

# Evaluation of antihypertensive drug use in preeclampsia and eclampsia patients in the inpatient room of Bandung Regency Hospital

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## ABSTRACT

Indonesia is one of the third highest developing countries in ASEAN with maternal mortality rate (MMR) and infant mortality rate (IMR). One of the three main causes of pregnancy-related maternal deaths is hypertension during pregnancy. It is very important to get rational antihypertensive therapy immediately in order to maintain normal blood pressure. This study aims to determine the profile of the use and rational use of antihypertensive drugs in preeclampsia and eclampsia patients in the Inpatient Room of Bandung Regency Hospital. The study was conducted observational with retrospective data collection. Samples were taken by random sampling which met the inclusion criteria for the period January-December 2021. The rationality of antihypertensive drug use is based on the 2019 American College of Obstetrics and Gynecologists and PIONAS guidelines. There were 78 medical records that met the criteria. The characteristics of the majority of patients aged 21-35 years (64%) with a gestational age of 28-40 weeks (97%) and the antihypertensive drug therapy that was widely used was nifedipine (56%). The percentage of rational use of antihypertensive drugs showed the right indication (100%), the right drug (95%), the right dose (100%), and the right frequency (100%).

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## INTRODUCTION

Pregnancy is a process that begins with fertilization, which is the joining of sperm and egg, followed by implantation until the baby is born within 40 weeks. A normal pregnancy is calculated from the first day of the last menstrual period with a duration of about 280 days. During this time, many pregnant women experience disorders and complications that can lead to death. In Indonesia, the three leading causes of pregnancy-related maternal deaths are bleeding (30%), hypertension in pregnancy (25%), and pregnancy infections (12%) (POGI, 2016). According to the Basic Health Research (Riskesmas), the prevalence of hypertension in pregnant women in Indonesia is in the age range  $\geq 18$  years, with the highest diagnosis in Bangka Belitung (30.9%), South

Kalimantan (30.8%), East Kalimantan (29.6%), West Java (29.4%), and South Sulawesi (28.1%). Indonesia is also one of the countries with the highest maternal and infant mortality rates in ASEAN (Pertasari, 2022) (Sari et al., 2023).

Preeclampsia is a pregnancy condition characterized by hypertension, which is an increase in systolic blood pressure  $\geq 140$  mmHg and diastolic blood pressure  $\geq 90$  mmHg, after 20 weeks of gestation, accompanied by proteinuria  $\geq 300$  mg/24 hours (Dewi, 2021) (Purwadi & Taufik, 2022) (UTARI, 2022). This condition can progress to eclampsia, which is preeclampsia accompanied by seizures, with the greatest prevalence in the third trimester. Improving the health of pregnant women is critical to reducing maternal and infant mortality and ensuring the quality of the next generation. Prevention of preeclampsia and its complications focuses on early diagnosis and appropriate treatment. Untreated hypertension can reduce blood and oxygen supply to the placenta as well as nutrients to the fetus, leading to delayed fetal development, premature birth, cerebral hemorrhage, and maternal and fetal death (Alatas, 2019).

Special understanding and attention is needed in drug treatment during pregnancy due to the risk of teratogenic effects and physiological changes in pregnant women (Wijaksana, 2019) (Bisri & Bisri, 2022) (Permata et al., 2023). Not all drugs can be given to pregnant women, so the selection of drugs must be safe, efficient, and rational. Evaluation of the rational use of antihypertensive drugs in preeclampsia and eclampsia patients was carried out with the parameters of the right indication, the right drug, the right dose, and the right frequency (Hidayati et al., 2020) (Febrianti, 2022) (TIAS, 2023) (Yuniarni et al., 2024).

This study aims to evaluate the rational use of the most effective antihypertensive drugs in pregnant women with preeclampsia and eclampsia at Bandung Regency Hospital. This study also aims to determine the profile of antihypertensive drug use in pregnant women in the inpatient room and measure the rationality of drug use with the right indication, right drug, right dose, and right frequency parameters. The results of the study are expected to increase knowledge and understanding of the rational prescription of antihypertensive drugs, add references for the development of further research, and provide an overview to doctors regarding the rationality of prescribing antihypertensive drugs that are safe and effective in the inpatient room of Bandung Regency Hospital. It is expected that the evaluation of the accuracy of the use of antihypertensive drugs in pregnant women with preeclampsia and eclampsia conditions has met the parameters of the right indication, right drug, right dose, and right frequency.

## RESEARCH METHOD

The study was conducted at one of the Bandung Regency Hospital in March 2022. This study was conducted through observational method with retrospective data collection using secondary medical records. The population in this study were pregnant women with preeclampsia and eclampsia conditions at one of the Bandung Regency Hospital who received antihypertensive drug therapy during the period January-December 2021. Data collection starts from recording data from secondary medical records, data collection, and data analysis using Microsoft Excel in a simple statistical manner which is analyzed using the general guidelines for the use of antihypertensive drugs from the American College of Obstetrics and Gynecologists 2019 and PIONAS with several research parameters including the right indication, right drug, right dose, and right frequency.

### Tools

This study used Microsoft Excel (Microsoft Corporation, USA) for simple statistical data processing.

### Materials

The data used in this study are secondary medical record data of patients with preeclampsia and eclampsia who received antihypertensive drug therapy during the period

January-December 2021. This medical record data was obtained from one of the hospitals in Bandung Regency.

### Detailed Procedure

This study was conducted through observational method with retrospective data collection. The study population was pregnant women with preeclampsia and eclampsia conditions at Bandung Regency Hospital who received antihypertensive drug therapy during the period January-December 2021.

### Patient Criteria

The patient criteria included in this study included all pregnant women with preeclampsia and eclampsia who received antihypertensive therapy at Bandung Regency Hospital during the period January-December 2021. Patients included in the inclusion criteria were those who had undergone hospitalization in that period and received antihypertensive therapy. The exclusion criteria included patients who died from preeclampsia and eclampsia and patients who were referred to other hospitals.

### Drug Criteria

Drug criteria in this study focused on antihypertensive drugs used during pregnancy. The evaluation was conducted to ensure that the drugs given were in accordance with the guidelines for the use of antihypertensive drugs that can be used safely and effectively during pregnancy.

### Criteria for Drug Use (KPO)

Drug Use Criteria (KPO) is used as a reference to evaluate the use of antihypertensive drugs. This evaluation is based on guidelines from the American College of Obstetrics and Gynecologists 2019 and PIONAS regarding the use of antihypertensives in pregnancy. The criteria used include the right indication, the right drug, the right dose, and the right frequency.

### Data Analysis

Data analysis was performed to determine the accuracy of antihypertensive drug use in patients with preeclampsia and eclampsia. The data analyzed included quantitative information such as patient age, gestational age, protein status, diagnosis, and use of antihypertensive drugs. In addition, qualitative data analysis was also conducted to evaluate the accuracy of indications, drugs, doses, and frequency of drug administration. Data were analyzed by comparing the guidelines used in the RSUD with the general guidelines from the American College of Obstetrics and Gynecologists 2019 and PIONAS, to ensure the rationality and safety of the therapy provided.

## RESULTS AND DISCUSSIONS

### Patient Characteristics

#### Based on Patient Age

This age grouping is based on DEPKES in 2019, where the age grouping of patients aims to find out at what age patients are most often diagnosed with preeclampsia and eclampsia.

**Table 1.** Age distribution of preeclampsia and eclampsia patients hospitalized at Majalaya Hospital for the period January-December 2021

Patient Age	Total	Percentage (%)
Late Adolescent (<20 years old)	5	6
Early Adulthood (21 - 35 years)	50	64
Late Adults (>35 years old)	23	30
Total	78	100

Table 1 shows the distribution of patients based on patient age, where the highest number of patients with preeclampsia and eclampsia conditions at the age of early adulthood, namely 21-35

years as many as 50 patients (64%). The second order in late adulthood is >35 years old as many as 23 patients (30%) and the third order in late adolescence is <20 years old as many as 5 patients (6%) out of 78 total patients.

**Based on gestational age**

Gestational age grouping aims to determine at what gestational age weeks preeclampsia and eclampsia usually occur more frequently.

**Table 2.** Distribution of gestational age of preeclampsia and eclampsia patients hospitalized at Majalaya Hospital in the period January-December 2021

Pregnancy Age	Total	Percentage (%)
First Trimester (1-12 weeks)	0	0
Trimester II (13-27 weeks)	2	3
Trimester III (28-40 weeks)	76	97
Total	78	100

Table 2 shows that preeclampsia and eclampsia patients occurred mostly in the third trimester of pregnancy, namely 28-40 weeks as many as 76 patients (97%). While in the second trimester of pregnancy between 13-27 weeks as many as 2 patients (3%) and there were no patients in the first trimester, namely 1-12 weeks.

**Based on Protein Status**

Protein status grouping aims to determine the complications of the presence or absence of preeclampsia and eclampsia that occur in pregnant women during pregnancy.

**Table 3.** Distribution of protein status of preeclampsia and eclampsia patients hospitalized at Majalaya Hospital in January-December 2021

Protein Status	Total	Percentage (%)
Protein +1 (0.3-0.45 g/L)	29	37
Protein +2 (0.45-1 g/L)	38	49
Protein +3 (1-3 g/L)	11	14
Quantity	78	100

Table 3 shows that the distribution of protein status in Majalaya Hospital is protein status +2 as many as 38 patients (49%), then the second order is protein status +1 as many as 29 patients (37%), and the last order is protein status +3 as many as 11 patients (14%).

**Based on Diagnosis**

Grouping patients by diagnosis aims to determine the distribution of preeclampsia and eclampsia diagnoses that often occur at Majalaya Hospital.

**Table 4.** Distribution of diagnoses of preeclampsia and eclampsia patients hospitalized at Majalaya Hospital for the period January-December 2021

Diagnosis	Total	Percentage (%)
Mild Preeclampsia	29	37
Severe Preeclampsia	41	53
Eclampsia	8	10
Total	78	100

Table 4 shows that the most common diagnosis distribution at Majalaya Hospital was severe preeclampsia as many as 41 patients (53%), then the second order was mild preeclampsia as many as 29 patients (37%), and the last order was eclampsia as many as 8 patients (10%). The results of this study are similar to research conducted by Amri (2015) and Marendeng (2007)(Doering, 1989) which showed that the diagnosis of severe preeclampsia (PEB) was most

common, this is because patients diagnosed with mild preeclampsia (PER) rarely undergo hospitalization in the hospital because it can be done on an outpatient basis.

The results of patient diagnosis in table 4 are also in accordance with protein detection in detecting mild or severe preeclampsia which can lead to ongoing conditions, namely eclampsia as many as 49 patients, and this is also very influential for the handling of antihypertensive therapy to be used (Karima et al., 2015).

#### Based on the Use of Antihypertensive Drugs

Antihypertensive drugs are drugs used to lower blood pressure in people with high blood pressure. The antihypertensive drugs recommended during pregnancy according to the American College of Obstetrics and Gynecologist 2019 are labetalol, nifedipine, methyldopa and hydralazine.

**Table 5.** Distribution of the use of single antihypertensive drugs in patients with preeclampsia and eclampsia hospitalized at Majalaya Regional Hospital for the period January-December 2021

Antihypertensive Drug Name	Total	Percentage (%)
Methyldopa	56	41
Nifedipine	78	56
Amlodipine	4	3
Quantity	138	100

Table 5 shows the use of the most widely used single antihypertensive drug is nifedipine as much as 78 (56%). The second order is methyldopa as much as 56 (41%), and the third order is amlodipine as much as 4 (3%). This is because nifedipine is the first-line treatment for hypertension during pregnancy because it is safe for the mother and fetus. The results of this study are in accordance with those conducted by Qoyimah (5) and Amri (2015) which stated that nifedipine is an ideal drug for the treatment of severe preeclampsia, because it is effective in lowering blood pressure without causing side effects.

**Table 6.** Distribution of combination drug use in hospitalized patients with preeclampsia and eclampsia at Majalaya Regional Hospital in the period January-December 2021

Antihypertensive Drug Name	Total	Percentage (%)
Combination of 2 drugs		
Methyldopa-Nifedipine	7	9
Nifedipine-Anticonvulsant	22	28
Combination of 3 drugs		
Methyldopa-Nifedipine-Anticonvulsant	49	63
Number	78	100

According to the JNC VIII guidelines (2014), antihypertensive therapy can be used in combination with other measures if monotherapy has not been able to control blood pressure well. Methyldopa is very effective in treating mild preeclampsia, while for severe preeclampsia nifedipine and MgSO<sub>4</sub> work as anticonvulsants. MgSO<sub>4</sub> has a working mechanism that reduces peripheral resistance by inactivating the myosin kinase chain, which causes increased arterial relaxation and decreased blood pressure. The combination of methyldopa and nifedipine is more effective in controlling moderate to severe preeclampsia. Another study showed that the combination of methyldopa, nifedipine, and MgSO<sub>4</sub> is effective in treating PEB patients with a history of hypertension, a history of preeclampsia in previous pregnancies, blood pressure does not fall below target and can help prevent eclampsia. The combination of nifedipine and MgSO<sub>4</sub> is given to patients diagnosed with PEB, but there are initial and maintenance doses that are adjusted to evaluate the decrease in blood pressure. MgSO<sub>4</sub> is given by IV injection in a bolus.

**Evaluation of Antihypertensive Drug Use  
Appropriate Indication**

Appropriate indication is the accuracy of drug administration must be in accordance with the doctor's diagnosis for preeclampsia and eclampsia patients based on clinical symptoms. The implementation of antihypertensive therapy is said to meet the criteria if it is given in accordance with the doctor's diagnosis, blood pressure levels, protein levels and use of antihypertensive drugs (QCG, 2015)(Dini et al., 2016).

**Table 7.** Distribution of appropriate indications for antihypertensive treatment in patients with preeclampsia and eclampsia hospitalized at Majalaya Regional Hospital in the period January-December 2021

Results	Total	Percentage (%)
Correct Indication	78	100
Incorrect Indication	0	0
Total	78	100

Table 7 shows that all patients suffering from preeclampsia and eclampsia received antihypertensive therapy in accordance with the doctor's diagnosis. The results of the analysis conducted by the researcher showed that antihypertensive treatment in inpatients with preeclampsia and eclampsia at Majalaya Regional Hospital in the period January-December 2021, as many as 78 patients (100%) had accurate indications based on the American College of Obstetrics and Gynecologist guidelines and PIONAS.

**Right Drug**

Right drug is the right choice of antihypertensive drugs must have an effect that is appropriate to the disease as seen from blood pressure values, protein values and with the consideration that the drug has high effectiveness and is safe for patients.

**Table 8.** Distribution of right antihypertensive drugs for inpatients with preeclampsia and eclampsia at Majalaya Hospital for the period January-December 2021

Results	Total	Percentage (%)
Right Drug	74	95
Not Right Drug	4	5
Number	78	100

Table 8 shows that all patients suffering from preeclampsia and eclampsia received antihypertensive drug therapy. The results of the analysis conducted by researchers showed that antihypertensive treatment in inpatients with preeclampsia and eclampsia at Majalaya Regional Hospital in the period January-December 2021 was 95% appropriate medication and 5% inappropriate medication from a total of 78 patients based on the American College of Obstetrics and Gynecologist guidelines and PIONAS.

**Correct Dose**

The correct dose is the accuracy of administering the dose to the patient to achieve the therapeutic target required by patients suffering from preeclampsia and eclampsia.

**Table 9.** Distribution of the correct dose of antihypertensive treatment for patients with preeclampsia and eclampsia hospitalized at Majalaya Regional Hospital January-December 2021

Results	Total	Percentage (%)
Correct Dose	78	100
Incorrect Dose	0	0
Number	78	100

Table 9 shows that the distribution of the accuracy of the dosage of antihypertensive drugs in inpatients with preeclampsia and eclampsia at Majalaya Regional Hospital in the period

January-December 2021 was 100% of the total of 78 patients based on the American College of Obstetrics and Gynecologist (6) and PIONAS guidelines.

### Correct Frequency

Correct frequency is the accuracy of the level of antihypertensive drugs in the blood to achieve the desired therapeutic effect.

**Table 10.** Distribution of the correct frequency of antihypertensive treatment for preeclampsia and eclampsia patients hospitalized at Majalaya Regional Hospital January-December 2021

Results	Total	Percentage (%)
Exact Frequency	78	100
Inaccurate Frequency	0	0
Total	78	100

Table 10 shows the exact distribution of the frequency of use of antihypertensive drugs in inpatients with preeclampsia and eclampsia at Majalaya Regional Hospital in the period January-December 2021. 100% of the frequency was correct from a total of 78 patients based on the American College of Obstetricians and Gynecologists (6) and PIONAS guidelines.

## Discussion

### Patient Characteristics

Patient age is one of the risk factors for preeclampsia and eclampsia. This age is closely related to decreased body function and is a determinant of the health of the pregnant woman herself. There are several other factors that trigger preeclampsia and eclampsia such as a history of comorbidities, obesity, genetics, and hypertension in previous pregnancies (Margareth et al., 2014). This is also in accordance with the Basic Health Research, which shows that the prevalence of hypertension in pregnant women in Indonesia is in the age range  $\geq 18$  years, which is 34.1%.

The results of this study are the same as those studied by Hutabarat et al., (2016) and Khuzaiyah (2016) which stated that the incidence of preeclampsia and eclampsia most often occurs at the age of 21-35 years, which is 68.8%. This is because the age of 21-35 years is the peak of a woman's fertility and a good age to plan a pregnancy. While pregnancy at the age of  $< 20$  years, many mothers experience unpreparedness in facing pregnancy both psychologically and physically, so that they experience irregular blood pressure which causes hypertension during pregnancy. At a gestational age of  $> 35$  years, many are related to problems of declining health and physical conditions such as aging of body organs, decreased liver function, and increased blood pressure which results in preeclampsia and eclampsia (Hutabarat et al., 2016).

In the third trimester of pregnancy, the highest percentage of preeclampsia and eclampsia sufferers is 28-40 weeks of gestation. The results of this study are the same as Qoyimah's study (5) which stated that the third trimester is the most common age for preeclampsia and eclampsia, namely 17 patients. The number of preeclampsia and eclampsia conditions in the third trimester is related to the theory of placental implantation ischemia which states that preeclampsia and eclampsia conditions at a gestational age of  $> 20$  weeks, increase with increasing gestational age caused by changes in the placenta (5).

Urine protein examination is a method to determine kidney function during pregnancy and to identify mild or severe preeclampsia that can cause a continuous condition, namely eclampsia. Protein detection greatly influences the accuracy of the diagnosis for the treatment of hypertension during pregnancy. Mild preeclampsia can be said if blood pressure is  $\geq 140/90$  mmHg where pregnancy is  $> 20$  weeks and protein  $\geq 300$  mg/24 hours or protein  $\geq +1$  on dipstick examination. The appearance of protein is influenced by glomerular filtration factors and tubular protein reabsorption (Williams et al., 2018). Preeclampsia is a condition of pregnancy after an age of  $> 20$  weeks accompanied by hypertension, namely an increase in systolic blood pressure  $\geq 140$  mmHg and diastolic blood pressure  $\geq 90$  mmHg, marked by protein  $\geq 300$  mg/24 hours or dipstick

test  $\geq$ protein 1+. Seizures in pregnant women with preeclampsia are a complication known as eclampsia. Eclampsia can occur in severe preeclampsia, namely preeclampsia with systolic blood pressure  $\geq$ 160 mm/Hg and diastolic blood pressure  $\geq$ 110 mm/Hg accompanied by protein of more than 5 g/24 hours (3).

The results of the patient's diagnosis in table V.5 are also in accordance with the detection of protein in detecting mild or severe preeclampsia which can cause ongoing conditions, namely eclampsia in 49 patients, and this also greatly influences the handling of antihypertensive therapy to be used (Yuniarni et al., 2024).

Nifedipine is included in the Calcium Channel Blocker (CCB) group which is the most effective treatment for the treatment of preeclampsia, which is given orally with a rapid onset. The mechanism of action of nifedipine is to block calcium ions ( $\text{Ca}^{2+}$ ) that enter cells through the L-channel so that it relaxes vascular smooth muscle and heart muscle (9). Methyldopa belongs to the central  $\alpha$ 2-agonist group with a working mechanism that is to stimulate  $\alpha$ 2-adrenergic receptors in the brain which will reduce the sympathetic flow from the vasomotor center in the brain, where sympathetic activity will reduce heart rate, peripheral resistance, and plasma renin activity. Amlodipine also belongs to the Calcium Channel Blocker (CCB) group which has selective properties with relatively low oral bioavailability, has a long half-life and slow absorption to prevent sudden drops in blood pressure (10).

The results of this study are in accordance with those conducted by (Qoyimah & Adnan, 2016)(AURA HAFIZAH LUBNA, 2024) and Amri (2015) which stated that nifedipine is an ideal drug for treating severe preeclampsia, because it is effective in lowering blood pressure without causing side effects.

According to Hariyanti's research (2016) with a retrospective cohort approach at Fatmawati Hospital, it was stated that there was a reduction in the incidence of eclampsia in patients who received  $\text{MgSO}_4$  therapy compared to patients who were not given  $\text{MgSO}_4$ . In patients who experience preeclampsia,  $\text{MgSO}_4$  has an effect on reducing the incidence of eclampsia seizures, reducing the use of antihypertensives, reducing systolic blood pressure and as a neuroprotective agent for the fetus (Wibowo et al., 2016).

### **Evaluation of Antihypertensive Drug Use**

The results of this study are the same as the results of Kusumaningtyas's study (2015), where the results showed 100% correct indication and all patients with blood pressure  $>140/90$  mmHg received antihypertensive drug therapy. A person is said to be diagnosed with preeclampsia and eclampsia if there is an increase in blood pressure accompanied by protein in the urine during pregnancy of more than 20 weeks. The accuracy of the indication aims to find out all patients with blood pressure  $>140/90$  mmHg so that they can get the right antihypertensive drug therapy according to the patient's needs (6).

The results of this study are not much different from the study conducted by Amri (2015), where the results showed 81.35% correct medication. In the study, the use of nifedipine to treat hypertension in pregnancy was 56%. Nifedipine is the first line in severe hypertension, besides labetalol and hydralazine. In addition, nifedipine is good to use before and after delivery. Nifedipine is the right drug to give to pregnant women because it has a fast onset and can lower blood pressure. Methyldopa is a drug with calcium entering the cells, causing blood vessels to relax or vasodilate. This effect can lower blood pressure due to increased Peripheral Vascular Resistance (PVR) in hypertensive patients caused by increased arterial smooth muscle pressure due to high calcium in the cells (Rhoads, 2017).

The results of the study are in accordance with the American College of Obstetrics and Gynecologist guidelines (6) which explain that patients with severe preeclampsia are given nifedipine, labetalol and hydralazine monotherapy, while in mild preeclampsia patients use methyldopa. The administration of a combination of antihypertensive drug therapy in the ACOG guideline standard (6) is given in emergency conditions, namely when the administration of

monotherapy does not show significant results so that additional administration of MgSO<sub>4</sub> combination therapy is needed. In patients who experience severe preeclampsia that develops into eclampsia, MgSO<sub>4</sub> has an effect on reducing the incidence of eclampsia seizures, reducing systolic blood pressure and as a neuroprotective agent for the fetus.

In March, there were 4 drug uses that were declared inappropriate drugs, this was due to the inappropriate use of amlodipine for pregnant women. Amlodipine has a mechanism of action as a vasodilator that blocks the entry of calcium ions (Ca<sup>2+</sup>) into smooth muscle cells of blood vessels and myocardium, causing muscle relaxation and decreased peripheral resistance. According to the FDA, the drug safety category of amlodipine is included in group C, where this drug is included in the calcium antagonist group. In addition, amlodipine can be transferred to breast milk and has a long onset, so that absorption of amlodipine occurs slowly (Iswanti, 2015). The results of this study are far different from the study conducted by Cahyo (2016), where the results showed 78.57% of the correct dose. In the administration of each dose of the drug, namely amlodipine is given orally at a dose of 10 mg based on blood pressure, nifedipine is given according to the dose limit per day of 30-60 mg / day and the dose of methyldopa given also does not exceed the dose limit per day of 500-3000 mg / day so that it is in accordance with the 2019 ACOG clinical guidelines (Ayu et al., 2020). The use of MgSO<sub>4</sub> for protein status +1 with blood pressure of 140-170 mmHg is carried out as a maintenance dose, namely the administration of a dose of MgSO<sub>4</sub> of 6 gr or 30 cc which is inserted into a 500 cc RL for 6 hours (28 tts / minute). Meanwhile, the use of MgSO<sub>4</sub> for protein status +2 and protein +3 with blood pressure >170 mmHg is carried out as a loading dose, namely administering a dose of MgSO<sub>4</sub> of 4 grams or 20 cc which is inserted into a 100 cc RL for 30 minutes (73 tts/minute) (Espinoza et al., 2019).

The results of this study are the same as the study conducted by (Saraswati & Mardiana, 2016), where the results showed 100% correct frequency. The results of the analysis of this study showed that the frequency of use of antihypertensive drugs was in accordance with the guidelines, where the frequency of use of short-acting oral nifedipine was 3 times a day with a dose of 10 mg and the frequency of methyldopa was 3 times a day with a dose of 250 mg. The frequency for amlodipine was 1 time a day with a dose of 10 mg (14; 15). While the frequency of use of MgSO<sub>4</sub> was given once in cases that had been diagnosed with PEB or eclampsia which usually ended with termination of pregnancy (6; 3).

## CONCLUSION

The conclusion of this study shows that the use of antihypertensive drugs in hospitalized preeclampsia and eclampsia patients at Majalaya Regional Hospital is dominated by nifedipine (56%), with methyldopa and amlodipine as other alternatives. Evaluation of antihypertensive use based on the American College of Obstetrics and Gynecologist (ACOG, 2019) and PIONAS guidelines showed high compliance, namely correct indication (100%), correct drug (95%), correct dose (100%), and correct frequency (100%). For further research, it is recommended that it be carried out concurrently in patients to avoid data bias and allow direct intervention if discrepancies are found.

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