Tropical Health and Medical Research
Vol. 5, No. 2, August 2023, pp. 61-67
ISSN (Online): 2684-740X
Journal homepage: https://tropicalhealthandmedicalresearch.com

The Analysis between the Diagnose of Preeclampsia and Eclampsia to Treatment at Dr. H. Jusuf SK Hospital Indonesia

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ABSTRACT: Preeclampsia and eclampsia are types of gestational hypertension that are considered causes of maternal and perinatal death. Preeclampsia in severe conditions will result in eclampsia accompanied by symptoms of seizures or decreased consciousness. In the condition of preeclampsia, antihypertensive therapy is needed. The use of antihypertensives in patients with Preeclampsia and Eclampsia, namely methyldopa and labetalol, is the first line, and hydralazine, nifedipine, prazosin, and clonidine are the second line. The design of this study is a descriptive cross-sectional study to see the relationship between diagnoses and types of treatment. This research was conducted at Dr.H.Jusuf SK Hospital, Tarakan City, North Kalimantan Province, with secondary data from medical records as research data. The research subjects were pregnant women diagnosed with preeclampsia and eclampsia without accompanying comorbid diseases, with a sample of 49 respondents using a total sampling system. The results of this study found that one patient was diagnosed with Mild Preeclampsia with a single therapy, 45 patients were diagnosed with Severe Preeclampsia with a single therapy, a combination of 2 drugs and a combination of 3 drugs, and three patients were diagnosed with eclampsia with single therapy and a combination of 4 drugs. The data from this study showed a relationship between diagnosis and the type of treatment therapy with a significant value of 0.004 ($p<0.05$). The findings of this study can be used as a guide for medical therapy by healthcare professionals.
Keywords: Diagnosis; eclampsia; hypertension; preeclampsia; treatment therapy.

INTRODUCTION

Hypertension is when systolic blood pressure increases by more than 140 mmHg and diastolic by more than 90 mmHg, measured after two separate measurements[1]. One hypertension in pregnant women is Preeclampsia, which occurs in the 20th week of pregnancy or postpartum with a marked increase in blood pressure to 140/90 mmHg[2]. The pathophysiology of Preeclampsia is due to the endothelium, which releases vasoactive, which is dominated by vasoconstrictors, such as endothelin and thromboxane A2. In addition, the levels of renin, angiotensin I, and angiotensin II have decreased, which is different from normal pregnancies, so blood pressure increases. In a normal pregnancy, there is a decrease in blood flow to the kidneys and glomerular filtration rate. Still, in the event of Preeclampsia, there is an increase in renal afferent arterial resistance and changes in the shape of the glomerular endothelium[3]. There are two categories of Preeclampsia: Mild Preeclampsia (MP) and Severe Preeclampsia (SP). It can be said to be Severe Preeclampsia if blood pressure increases>160/140 mmHg. Symptoms in patients with

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Preeclampsia are not noticed by pregnant women, so in a short time, severe Preeclampsia and even Eclampsia develop[4].

Preeclampsia and Eclampsia are types of gestational hypertension considered causes of maternal and perinatal death. Preeclampsia in severe conditions will result in Eclampsia accompanied by symptoms of seizures or decreased consciousness[5].

In research by Yang et al. (2021), the prevalence of Preeclampsia in Sweden and China is 2.9% and 2.3%, respectively. Of all cases of Preeclampsia, Mild Preeclampsia is more common in Sweden, namely 63.1% in Sweden and 31.9% in China. In cases of Severe Preeclampsia, there were more cases in China, namely 68.1% in China and 32.5% in Sweden[6].

In research by Meazaw et al. (2020), risk factors for Preeclampsia and Eclampsia, namely maternal age factor, history of preeclampsia/eclampsia, family history of Preeclampsia/Eclampsia, maternal weight factor, chronic hypertension, and diabetes mellitus, experiencing anemia during pregnancy, mother's education, nutrition during pregnancy, consuming alcohol during pregnancy, antenatal care (ANC) visits, parity, and associated risk factors for Preeclampsia/Eclampsia[7].

In the condition of Preeclampsia, antihypertensive therapy is needed. Antihypertensive therapy aims to reduce systolic blood pressure to 130-150 mm Hg and diastolic blood pressure to 80-90 mm Hg and is well controlled8. In antihypertensive therapy in preeclamptic patients, methyldopa and labetalol are the first lines of antihypertensive therapy, and hydralazine, nifedipine, prazosin, and clonidine are the second line[8,9].

Based on a study by Maisarah et al. (2021), the use of antihypertensives in pregnant women diagnosed with Preeclampsia received single nifedipine therapy in 33 patients or 66%, there were two patients using methyldopa or as many as 4%, and also combination therapy in 15 patients or 30% with the combination of nifedipine and methyldopa[10].

Research related to medication therapy in patients with preeclampsia and Eclampsia is still being found. However, no research has been found regarding the relationship between diagnosis and type of treatment therapy in Preeclampsia and Eclampsia patients. This study aims to prove whether diagnosis can affect the type of treatment therapy.

Therefore, researchers are interested in researching the relationship between diagnosis and type of treatment therapy in Preeclampsia and Eclampsia patients at Dr. H. Jusuf SK Tarakan Hospital, North Kalimantan Province. RSUD Dr. H. Jusuf SK Tarakan North Kalimantan Province is a provincial hospital in North Kalimantan and a referral hospital in Tarakan City. The results of this study are expected to be a reference for medical personnel.

MATERIALS AND METHODS

The method used in this research is retrospective, with the research design used as a descriptive cross-sectional study. Analysis of research data using the Pearson Chi-Square test. The sample in this study was medical record data of preeclampsia patients and Eclampsia patients who had met the inclusion criteria at the Inpatient Installation of Dr. H. Jusuf SK Hospital, Tarakan City, North Kalimantan Province, in January-November 2022. The inclusion criteria in this study were hospitalized pregnant women diagnosed with preeclampsia and eclampsia who received antihypertensive medication therapy. Exclusion criteria in this study were inpatient pregnant women diagnosed with Preeclampsia and Eclampsia accompanied

by other comorbidities, such as diabetes mellitus, HIV, AIDS, and tuberculosis. The number of samples received was 69 research samples. Of the 69 research samples, 49 met the inclusion criteria, and 20 included the exclusion criteria. The independent variable in this study was the type of medication therapy for patients diagnosed with preeclampsia and eclampsia in pregnant women. The dependent variable in this study was the diagnosis of preeclampsia and eclampsia in pregnant women.

Approval for this research was obtained by the Health Research Ethics Committee of RSUD Dr. H. Jusuf SK Tarakan City, North Kalimantan Province No.078/KEPK-RSUD KALTARA/XI/2022.

RESULTS AND DISCUSSION

This study aimed to see the relationship between diagnoses and the type of treatment therapy in inpatient pregnant women at RSUD Dr.H.Jusuf SK, North Kalimantan Province, by conducting a descriptive Chi-Square test. The sample used in this study was the medical records of hospitalized pregnant women with diagnoses of Preeclampsia and Eclampsia in January 2022-November 2022, as many as 49 medical record data that met the inclusion criteria in the study.

Table 1. Distribution of Pre-Eclampsia and Eclampsia Patients at Dr.H.Jusuf SK Hospital, Tarakan City, North Kalimantan Province, 2022 Period

No	Research subject	n = 49	
		Number of Patients	Percentage (%)
1.	MP	1	2,0%
2.	SP	45	91,8%
3.	ECLAMPSIA	3	6,1%

Table 1 shows that SP diagnosis is greater than MV and Eclampsia diagnosis, namely 45 patients or 91.8%. These results align with the study of Nurizawati et al. (2019), in which patients who experienced PEB were larger[11].

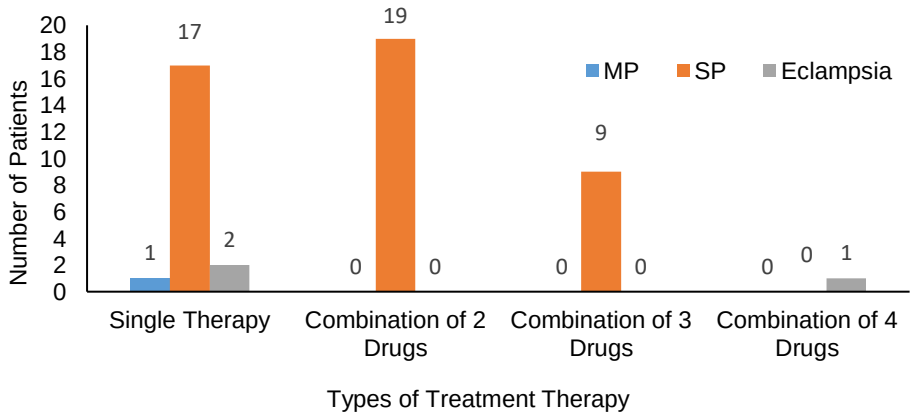

Figure 1. Histogram of Relationship between Diagnosis and Type of Treatment Therapy

Figure 1. shows the single therapy used in diagnosing Mild Preeclampsia, Severe Preeclampsia, and Eclampsia. A combination of 2 drugs and three-drug combinations was used to diagnose Severe Preeclampsia, and a combination of 4 drugs was used to diagnose Eclampsia. Combination therapy antihypertensives with

different actions and minimal doses are needed to normalize blood pressure, especially in preventing complications[12].

Table 2. Cross Table of Preeclampsia and Eclampsia Diagnosis by Type Treatment Therapy at Dr H.Jusuf SK Hospital Tarakan City Province North Kalimantan Period 2022

Diagnosis	Types of Treatment Therapy				p
	Single	Combination of 2 Drugs	Combination of 3 Drugs	Combination of 4 Drugs	
MP	1	0	0	0	0,004
SP	17	19	9	0	
ECLAMPSIA	2	0	0	1	
TOTAL	20	19	9	1	

Pearson Chi Square test, *p<0,05 was significant

In table 2, it can be seen that only one patient with a diagnosis of Mild Preeclampsia used a single therapy; patients with a diagnosis of Severe Preeclampsia used a single treatment for 17 patients and a combination of 2 drugs for 19 patients, and patients with a diagnosis of eclampsia used a single therapy for two patients and a combination of 4 drugs in 1 patient. The test results obtained a p-value of 0.004 (p<0.05). This study's results indicate a significant relationship between the diagnosis of preeclampsia and the diagnosis of eclampsia with the type of treatment therapy.

Seen from table 3. Types of single-therapy antihypertensive medication are used by patients diagnosed with Mild Preeclampsia, Severe Preeclampsia and Eclampsia. Amlodipine and Nifedipine are more commonly used in single therapy and belong to the CCB antihypertensive class. The use of Amlodipine is more widely used compared to the use of Nifedipine. These results align with a study conducted by Miasih (2016), in which the use of Amlodipine was most widely used in preeclampsia patients[13].

The CCB (Calcium Channel Blocker) group is the most widely used due to its immediate effect. In the study of Nurizawati et al. (2019), Nifedipine is the most widely used CCB antihypertensive class to achieve a gradual and sustainable reduction to prevent complications such as brain hemorrhage and eclampsia, as well as to provide a tocolytic effect on the mother[11]. The use of antihypertensives of the CCB class does not show side effects in relatively small amounts, which are excreted through breast milk and are safe for nursing mothers[14].

A combination of 2 drugs and a combination of 3 drugs is used in patients with a diagnosis of Severe Preeclampsia, and a combination of 4 drugs is used in patients with a diagnosis of eclampsia. This study's results align with the study of Andriana et al. (2018), which found the use of antihypertensive combination therapy in preeclampsia patients. However, in the QCG standard (2015), antihypertensive combinations are not used in preeclampsia patients[8,15].

A combination of 2 antihypertensive drugs is given to patients diagnosed with Severe Preeclampsia. The combination of 2 antihypertensive drugs most commonly used in PEB patients is the combination of Methyldopa and Amlodipine in 8 patients. In the study of Nurizawati et al. (2019), combination therapy is used in preeclampsia patients if a single therapy has been carried out and shows no change in blood pressure, judging by the severity of the patient[11].

Table 3. Antihypertensive Therapy for Preeclampsia and Eclampsia at Dr.H.Jusuf SK Hospital, Tarakan City, North Kalimantan Province.

Types of Treatment Therapy	Diagnosis					
	MP	n	SP	n	ECLAMPSIA	n
Single Therapy	Amlodipine	1	Amlodipine	12	Amlodipine	2
			Captopril	2		
			Nifedipine	3		
Combination of 2 Drugs	-	-	Amlodipine Furosemide Inj	1	-	
			Amlodipine Metildopa	8		
			Nifedipine Metildopa	5		
			Nifedipine Amlodipine	1		
			Amlodipine Furosemide	3		
			Amlodipine Nicardipine Inj	1		
Combination of 3 Drugs	-	-	Amlodipine Metildopa Nicardipine Inj	2	-	
			Amlodipine Captopril Nifedipine	1		
			Amlodipine Metildopa Nifedipine	4		
			Nifedipin HCT Metildopa	1		
			Amlodipine Metildopa Furosemide	1		
Combination of 4 Drugs	-	-	-		Furosemide Metildopa Amlodipine Furosemide Inj	1

The limitation of this study is the small number of samples of medical record data obtained. It is hoped that further researchers can get more samples for more accurate results.

CONCLUSION

This study shows a significant relationship between the diagnosis of Preeclampsia and Eclampsia and treatment therapy with a value of 0.004 ($p<0.05$), which indicates a strong relationship. The most widely used type of therapy is single

therapy, in which all diagnoses of Preeclampsia and Eclampsia use single therapy. Suggestions for future researchers are to get more samples to get more accurate results.

CONFLICT OF INTEREST

All authors state that there is no conflict or problem with any party in the writing of this journal publication.

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