the Rogotrunan Health Center totaled 80 respondents and the Kunir Health Center which amounted to 75 respondents, totaling 155 respondents . pregnant women with gestational age above 20 weeks in the working area of Puskesmas Rogotrunan and Puskesmas Kunir from July to September 2023. Criteria of sample is Inclusion Criteria are Willing to be a research respondent, Recorded in the puskesmas data and residing around the working area of Puskesmas Rogotrunan and Puskesmas Kunir, Experiencing preeclampsia as evidenced by the results of the examination recorded in the existing medical records of the Puskesmas and in the KIA book. while the Exclusion Criteria are Experiencing mental disorders so it is difficult to communicate well. Data collection using questionnaires. The analysis used is 1). Univariate analysis in the form of table presentation, 2) bivariate analysis using logistic regression and 3). Multivariate analysis i.e. The independent variable is further tested simultaneously with the dependent variable using the Omnibus Test of Model Coefficients in logistic regression. The ethical test was conducted at the Faculty of Dentistry, University of Jember with No. 2270/UN25.8/KEPK/DL/2023

Results:

The subjects in this study were pregnant women at the Rogotrunan Health Center which amounted to 80 respondents and the Kunir Health Center which amounted to 75 respondents in Lumajang Regency. The characteristics of the two puskesmas studied include recent education, employment and income

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Table 1 Characteristics of Respondents to Rogotrunan Health Center and Kunir Health Center in Lumajang Regency in 2023 (n=155).

Characteristic Variables	Rogotrunan Health Center		Kunir Health Center		Sum	
	n=80	%	n=75	%	n=155	%
Recent Education						
No School	1	1,3	3	4	4	2,6
Equivalent Elementary School	7	8,8	6	8	13	8,4
Junior High School Equivalent	15	18,8	4	5,3	19	12,3
High School/K Equivalent	38	47,5	38	50,7	76	49
D3 Equivalent	10	12,5	12	16	22	14,2
	9	11,3	12	16	21	13,5
Work						
Housewife	28	35	19	25,3	47	30,3
Labourer	7	8,8	5	6,7	12	7,7
self-employed	8	10	24	32	32	20,6
private	13	16,3	15	20	28	18,1
Farmer	10	12,5	6	8	16	10,3
Fishermen	4	5	3	4	7	4,5
Civil servants	10	12,5	3	4	13	8,4
Other	0	0	0	0	0	0
Income						
< District minimum wage	65	81,3	67	89,3	132	85,2
> District minimum wage	15	18,8	8	10,7	23	14,8

Based on Table 1. shows that in the characteristic variable, namely the last education of respondents at the Rogotrunan Health Center out of 80 respondents, the highest was Graduated from High School / K Equal, namely 38 respondents (47.5%), At the Kunir Health Center from 75 respondents, the highest was Graduated from High School / K Equivalent 38 respondents (50.7%). The characteristic variable is the type of work of respondents at the Rogotrunan Health Centre out of 80 respondents, the highest is that there are 28 respondents (35%) Housewife. In the Kunir health center out of 75 respondents, there were 19 respondents (25.3%) IRT/Not working. The characteristic variable is the income of respondents at the Rogotrunan Health Centre out of 80 respondents, there are 65 respondents (81.3%) have < income from MSEs, at the Kunir Health Centre out of 75 respondents, there are 67 respondents (89.3%) have < income from MSEs.

Univariate Analysis

This Univariate analysis was conducted at the Rogotrunan Health Center with a total of 80 respondents and the Kunir Health Center with a total of 75 respondents. This analysis is to see the frequency distribution of age, history of hypertension, pregnancy pause, parity, BMI, history of preeclampsia, ANC visits, hypertensive offspring, preeclampsia offspring.

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Table 2 Variable Frequency Distribution in Rogotrunan Health Center and Kunir Health Center in 2023 (n=155)

Variable	Rogotrunan Health Center		Kunir Health Center		Total	
	n=80	%	n=75	%	n=155	%
Age (X1)						
Pre productive	7	8.8	5	6,7	12	7,7
Productive	54	67,5	61	81,3	115	74,2
Vulnerable	19	23,8	9	12	28	18,1
History of hypertension (X2)						
Yes	7	8,8	6	8	13	8,4
Not	73	91,3	69	92	142	91,6
Pregnancy spacing (X3)						
Short	12	15	4	5,3	16	10,3
Keep	18	22,5	17	22,7	35	22,6
Long	50	62,5	54	72	104	67,1
Parity (X4)						
Nulipara	19	23,8	23	30,7	42	6,5
Multipara	61	76,3	52	69,3	113	78,7
IMT (X5)						
Less	8	10	2	2,7	10	6,5
Usual	56	70	56	74,7	112	72,3
Obese	16	20	17	22,7	33	21,3
History of preeclampsia(X6)						
Yes	3	3,8	1	1,3	4	2,6
Not	77	96,3	74	98,7	151	97,4
ANC Visit (X7)						
Yes (ANC 6x)	50	62,5	45	60	95	61,3
Not (ANC < 6x)	30	37,5	30	40	60	38,7
Hereditary hypertension (X8)						
Yes	4	5	6	8	10	6,5
Not	76	95	69	92	145	93,5
Preeclampsia Descent(X9)						
Yes	1	1,3	2	2,7%	3	1,9
Not	79	98,8	73	97,3%	152	98,1
Preeclampsia(Y)						
Yes	21	26,3	12	16%	33	21,3
Not PE	59	73,8	63	84%	122	78,7

Bivariate Analysis

Table 2. Factors affecting the incidence of preeclampsia in Lumajang Regency, 2023 (n=155)

Variable Age of Pregnant Women	Rogotrunan Health Center					Kunir Health Center				
	Variable Pregnant Age	Preeclampsia				Sum	Preeclampsia				Sum
		Yes		Not			Yes		Not		
		n	%	n	%		n	%	n	%	
	Pre Productive	1	4,8	6	10,2	7	0	0	5	7,9	5
	Productive	11	52,3	43	72,9	54	10	83,3	51	81	61
	Rent	9	42,9	10	16,9	19	2	16,7	7	11,1	0

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	Sum	21	100	59	100	80	12	100	63	100	75
	Uji Chi-Square = 0,027										
Variable History of Hypertension		Rogotrunan Health Center					Kunir Health Center				
	Variable History of Hypertension	Preeclampsia				Sum	Preeclampsia				Sum
		Yes		Not			Yes		Not		
		n	%	n	%		n	%	n	%	
	Yes	7	33,3	0	0	7	5	41,7	1	1,6	6
	Not	14	66,7	59	100	73	7	58,3	62	98,4	69
	Sum	21	100	59	100	80	12	100	63	100	75
	Uji Chi-Square = 0,000										
Variable Pregnancy Pause		Rogotrunan Health Center					Kunir Health Center				
	Variable Pregnancy Pause	Preeclampsia				Sum	Preeclampsia				Sum
		Yes		Not			Yes		Not		
		n	%	n	%		n	%	n	%	
	Short	4	19	8	13,6	12	4	33,3	0	0	4
	Keep	3	14,3	15	22,5	18	2	16,7	15	23,8	17
	Panjang	9	42,9	10	16,9	19	6	50	48	76,2	54
	Sum	21	100	59	100	80	12	100	63	100	75
	Uji Chi-Square = 0,010										
Parity variables		Rogotrunan Health Center					Kunir Health Center				
	Parity Variables	Preeclampsia				Sum	Preeclampsia				Sum
		Yes		Not			Yes		Not		
		n	%	n	%		n	%	n	%	
	Nulipara	3	14,3	16	27,1	19	2	16,7	21	33,3	23
	Multipara	18	85,7	43	72,9	61	10	83,3	42	66,7	52
	Sum	21	100	59	100	80	12	100	63	100	75
	Uji Chi-Square = 0,60										
Body Mass Index Variable (IMT)		Rogotrunan Health Center					Kunir Health Center				
	Variable IMT	Preeclampsia				Sum	Preeclampsia				Sum
		Yes		Not			Yes		Not		
		n	%	n	%		n	%	n	100	
	Less	1	4,8	6	10,2	7	0	0	5	7,9	5
	Normal	11	52,3	43	72,9	54	10	83,3	51	81	61
	Obese	9	42,9	10	16,9	19	2	16,7	7	11,1	0
	Sum	21	100	59	100	80	12	100	63	100	75
	Uji Chi-Square = 0,002										
Variable History of Preeclampsia		Rogotrunan Health Center					Kunir Health Center				
	Variable History of Preeclampsia	Preeclampsia				Sum	Preeclampsia				Sum
		Yes		Not			Yes		Not		
		n	%	n	%		n	%	n	%	
	Yes	3	14,3	0	0	3	0	0	1	1,6	1
	Not	18	85,7	59	100	77	12	100	62	98,4	74
	Sum	21	100	59	100	80	12	100	63	100	75
	Uji Chi-Square = 0,031										
Integrated ANC Visit Variables		Rogotrunan Health Center					Kunir Health Center				
	ANC Visit Variables	Preeclampsia				Sum	Preeclampsia				Sum
		Yes		Not			Yes		Not		
		n	%	n	%		n	%	n	%	
	Yes	15	71,4	35	59,3	50	7	58,3	38	60,3	45
	Not	6	28,6	24	40,7	30	5	41,7	25	39,7	30
	Sum	21	100	59	100	80	12	100	63	100	75

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Uji Chi-Square = 0,306											
Hereditary Variables of Hypertension	Rogotrunan Health Center					Kunir Health Center					
	Hereditary Variables of Hypertension	Preeclampsia				Sum	Preeclampsia				Sum
		Yes		Not			Yes		Not		
		n	%	n	%		n	%	n	%	
	Yes	4	19	0	0	4	6	50	0	0	6
	Not	17	22,4	59	100	76	6	50	63	100	69
	Sum	21	100	59	100	80	12	100	63	100	75
Uji Chi-Square = 0,000											
Hereditary Variables of Preeclampsia	Rogotrunan Health Center					Kunir Health Center					
	Hereditary Variables of Preeclampsia	Preeclampsia				Sum	Preeclampsia				Sum
		Yes		Not			Yes		Not		
		n	%	n	%		n	%	n	%	
	Yes	1	4,8	0	0	1	1	8,3	1	1,6	2
	Not	20	95,2	59	100	79	11	91,7	62	98,4	73
	Sum	21	100	59	100	80	12	100	63	100	75
Uji Chi-Square = 0,115											

Multivariate Analysis

To determine which factors influenced the most influential independent factors in Lumajang Regency. Before conducting a multivariate analysis, perform a bivariate analysis on each variable. Then, choose variables that can be included in multivariate variables, namely variables that in bivariate analysis have *p-value* = <0.25. Variables in this study that can be included in multivariate analysis are age, history of hypertension, pregnancy lag, body mass index, history of preeclampsia and hereditary hypertension

Table 3. Logistic Regression Analysis Between Factors Affecting Preeclampsia in Lumajang Regency, 2023 (N=155).

	Variable	P value	Exp(B)	CI 95%	
				Lower	Upper
Phase I	Age	0,070	3,126	0,107	1,087
	History of hypertension	0,000	5, 008	1,544	5,076
	Pause pregnancy	0,002	3,091	1,508	4,020
	Body Mass Index	0,045	4,322	1,103	5,087
	History of preeclampsia	0,255	2,866	1,676	5,983
	Hereditary hypertension	0,000	3,313	1,788	5,067

After analysis in Phase I, five variables were obtained whose p-values> 0.05. External variables that have a significant influence are age variables (p-value = 0.070), history of hypertension (p-value = 0.000), pregnancy lag (p-value = 0.002), body mass index (p-value = 0.045), and hypertension heredity (p-value = 0.000). A history of preeclampsia (p-value = 0.255) on the variable was excluded. Then an analysis was carried out by removing the variables of preeclampsia history first. Table 4 displays the analysis's findings, which are as follows:

Table 4. Final Results of Logistic Regression Analysis of Factors Most Affecting Preeclampsia in Lumajang Regency, 2023, (N=155).

	Variable	P value	Exp(B)	CI 95%	
				Lower	Upper
Phase II	Age	0,069	3,111	0,110	1,084
	History of hypertension	0,000	6, 004	1,549	5,065
	Pause pregnancy	0,002	3,054	1,500	4,042
	Body Mass Index	0,028	4,200	1,122	5,654
	Hereditary hypertension	0,000	5,145	1,781	5,466

Discussion:

Based on Table 4. Shows that A history of hypertension is the most significant risk factor for preeclampsia. The multivariate results showed a p-value of 0.000 and an OR of 6.004 (1.549-5.065) between the incidence of preeclampsia and the history of hypertension. This indicates that the history of hypertension

influences the incidence of preeclampsia by 6.004 times.

A history of hypertension is associated with an increased incidence of preeclampsia (Kassa et al., 2023; Tessema et al., 2021; Zhu et al., 2022). Several studies have found There were statistically significant differences in the incidence of preeclampsia between mothers and those without a family history of hypertension without: (Erfani et al., 2019; Zhang & Zhong, 2023). Another significant factor in the development of preeclampsia is a history of long-term hypertension. Preeclampsia is more common in women who have had a history of chronic hypertension. Preeclampsia could be caused by having a family history of hypertension or a history of chronic hypertension, according to these findings. Preeclampsia can be detected and treated earlier and more effectively if these risk factors are known.

Pregnant women with a history of hypertension, particularly those who have had recurrent preeclampsia, are more likely to develop long-term cardiovascular disease and chronic hypertension. Preeclampsia and other hypertensive disorders during pregnancy are strongly correlated with a positive family history of hypertension, according to research. (Lewandowska, 2021; Oshunbade et al., 2020). Women who have had preeclampsia in the past are more likely to have impaired heart function in later life (Lewandowska, 2021). During pregnancy, hypertensive disorders have been identified as risk factors for long-term chronic hypertension The findings highlight the importance of closely monitoring Pregnant women with a history of hypertension and preeclampsia should reduce their risk of developing chronic hypertension both during and after pregnancy.

People with a history of hypertension should be monitored more closely to prevent preeclampsia during pregnancy. Studies have shown that those with Pregnancy-related preeclampsia is significantly correlated with a family history of hypertension (Mou et al., 2021). Compared to those without a history of hypertension, those with a family history of hypertension had a 2.60 times higher risk of developing preeclampsia (Haile et al., 2021). Other research on the subject is consistent with these findings (Farzaneh, 2019). By closely monitoring pregnant women with a history of hypertension, healthcare providers can detect and manage preeclampsia early, reducing the risk of complications for both mother and baby.

A history of chronic hypertension is associated with an increased incidence of preeclampsia (Mou et al., 2021). Preeclampsia is more likely to occur in pregnant women who have a history of chronic hypertension, according to studies (Kassa et al., 2023). The findings are consistent with studies conducted in different regions, including Ethiopia, India, Kenya, and Pakistan (Alers et al., 2023). The presence of a family history of hypertension also contributes to preeclampsia susceptibility (Tessema et al., 2021). Studies have shown that a positive family history of chronic hypertension is associated with an increased risk of preeclampsia (Kassa et al., 2023; Mou et al., 2021). Women with a family history of hypertension have a significantly higher chance of developing preeclampsia compared to those with no family history (Haile et al., 2021). This suggests that maternal and fetal genes play a role in the development of preeclampsia, and careful monitoring is needed for pregnant women with a family history of hypertension (Farzaneh, 2019). These findings suggest that behavioural and genetic factors may play a role in the development of preeclampsia in individuals with a history of hypertension.

People with a history of hypertension should follow certain advice to manage their condition effectively. It is advisable to maintain a healthy lifestyle by adopting a balanced diet, engaging in regular physical activity, and managing stress levels. Treatment adherence is critical, and individuals should take prescribed antihypertensive medications as directed by their healthcare provider. Regular blood pressure monitoring is important to track any changes and adjust treatment if necessary. In addition, it is advisable to avoid smoking and limit alcohol consumption (Farzaneh, 2019). It is also important to have regular medical

checkups to assess overall health and identify potential complications. By following these recommendations, individuals with a history of hypertension have better blood pressure control and reduce their risk of related health problems (Katore et al., 2021)

Conclusions:

A history of hypertension is the most significant risk factor for preeclampsia, so the recommended advice is the importance of a healthy lifestyle, a balanced diet, exercise regularly, avoiding stress, avoiding smoking, not consuming harmful substances, monitoring blood pressure regularly, regular medication. All of these actions are a preventive effort so that during pregnancy preeclampsia does not occur.

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