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Observational Study: Initial Management Of Severe Preeclampsia By Midwives In Primary Healthcare Facilities

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Abstract

Background : Severe preeclampsia is a pregnancy complication that May progress to eclampsia , organ dysfunction , and maternal or fetus death . Primary healthcare facilities play an important role in recognizing obstetric emergencies , providing initial management within professional authority , and ensuring timely referral to higher -level healthcare facilities. Objective : To describe the initial management of severe preeclampsia by midwives in primary healthcare facilities . Methods : This study employed a descriptive observational design with a cross-sectional approach . The sample consisted of 67 medical records of pregnant women with severe preeclampsia who received initial management from midwives in primary healthcare facilities . Total sampling was applied to eligible case records during the observation period . Data were collected using an observation checklist covering recognition of danger signs , maternal and fetus assessment , initial stabilization , treatment according to protocols and professional authority , documentation , and referral procedures . Descriptive statistical analysis was performed. Results : Among the 67 cases , blood pressure assessment was documented in 64 cases (95.5%), danger sign assessment in 58 cases (86.6%), and fetus assessment in 52 cases (77.6%). Magnesium sulfate administration according to indications , protocols , and professional authority was recorded in 43 cases (64.2%), while antihypertensive treatment according to protocols was documented in 39 cases (58.2%). Referrals to higher -level healthcare facilities was performed in 61 cases (91.0%). Overall , 42 cases (62.7%) met the study's criteria for appropriate initial management. Conclusion : Initial management of severe preeclampsia by midwives in primary healthcare facilities involves emergency recognition , stabilization , protocol-based treatment , and referral . Strengthening midwives ' competencies , medication and equipment availability , and referral communication systems is essential to improve maternal healthcare .

Keywords : Initial Management, Midwives, Primary Healthcare Facilities, Referral, Severe Preeclampsia .

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1. Introduction

Preeclampsia is a hypertensive disorder of pregnancy that typically appears after 20 weeks of gestation and may be accompanied by proteinuria or signs of organ dysfunction. This condition is a significant cause of maternal and perinatal morbidity and mortality (Abalos et al., 2013; Steegers et al., 2010). Preeclampsia can progress to a severe condition characterized by severe hypertension, neurological disorders, liver and kidney dysfunction, thrombocytopenia, pulmonary edema, and fetal complications (American College of Obstetricians and Gynecologists [ACOG], 2020; Magee et al., 2022).

Preeclampsia requires prompt treatment because the mother's condition can deteriorate rapidly. Possible complications include eclampsia, HELLP syndrome, stroke, placental abruption, fetal growth restriction, premature birth, and maternal and perinatal death (ACOG, 2020; Sibai, 2005). The World Health Organization (WHO, 2011) emphasizes the importance of early detection, blood pressure control, seizure prevention, and monitoring of maternal and fetal conditions in the management of preeclampsia.

Primary healthcare facilities are crucial for the early detection and management of pregnancy complications. Community health centers, clinics, and midwifery practices can be the first point of contact for pregnant women experiencing symptoms or danger signs. Therefore, the ability of healthcare workers to recognize severe preeclampsia and make appropriate referral decisions is crucial for the safety of both mother and fetus (National Institute for Health and Care Excellence [NICE], 2019; WHO, 2011).

Midwives play a role in antenatal care, recognizing danger signs, checking blood pressure, identifying symptoms, communicating with referral facilities, and implementing initial interventions according to professional standards and authority. Appropriate initial management can help reduce delays before patients receive definitive care at advanced healthcare facilities (NICE, 2019; WHO, 2011).

Research on the management pathway for hypertensive disorders in pregnancy in primary care facilities in Indonesia indicates a need for more operational clinical guidelines to assist health workers, including midwives, in recognizing and managing cases of hypertension in pregnancy. The development of standardized service pathways is important to support consistent clinical decision-making and improve the quality of maternal healthcare services (Brown et al., 2018; Magee et al., 2022).

An exploratory study of the management of hypertensive disorders in pregnancy in primary care facilities in Indonesia also identified challenges in guideline implementation, drug availability, access to referrals, and health worker readiness. These findings highlight the importance of evaluating direct case management practices to identify gaps between clinical recommendations and service delivery (WHO, 2011; NICE, 2019).

Initial management of severe preeclampsia involves several interrelated components. These include recognizing emergency signs, assessing maternal and fetal conditions, stabilizing the patient, preventing seizures, controlling severe hypertension, communicating with referral facilities, and monitoring the patient during transfer (ACOG, 2020; Magee et al., 2022).

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Magnesium sulfate is a recommended medication for preventing seizures in patients with severe preeclampsia (Duley et al., 2010; WHO, 2011). The WHO also recommends the use of antihypertensive drugs in pregnant women with severe hypertension. If facilities cannot provide a complete magnesium sulfate regimen, an initial loading dose followed by immediate referral to a higher-level health facility may be considered, depending on applicable guidelines and the capabilities of healthcare workers (WHO, 2011).

These procedures must comply with applicable service standards, medication availability, clinical monitoring capabilities, and professional boundaries. Initial treatment should not delay referral, especially when the mother's condition shows signs of an emergency (ACOG, 2020; NICE, 2019).

In addition to clinical aspects, the referral system is also crucial in the management of severe preeclampsia. Referrals must be accompanied by clear communication, delivery of clinical information, documentation of procedures, and safe transportation arrangements. Delays in decision-making, reaching the referral facility, and providing care at the receiving facility can increase the risk of maternal and perinatal complications (WHO, 2011; Say et al., 2014).

Based on these issues, an observational study is needed to describe the implementation of early management of severe preeclampsia by midwives in primary healthcare facilities. This research is expected to provide an overview of the service aspects that have been implemented and the components that still need strengthening.

2. Research Methods

This study used a descriptive observational design with a cross-sectional approach. The research was designed to be carried out at several primary health care facilities that provide maternal services, such as community health centers and maternal and child care clinics. The observation period in this draft is planned for three months, namely July–September 2026 The study population was all case records of pregnant women with severe preeclampsia who received initial treatment by midwives at primary health care facilities during the study period. The sample in this draft consists of 67 case records selected using a *total sampling technique* for all records that meet the inclusion and exclusion criteria.

The instruments used are service documentation observation sheets or *clinical audit checklists.* This research uses confidential healthcare data. Therefore, the identities of patients and healthcare workers must be protected. Access to medical records is granted after obtaining permission from the healthcare facility and approval from the ethics committee, as required. Research results are reported in aggregate so as not to identify specific individuals, health workers, or facilities without appropriate consent.

3. Research Results And Discussion

a. Result

Table 1. Distribution of Case Characteristics

Characteristics	Frequency	Percentage
Maternal age group		
<20 years	4	6.0%
20–34 years	39	58.2%
≥35 years	24	35.8%
Gestational age		

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<28 weeks	5	7.5%
28–33 weeks	18	26.9%
34–36 weeks	20	29.9%
≥37 weeks	24	35.8%
Pregnancy status		
Primigravida	31	46.3%
Multigravida	36	53.7%
Total	67	100%

Based on Table 1, the largest age group was 20–34 years, with 39 cases (58.2%). Based on gestational age, the ≥37-week gestation group was the largest, with 24 cases (35.8%). Thirty-six cases (53.7%) occurred in multigravida mothers.

Table 2. Initial Examination Documentation in Cases of Severe Preeclampsia

Inspection Components	Implemented n (%)	Undocumented n (%)
Blood pressure check	64 (95.5%)	3 (4.5%)
Danger sign assessment	58 (86.6%)	9 (13.4%)
Examination of the level of consciousness	55 (82.1%)	12 (17.9%)
Assessment of fetal condition	52 (77.6%)	15 (22.4%)
Documentation of gestational age	61 (91.0%)	6 (9.0%)

Based on Table 2, blood pressure examination was the most documented component, at 64 cases (95.5%). Meanwhile, fetal condition assessment was recorded in 52 cases (77.6%). These results indicate that blood pressure monitoring has become a key component of the initial assessment. However, documentation of fetal condition and assessment of level of consciousness still needs to be strengthened.

Table 3. Distribution of Initial Action Implementation by Midwives

Handling Components	Implemented According to Indications n (%)	Not Documented/Not Implemented n (%)
Initial stabilization	56 (83.6%)	11 (16.4%)
Magnesium sulfate	43 (64.2%)	24 (35.8%)
Antihypertensive	39 (58.2%)	28 (41.8%)
Action documentation	54 (80.6%)	13 (19.4%)
Referral communication	57 (85.1%)	10 (14.9%)

Based on Table 3, initial stabilization was recorded in 56 cases (83.6%). Magnesium sulfate administration according to indications, protocols, and authorities was recorded in 43 cases (64.2%), while antihypertensive administration was recorded in 39 cases (58.2%). It's important to note that an undocumented or unimplemented category doesn't necessarily mean the patient isn't receiving therapy. Interpretation should take into account clinical indications, drug availability, limits of authority, and completeness of medical records.

Table 4. Distribution of Implementation of Referrals for Severe Preeclampsia Cases

Implementation of Reference	Frequency	Percentage
Referred to advanced facilities	61	91.0%
No recorded referrals during the observation period	6	9.0%
Total	67	100%

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Based on Table 4, 61 cases (91.0%) were referred to advanced healthcare facilities. Meanwhile, six cases (9.0%) had no documented referrals during the observation period. Referral documentation should include the reason for the referral, the patient's clinical condition, the actions taken, communication with the receiving facility, and the patient transfer process.

Table 5. Categories of Initial Management of Severe Preeclampsia

Handling Category	Frequency	Percentage
According to research indicators	42	62.7%
Not yet in accordance with all indicators	25	37.3%
Total	67	100%

Based on Table 5, as many as 42 cases (62.7%) met the initial treatment category according to the research indicators, while 25 cases (37.3%) did not meet all the established indicators. Components that still require attention include the completeness of maternal and fetal condition examinations, documentation of procedures, availability of therapy, and completeness of communication and referral processes.

b. Discussion

The study results showed that most cases occurred in the 20–34 age group. However, severe preeclampsia cases were also found in women under 20 and those aged 35 and older. Maternal age is one of the characteristics that must be considered in assessing pregnancy risk. Advanced maternal age and younger maternal age may be associated with an increased risk of pregnancy complications, including hypertensive disorders. However, preeclampsia can occur across different age groups and cannot be predicted solely based on maternal age. In addition to age, a history of preeclampsia, chronic hypertension, kidney disease, diabetes, multiple pregnancies, and other maternal factors can influence the risk of hypertensive disorders in pregnancy (ACOG, 2020; Brown et al., 2018). Therefore, a comprehensive antenatal assessment is essential.

Blood pressure screening is a crucial component in identifying hypertensive disorders in pregnancy. The study results showed that documentation of blood pressure screening reached 95.5%. Blood pressure measurement must be performed using appropriate equipment and correct measurement procedures. The results should be recorded along with the time of measurement and the patient's clinical condition. In cases of severe hypertension, assessment and treatment should be initiated promptly according to clinical guidelines. In addition to blood pressure, midwives need to recognize symptoms indicating possible organ dysfunction, such as severe headaches, visual disturbances, epigastric pain, shortness of breath, decreased consciousness, or seizures. Preeclampsia can progress to a serious condition involving the kidneys, liver, and brain, making early recognition of danger signs essential for maternal safety (ACOG, 2020; Magee et al., 2022; WHO, 2011).

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Initial stabilization is an important part of emergency obstetric care before the patient receives definitive treatment at a referral facility. In cases of severe preeclampsia, initial management should focus on assessing the general condition, monitoring vital signs, identifying seizure risks, assessing fetal well-being according to facility capabilities, and preparing for referral. These interventions must be performed according to the patient's condition, facility protocols, professional standards, and healthcare providers' scope of practice. Initial treatment must not delay the referral process. Effective stabilization also requires coordination between midwives, doctors, transportation personnel, and receiving facilities to ensure continuity of care and minimize delays in emergency management (ACOG, 2020; NICE, 2019; WHO, 2011).

Magnesium sulfate is a recommended medication for preventing seizures in patients with severe preeclampsia. Its use is important in reducing the risk of progression to eclampsia. WHO recommends magnesium sulfate for the prevention and treatment of eclampsia. If a facility cannot provide the complete magnesium sulfate regimen, administration of an initial loading dose according to the applicable protocol, followed by immediate referral to a higher-level facility, may be considered (Duley et al., 2010; WHO, 2011). The study results showed that documentation of magnesium sulfate administration according to indications and protocols was recorded in 64.2% of cases. This figure should be interpreted with caution because not all cases have the same clinical conditions, healthcare provider authority, and facility capabilities. Magnesium sulfate administration requires adequate clinical monitoring and preparedness to manage potential adverse effects or toxicity. Therefore, healthcare facilities must ensure drug availability, appropriate administration guidelines, monitoring capabilities, and referral readiness. Midwives must administer medications only within their professional authority and in accordance with applicable healthcare protocols and regulations (ACOG, 2020; WHO, 2011).

Severe hypertension in pregnancy requires immediate treatment because it can increase the risk of maternal complications, including stroke and organ dysfunction. WHO recommends the administration of antihypertensive medications to pregnant women with severe hypertension. The choice of medication and route of administration should consider clinical guidelines, the competence and authority of healthcare providers, the patient's condition, and drug availability (ACOG, 2020; WHO, 2011). The study results showed that documentation of antihypertensive administration according to protocol was recorded in 58.2% of cases. This finding indicates the need for further evaluation of drug availability, administration procedures, healthcare provider authorization, and documentation completeness. Blood pressure control must be performed carefully because treatment decisions should consider both maternal and fetal conditions and comply with applicable clinical standards (Magee et al., 2022).

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Referral is an important component in the management of severe preeclampsia because primary healthcare facilities generally have limitations in providing intensive monitoring and definitive management of obstetric complications. The study results showed that 91.0% of recorded cases were referred to higher-level healthcare facilities. This figure reflects the high implementation of referral procedures among the observed cases. However, referral quality should not be measured solely by the decision to transfer the patient. A safe referral must include communication with the receiving facility, provision of complete clinical information, transportation arrangements, appropriate clinical support, and monitoring during transfer. International recommendations emphasize timely referral and coordinated management to ensure that pregnant women with severe preeclampsia receive appropriate treatment (NICE, 2019; WHO, 2011).

The implementation of early management of severe preeclampsia in primary healthcare facilities faces several challenges, including limited availability of essential medicines and examination equipment, insufficient numbers of healthcare workers trained in maternal emergencies, unclear communication and referral procedures, inadequate referral transportation, incomplete documentation, and variations in the implementation of clinical guidelines across facilities. Differences in healthcare resources and the implementation of clinical recommendations can affect the quality and consistency of maternal healthcare services (Brown et al., 2018; Magee et al., 2022; WHO, 2011). Therefore, these challenges need to be addressed through improved healthcare worker competencies, adequate provision of essential medicines and facilities, and strengthened coordination between primary healthcare facilities and referral hospitals.

The study results demonstrate that midwives play a crucial role in the initial management of severe preeclampsia. Midwives' competencies need to be strengthened through maternal emergency training, simulations on managing severe hypertension, recognizing danger signs, and implementing appropriate referral procedures. Primary healthcare facilities also need clear standard operating procedures for the initial management of severe preeclampsia. These procedures should include case identification, communication with physicians or authorized medical professionals, initial interventions, medication administration according to protocols, and referral mechanisms. Regular case evaluations through maternal audits can help identify delays in service delivery, assess compliance with clinical standards, and improve the quality of maternal healthcare services (ACOG, 2020; NICE, 2019; WHO, 2011)..

4. Conclusion

Observational study illustrates that the initial management of severe preeclampsia by midwives in primary health care facilities includes blood pressure checks, recognition of danger signs, assessment of maternal and fetal conditions, initial stabilization, administration of therapy according to indications and protocols, documentation, and referral to advanced health care facilities. In this research's working data, the majority of

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cases received blood pressure checks and referrals. However, several aspects still require improvement, particularly documentation of fetal condition, provision of therapy according to protocol, and completeness of procedure documentation. Improving midwives' competency, availability of drugs and equipment, implementation of clinical guidelines, and strengthening the referral system are important steps in improving maternal and fetal safety. Conduct multicenter research with direct observation to evaluate the suitability of initial treatment to clinical guidelines and factors influencing the implementation of referrals.

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