

Relationship Between History Of Hypertension And The Incidence Of Preeclampsia-Eclampsia In Pregnant Women

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ABSTRACT

Hypertension is one of the significant health problems worldwide, including in Indonesia. Preeclampsia is a medical condition characterized by increased blood pressure and the presence of protein in the urine after 20 weeks of gestation. If left untreated, preeclampsia can develop into eclampsia. Preeclampsia and eclampsia are two conditions that can endanger the lives of the mother and fetus, and require immediate medical attention. This study aims to determine the relationship between a history of previous hypertension and the incidence of preeclampsia-eclampsia in pregnant women. The method used is literature review with Narrative design Review to identify and summarize previously published articles on the relationship between history of hypertension and the incidence of preeclampsia-eclampsia in pregnant women. From 10 articles summarized, the results of the study showed that pregnant women with a history of hypertension had a significantly higher risk of experiencing preeclampsia-eclampsia compared to those without such a history. This finding emphasizes the importance of intensive medical supervision during pregnancy to monitor and manage the health conditions of pregnant women appropriately.

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INTRODUCTION

Hypertension is one of the significant health problems worldwide, including in Indonesia. Data from the World Health Organization (WHO) shows that around 1.13 billion people worldwide suffer from hypertension, and two-thirds of them are in developing countries. In Indonesia, based on the 2018 Basic Health Research (Riskesdas), the prevalence of hypertension in the adult population reached 34.1%. One of the complications that often occurs in pregnant women is preeclampsia and eclampsia (Indraswari et al., 2021) .

Preeclampsia is a medical condition characterized by high blood pressure and protein in the urine after 20 weeks of pregnancy, which can lead to serious complications for the mother and fetus. It develops when the blood vessels that supply blood to the placenta do not develop or function properly, causing impaired blood flow. Symptoms of preeclampsia can include swelling of the hands and face, severe headaches, changes in vision, and pain in

the upper abdomen. If left untreated, preeclampsia can progress to eclampsia, which is characterized by seizures that are not associated with other neurological conditions. Eclampsia is a very dangerous condition and can lead to serious complications such as organ dysfunction, including kidney failure and liver damage, placental abruption causing heavy bleeding, and even death of the mother and fetus. In addition, preeclampsia and eclampsia can also lead to premature birth, which carries additional risks to the baby's long-term health and development. Therefore, early diagnosis and timely treatment are essential to reduce the risk of serious complications and improve the safety of the mother and baby. (Khodijah et al., 2021) .

The relationship between a history of hypertension and the occurrence of preeclampsia-eclampsia has been the subject of medical research for many years. Studies have shown that pregnant women with a history of hypertension have a higher risk of developing preeclampsia compared to pregnant women who do not have a history of hypertension. This condition can be worsened by chronic hypertension that existed before pregnancy or hypertension that developed during pregnancy. A history of hypertension can worsen the condition of blood vessels and reduce blood flow to the placenta, which can trigger preeclampsia. In addition, hypertension can cause damage to the endothelial lining of blood vessels, increase blood vessel resistance, and disrupt the normal function of the cells that line the blood vessels, all of which contribute to the development of preeclampsia. As a result, pregnant women with a history of hypertension need to receive close monitoring and appropriate medical care to manage their blood pressure and reduce the risk of complications that can be life-threatening for them and their babies.

Previous studies have shown that chronic hypertension before pregnancy is a major risk factor for the development of preeclampsia, as pre-existing vascular damage can worsen during pregnancy. This emphasizes the importance of routine blood pressure monitoring during pregnancy to identify and manage the risk of preeclampsia as early as possible. This monitoring involves regular blood pressure checks, urine analysis for proteinuria, and monitoring for other clinical symptoms that may indicate the development of preeclampsia. With close monitoring, medical interventions can be initiated earlier to reduce the risk of serious complications for the mother and baby. These efforts include lifestyle adjustments, such as a low-salt diet and increased physical activity, as well as the use of antihypertensive medications that are safe during pregnancy. In addition, education for pregnant women about the early signs of preeclampsia and the importance of regular prenatal visits is also an important part of this prevention strategy. Thus, a proactive and comprehensive approach can help reduce the incidence of preeclampsia and improve health outcomes for both mother and child (Jayanti et al., 2023) .

This study aims to find out more about the relationship between a history of hypertension and the incidence of preeclampsia-eclampsia in pregnant women. By analyzing data from pregnant women who have a history of hypertension and comparing it with pregnant women who do not have a history of hypertension, it is expected that significant patterns and risk factors can be found. This study also aims to provide recommendations on effective monitoring and intervention strategies to reduce the risk of preeclampsia in pregnant

women. In addition, this study aims to increase awareness of the importance of routine prenatal check-ups and education for pregnant women about the early signs of preeclampsia and how to manage blood pressure during pregnancy. With a better understanding of risk factors and appropriate interventions, it is hoped that the incidence of preeclampsia and eclampsia can be reduced, so that the health of mothers and babies can be better maintained.

RESEARCH METHOD

This research is a *Literature Review research* with a *Narrative Review design*. This method is used to identify, study, evaluate, and interpret all available research. By using this method, can be *reviewed* and systematic journal identification, which in each process follows the steps or established protocols. This study also uses the PICO method in look for literature.

Type data on research This in the form of data secondary, that is database from various references, such as research journals, journal *reviews*, and related data with characteristics of pregnant women with anemia. *The* articles reviewed were articles published in the last 5 years (2020-2024). Search literature done through database electronics that is *Google Scholar, Science Direct and PubMed* was searched using keywords : History of Hypertension, Preeclampsia-eclampsia, Pregnant Women. The search results and selection of articles by researchers were viewed from the title, abstract and full text in 10 appropriate journals, then researchers conducted a journal review.

RESULTS AND DISCUSSION

In the literature screening process for this study, we started with a total of 500 initial search results. Of these, 300 search results were eliminated because they did not meet the basic research criteria. In addition, there were 400 articles or journals that were rejected because they were written in languages other than Indonesian and English, which are the languages prioritized to ensure readability and relevance of information. Journals that were not original research results or were not published were also eliminated, totaling 200 journals. Furthermore, 123 journals did not meet the established quality criteria, such as publication period and full-text accessibility.

After going through this rigorous selection process, we finally selected 10 journals to be reviewed further. These journals were selected based on the quality of the research, relevance to the topic, and suitability to the established criteria. The summary of the research journals is included in the table (The results of *the literature review* are presented in table 1). To further clarify the analysis, the abstract and *full text* of the journal were read and examined. The summary of the journal was then analyzed against the contents contained in the research objectives and research results/findings.

Table 1. Research Results

No	Writer	Article Title	Research Design	Results
1	Pramesti, Made Ardhia Santhi	The Relationship between Parity, History of	Observational analytical quantitative	From 107 respondents, the results showed that there was a significant relationship between a

No	Writer	Article Title	Research Design	Results
	Wulandari, Made Ayu Mirah Yumna, Nadira Santosa, Hilda (Pramesti et al., 2024)	Hypertension, and Body Mass Index with the Incidence of Preeclampsia		history of hypertension and the incidence of preeclampsia at the Mataram City Hospital with a p-value of 0.000 (p-value history of hypertension has a 4 times greater risk of experiencing preeclampsia compared to respondents who have parity that is not at risk. This states that someone with a history of hypertension before pregnancy will have an increased incidence of preeclampsia.
2	Liling Tumonglo, Norva Rofiah, Khofidhotur Yunicha Viridula, Erike (Liling Tumonglo et al., 2024)	The Relationship between Age and History of Hypertension with the Incidence of Preeclampsia in Pregnant Women at Paniai Regional Hospital, Paniai Regency, Central Papua	Ex post facto	It was found that from a total of 133 respondents, most (75.2%) of the 100 respondents had no history of preeclampsia and did not experience preeclampsia. The value of $\rho = 0.000$ was obtained with a confidence level of 95% ($\alpha = 0.05$). The strength of the correlation is expressed by the correlation coefficient of 0.827, which means that the level of relationship between a history of hypertension and the incidence of preeclampsia in pregnant women is in the very strong category with a positive relationship (+), meaning that the higher the history of hypertension, the higher the incidence of preeclampsia in pregnant women.
3.	Kasm, Masita Fujiko, Haizah Nurdin, Irwan, Abadi Aman (Kasma et al., 2024)	Characteristics of Preeclampsia Patients in Women Giving Birth at Sitti Khadijah 1 Hospital for the Period 2022-2023	retrospective descriptive	In the study that was conducted based on the history of hypertension, it showed that the most severe preeclampsia patients had no history of hypertension, namely 72 people (65.5%). Most pregnant women in this study did not have a history of increased blood pressure / hypertension, namely 55 (58.5%) and then with a history of hypertension were 39 (41.5%). Thus it is concluded that

No	Writer	Article Title	Research Design	Results
				in this study the results obtained were no relationship between the history of hypertension and the incidence of preeclampsia-eclampsia in pregnant women.
4.	Yulia, Revi (Yulia, 2023)	History of Hypertension Associated with Preeclampsia in Pregnant Women	analytical with cross sectional design.	From the total respondents of 88 respondents, pregnant women who did not have a history of hypertension with preeclampsia were 20 respondents (34.5%), while those without preeclampsia were 38 respondents (65.5%) and pregnant women who had a history of hypertension with preeclampsia were 25 respondents (83.3%), while those without preeclampsia were 5 respondents (16.7%). Based on the research conducted on the Relationship between Hypertension History and Preeclampsia in Pregnant Women, it was concluded that there is a Relationship between Hypertension History and Preeclampsia in Pregnant Women where the p value was $0.000 < 0.05$.
5.	Fatmawati, Lilis Sulistyono, Agus Basuki, Day (Fatmawati et al., 2023)	Influence Hypertension Factors and History of Preeclampsia / Eclampsia in Pregnancy Previous of Degrees Preeclampsia / Eclampsia in Gresik	quantitative with cross-sectional design	The relationship between history of preeclampsia/eclampsia in previous pregnancies and the degree of preeclampsia/eclampsia at Ibnu Sina Hospital, Gresik in 2013-2015. The subjects of the study were 190 pregnant women with preeclampsia/eclampsia and a large sample of 77 people consisting of 11 eclampsia mothers, 22 mild preeclampsia mothers, and 44 severe preeclampsia mothers, using simple random sampling. The variables in this study were history of preeclampsia/eclampsia and hypertension. The results showed

No	Writer	Article Title	Research Design	Results
				a significant relationship between history of preeclampsia/eclampsia ($p=0.007$) and hypertension ($p=0.000$). The incidence of preeclampsia/eclampsia is influenced by hypertension. Most mothers have a history of preeclampsia/eclampsia in previous pregnancies. The results of the analysis showed no significant effect between history of preeclampsia/eclampsia in previous pregnancies and the degree of preeclampsia/eclampsia.
6.	Octavia, Helen Siahaan, Salmon Charles Pardomuan Tua (Octavia & Siahaan, 2023)	Relationship Between Hypertension History, Body Mass Index and Maternal Age in Pregnant Women with Preeclampsia Incidence at Mojowarno Christian Hospital in 2020	Observational Analytics	Based on the results of the chi-square test, a significant value of $p = 0.005$ with an OR of 9.444 was obtained, which means that it is believed that there is a significant association between a history of hypertension and the incidence of preeclampsia in pregnant women at RSK. Mojowarno in 2020 and pregnant women who have a history of hypertension or high blood pressure have a greater chance of experiencing preeclampsia 9,444 times compared to pregnant women without hypertension.
7.	Xiaorui Nie ¹ , Zijie Xu ¹ and Hong Ren (Xiaorui) et al., 2024)	Analysis of risk factors of preeclampsia in pregnancy women with chronic hypertension and its impact on pregnancy outcomes	Retrospective	The results showed that a history of preeclampsia , a family history of preeclampsia , were risk factors for developing preeclampsia. The study also found that a history of preeclampsia was a risk factor for developing preeclampsia after pregnancy in patients with chronic hypertension.
8.	Arnani, Aan Yunola, Satria Anggraini, Helni (Arnani et al., 2022)	The relationship between history of hypertension, obesity , and frequency of	Quantitative with cross sectional design	In this study, the results obtained showed a significant relationship between a history of hypertension, where a value of ($p=0.001$) was obtained, based on the fact that

No	Writer	Article Title	Research Design	Results
		antenatal care with the incidence of preeclampsia		mothers who have a history of hypertension in previous pregnancies will cause recurrent hypertension in subsequent pregnancies.
9.	Antareztha, Miranda Shaqilla Ngo, Novia Fransiska Hasanah, Nurul (Antareztha et al., 2021)	Multiple Pregnancy, History of Preeclampsia, and Chronic Hypertension Are Associated with the Incidence of Preeclampsia at Abdul Wahab Sjahranie Hospital Samarinda in 2017-2019	Analytical observation with <i>case control method</i>	The results of the study showed that a history of preeclampsia with the incidence of preeclampsia had a significant relationship between a history of preeclampsia and the incidence of preeclampsia ($p < 0.05$). Likewise with a history of chronic hypertension where a significant relationship was found between chronic hypertension and the incidence of preeclampsia ($P < 0.005$). The OR value obtained in this study was 3.571 (95% CI 1.379-9.429) which means that pregnant women who had a history of hypertension had a 3.571 times greater risk of experiencing preeclampsia compared to pregnant women who did not have a history of hypertension.
10.	Nurelilasari Siregar, Lola Pebriyanthy, Ayannur Nasution, and Fatma Mutia (Nurelilasari et al., 2023)	The Relationship of History of Hypertension and Obesity with the Event of Preeclampsia in Pregnancy Women	analytical survey with cross-sectional approach sectional.	Based on the research results, it shows that there is a relationship between a history of hypertension and the incidence of preeclampsia in pregnant women at Padangsidempuan Regional Hospital with a p value = 0.000 ($p < 0.05$) where out of 60 respondents, there were 10 pregnant women with a history of hypertension (71.4%) and 4 pregnant women who did not have preeclampsia and had a history of hypertension (28.6).

Discussion

Chronic hypertension is a lifelong disease that affects the function of various organs in the body and is a major disease that endangers human health, it has been reported in the literature that the incidence of adverse pregnancy outcomes increases with increasing blood pressure levels in pregnant women with various degrees of hypertension. (Xiaorui et al., 2024) .

blood pressure decreases in early pregnancy and increases again in the third trimester. The most common complication in pregnancy in women with chronic hypertension is preeclampsia. One of the predisposing factors for severe preeclampsia is a history of hypertension, previous vascular hypertensive disease, or essential hypertension. Hypertension suffered before pregnancy causes disorders/damage to important organs of the body. Pregnancy itself causes weight gain so that it can cause more severe disorders/damage, which is indicated by edema and proteinuria. (Sudarman et et al. , 2021).

1. History of Hypertension as a Risk Factor

A history of hypertension before pregnancy is one of the major risk factors associated with the occurrence of preeclampsia-eclampsia in pregnant women. Previous hypertension increases susceptibility to increased blood pressure during pregnancy, which can interfere with the normal function of the placenta and lead to preeclampsia. Preeclampsia is a serious medical condition that usually occurs after the 20th week of pregnancy and is characterized by a combination of new-onset high blood pressure, proteinuria (excess protein in the urine), and is often accompanied by symptoms such as severe edema, visual disturbances, severe headaches, and other problems. (Pramesti et al., 2024) .

Uncontrolled hypertension during pregnancy can lead to eclampsia, a condition in which the mother experiences potentially life-threatening seizures or convulsions. Therefore, it is important for pregnant women with a history of hypertension to receive intensive prenatal care and close monitoring by medical personnel. Regular blood pressure checks and monitoring of maternal and fetal health are highly recommended to detect potential preeclampsia early and take appropriate preventive measures. Through this approach, it is hoped that the risk of serious complications associated with preeclampsia-eclampsia can be reduced, the prognosis of pregnancy improved, and the delivery of the mother and baby safe.

2. Risk Attached to Vulnerable Groups

Pregnant women with a history of hypertension have a higher risk of developing preeclampsia-eclampsia compared to those who do not have a history of high blood pressure. This factor shows a strong link between hypertension before pregnancy and the possibility of serious complications during pregnancy. Uncontrolled hypertension can affect the function of the placenta, which plays an important role in providing nutrients and oxygen to the fetus. Placental disorders can lead to preeclampsia, a condition that is often characterized by increased blood pressure, proteinuria, and other symptoms such as severe edema, severe headaches, and vision problems.

Preeclampsia is a condition that requires intensive medical supervision and focused management during pregnancy. Pregnant women with a history of hypertension should be closely monitored to detect early symptoms of preeclampsia before the condition worsens.

Routine blood pressure checks and urine analysis for proteinuria are important steps in monitoring the health of the mother and fetus. Early diagnosis and timely intervention can help reduce the risk of complications associated with preeclampsia-eclampsia, such as eclampsia, which can be life-threatening for both mother and baby.

Management of preeclampsia-eclampsia involves various aspects of prenatal care, including blood pressure regulation, symptom management, and management of potential complications. In addition, a holistic approach that includes good nutrition, adequate rest, and psychological support is also important to support overall health during pregnancy. With comprehensive care and integrated medical supervision, it is hoped that pregnancy outcomes can be improved and risks associated with preeclampsia-eclampsia for the mother and fetus can be reduced.

3. Implications for Clinical Practice

Knowing the history of previous hypertension in pregnant women has important implications in planning effective prenatal care. Hypertension before pregnancy is a significant risk factor for developing preeclampsia-eclampsia, a serious condition that can occur in pregnancy and is potentially life-threatening for both mother and fetus. Recognition of this risk factor allows health practitioners to adopt a proactive approach in monitoring maternal blood pressure during pregnancy, by performing regular checks to detect changes that may indicate the development of preeclampsia.

Regular monitoring of blood pressure and careful clinical assessment are key to identifying early symptoms of preeclampsia-eclampsia. Early detection allows for timely preventive measures, such as regulation of blood pressure with medications or lifestyle recommendations, as well as management of symptoms such as edema or proteinuria that may worsen during pregnancy. In addition, evidence-based and coordinated care between obstetricians, midwives, and other health professionals is crucial in optimizing pregnancy outcomes and preventing complications that may occur.

Understanding the association between a history of hypertension and the risk of preeclampsia-eclampsia allows health practitioners to provide appropriate and timely care to vulnerable pregnant women. Comprehensive education of pregnant women regarding the signs and symptoms of preeclampsia-eclampsia is also important to increase awareness and understanding of the condition. Thus, collaborative efforts in planning holistic prenatal care can minimize the risk of serious complications and improve maternal well-being and healthy pregnancy outcomes for each individual. (Silvana et al., 2023) .

With an approach focused on early detection through regular blood pressure monitoring and proper management of risk factors such as a history of hypertension, it is expected to reduce the incidence of preeclampsia-eclampsia which can endanger pregnant women and their fetuses. The importance of well-coordinated prenatal care and education for pregnant women about the importance of monitoring their own health should also not be overlooked. Thus, these efforts are not only aimed at minimizing the risk of complications, but also at ensuring that every pregnancy is safe and successful.

CONCLUSION

Overall, knowledge of maternal hypertension history plays a central role in planning effective prenatal care. Hypertension before pregnancy is a major risk factor associated with increased risk of preeclampsia-eclampsia, a serious condition that can be life-threatening for both mother and fetus. Routine blood pressure monitoring and careful monitoring during pregnancy are key strategies to detect early symptoms of preeclampsia and take timely preventive measures. Appropriate management of risk factors such as a history of hypertension, is carried out through a holistic and coordinated approach between the health care team. These steps include blood pressure regulation, symptom management, and education to pregnant women about the importance of recognizing and reporting symptoms to watch out for. Thus, well-planned prenatal care aims not only to reduce the risk of serious complications, but also to ensure that each pregnancy is safe and successful, maintaining the well-being of the mother and fetus during pregnancy and childbirth.

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