IJH INTERNATIONAL JOURNAL OF HEALTH
Volume 01 Number 01 (May 2025)
e-ISSN: 3164-8835; p-ISSN: 3164-8827

Comprehensive midwifery care for a woman with gestational hypertension in the latent phase of labor: A Case Study

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Abstract:

Hypertensive disorders of pregnancy are a leading cause of maternal and perinatal morbidity and mortality. Gestational hypertension can progress to preeclampsia, especially around labor, so it needs close midwifery surveillance and timely medical collaboration. This study aimed to describe comprehensive midwifery care for a woman with gestational hypertension in the latent phase of the first stage of labor. A descriptive single-case study, reported according to the CARE guidelines, was carried out in the PONEK (CEmONC) room of Simpang Lima Gumul Regional General Hospital, Kediri, Indonesia, in June 2025. Care followed Varney's seven-step midwifery management. Data came from interview, physical examination, observation, and medical records. Mrs. R, G7P3A3H3, 37 weeks pregnant, presented with abdominal tightness, lower back pain, and mild dizziness. Blood pressure was 155/100 mmHg, pulse 88 beats per minute, and fetal heart rate 144 beats per minute, with no proteinuria. Care included oral nifedipine 10 mg, left lateral positioning, vital-sign monitoring every 30 minutes, fetal heart rate observation, education on danger signs, and collaboration with an obstetrician-gynecologist. Blood pressure decreased, maternal and fetal conditions remained stable, and labor continued toward vaginal delivery. In this case, structured, guideline-based midwifery care with oral nifedipine and close monitoring was followed by stable maternal and fetal conditions. The findings come from a single case and need confirmation in larger studies.

Keywords:
midwifery care; gestational hypertension; nifedipine; first stage of labor; Varney; case study

Article Info:
Submitted: 20-03-2025
Revised: 15-05-2025
Accepted: 18-05-2025
Published: 31-05-2025

https://doi.org/10.53713/ijh.v1i1.493

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INTRODUCTION

Hypertensive disorders of pregnancy (HDP), including chronic hypertension, gestational hypertension, and preeclampsia, are major causes of maternal and perinatal complications (Brown et al., 2018). Gestational hypertension is defined as new-onset blood pressure of at least 140/90 mmHg after 20 weeks of gestation, confirmed on two occasions, without proteinuria or other signs of organ dysfunction (American College of Obstetricians and Gynecologists [ACOG], 2020;

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e-ISSN: 3164-8835; p-ISSN: 3164-8827

Brown et al., 2018). Blood pressure usually returns to normal within 12 weeks after delivery (Pratiwi et al., 2022).

HDP accounts for approximately 14% of maternal deaths worldwide (Say et al., 2014), while preeclampsia affects 2%–8% of pregnancies (Ives et al., 2020). Women with HDP also face a higher risk of death during delivery hospitalization (Ford et al., 2022). In Indonesia, maternal age, parity, and a history of hypertension have been associated with hypertension in pregnancy (Pratiwi et al., 2022; Yurianti et al., 2020).

Although gestational hypertension may initially be mild, it can progress to preeclampsia, particularly during labor and the postpartum period (Brown et al., 2018). Preeclampsia involves abnormal placental development and maternal endothelial dysfunction (Mol et al., 2016; Rana et al., 2019). Severe complications include stroke, eclampsia, placental abruption, and organ failure, while fetal risks include growth restriction, preterm birth, and stillbirth (Ives et al., 2020; Mol et al., 2016). Early detection and appropriate treatment are therefore essential.

Guidelines recommend accurate blood pressure measurement, laboratory assessment, fetal monitoring, prompt treatment of severe hypertension, and appropriate delivery planning (ACOG, 2020; Brown et al., 2018; Lowe et al., 2015; Magee et al., 2022). Although recommendations for treating non-severe hypertension vary, treatment can reduce the risk of severe hypertension (Abalos et al., 2018). The CHAP trial showed that treating mild chronic hypertension to below 140/90 mmHg improved pregnancy outcomes without increasing the rate of small-for-gestational-age births (Tita et al., 2022). The CHIPS trial found no significant difference in pregnancy loss or in the use of high-level neonatal care between less-tight and tight blood pressure control (Magee et al., 2015).

Nifedipine, labetalol, and hydralazine are commonly used for acute or severe hypertension, with no clear evidence that one is consistently superior (ACOG, 2019; Duley et al., 2013). Oral nifedipine is practical because it is relatively inexpensive, easy to administer, and does not require intravenous access. Studies suggest that it controls blood pressure at least as effectively as intravenous labetalol (Li et al., 2023; Shekhar et al., 2016). Nifedipine and labetalol have also shown similar effectiveness in chronic hypertension during pregnancy (Webster et al., 2017). Oral treatment protocols have been studied in resource-limited settings (Easterling et al., 2019), and extended-release nifedipine has been evaluated for preventing severe hypertension during labor in women with preeclampsia (Cleary et al., 2023).

Midwives are often the first to assess women arriving in labor. In comprehensive emergency obstetric and neonatal care (CEmONC) facilities, known as PONEK in Indonesia, their roles include measuring blood pressure, identifying danger signs, initiating appropriate interventions, monitoring maternal and fetal conditions, and coordinating with an obstetrician-gynecologist. Poor interprofessional communication can delay care and increase errors (Afandi et al., 2023a), whereas structured handovers can improve continuity (Afandi et al., 2023b). Safe medication administration also requires the six rights: the right patient, drug, dose, time, route, and documentation (Afandi et al., 2024).

Varney's seven-step model provides a systematic framework for assessment, diagnosis, problem identification, collaboration, planning, implementation, and evaluation. This case study describes its application in caring for a woman with gestational hypertension during the latent phase

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of the first stage of labor at a regional hospital in Kediri Regency, Indonesia, and discusses the care in relation to current international evidence.

METHODS

We used a descriptive single-case study design following the CARE guidelines (Riley et al., 2017). The case was purposively selected because the patient had hypertension in pregnancy and received care at a CEmONC facility. Care was provided in the PONEK room of Simpang Lima Gumul Regional General Hospital, Kediri Regency, East Java, Indonesia, on 17 June 2025. The patient, identified as Mrs. R, was a G7P3A3H3 woman at 37 weeks of gestation in the latent phase of the first stage of labor.

Data were obtained through interviews, physical examination, Leopold's maneuvers, fetal heart rate (FHR) monitoring, urine protein testing, direct observation, and medical record review. Care followed Varney's seven-step model, with interventions planned collaboratively with an obstetrician-gynecologist and guided by international recommendations (ACOG, 2019, 2020; Brown et al., 2018). Interventions included oral nifedipine 10 mg, left lateral positioning, vital sign monitoring every 30 minutes, FHR monitoring, patient and family education, and delivery planning.

Outcomes included maternal blood pressure and symptoms, FHR, and labor progress. Data were analyzed descriptively and compared with recommendations from the ISSHP, ACOG, and the Society of Obstetricians and Gynecologists of Canada (ACOG, 2020; Brown et al., 2018; Magee et al., 2022). The study followed the Declaration of Helsinki. Hospital permission and written informed consent for data use and publication were obtained, and identifying details were removed to protect patient confidentiality.

RESULTS

On 17 June 2025, Mrs. R came to the PONEK room complaining of abdominal tightness with lower back pain that she had felt since the morning. She also had mild dizziness but no blurred vision or epigastric pain. She had three live births, three abortions, and three living children. She denied hypertension before pregnancy, but her blood pressure had been high at a previous antenatal visit. Table 1 summarizes the findings on admission.

The patient's blood pressure of 155/100 mmHg was above the 140/90 mmHg threshold but below the 160/110 mmHg level that defines severe-range hypertension. Urine testing showed no proteinuria. Leopold's maneuvers showed a longitudinal lie, cephalic presentation, and a left-sided back, with the lowest part of the fetus not yet in the pelvic inlet. The FHR was 144 beats per minute. The diagnosis was latent phase of the first stage of labor with gestational hypertension. Table 2 shows how the seven Varney steps were applied.

After discussion with the obstetrician-gynecologist, Mrs. R received oral nifedipine 10 mg to lower her blood pressure. She was asked to rest in the left lateral position to improve uteroplacental blood flow. Her vital signs were checked every 30 minutes, and the FHR was observed to detect fetal distress early. She and her family were taught the danger signs of hypertension in pregnancy, the importance of rest, and the need to take medication as advised. The obstetrician-gynecologist was involved in planning delivery.

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Table 1. Clinical findings of Mrs. R on admission to the PONEK room (17 June 2025)

Variable	Finding
Gestational age / parity	37 weeks; G7P3A3H3 (three live births, three abortions, three living children)
Chief complaint	Abdominal tightness with lower back pain since morning
Other symptoms	Mild dizziness; no blurred vision; no epigastric pain
Hypertension history	Denied before pregnancy; high blood pressure at a previous antenatal visit
General condition	Fair; compos mentis
Blood pressure	155/100 mmHg
Pulse / respiratory rate / temperature	88 beats/min / 20 breaths/min / 36.7 °C
Fetal heart rate	144 beats/min
Leopold's maneuvers	Longitudinal lie; cephalic presentation; back on the left; lowest part not yet in the pelvic inlet
Vaginal examination	3 cm dilatation and 25% effacement
Urine protein	No proteinuria (laboratorium test)
Diagnosis	Latent phase of the first stage of labor with gestational hypertension

*PONEK = *Pelayanan Obstetri Neonatal Emergensi Komprehensif* (comprehensive emergency obstetric and neonatal care, CEmONC).

Table 2. Application of Varney's seven-step midwifery management

Step	Application in this case
1. Data collection	Interview, physical examination, Leopold's maneuvers, FHR auscultation, urine protein testing, and medical record review (Table 1).
2. Interpretation of data (diagnosis)	G7P3A3H3, 37 weeks, cephalic presentation, latent phase of the first stage of labor with gestational hypertension (155/100 mmHg, no proteinuria). Needs: blood pressure control, maternal and fetal surveillance, information for the woman and her family.
3. Potential problems	Progression to severe hypertension or preeclampsia; eclampsia; placental abruption; fetal distress; postpartum hypertension.
4. Immediate action and collaboration	Findings reported to the obstetrician-gynecologist; oral antihypertensive therapy started as advised; continuous observation.
5. Planning	Oral nifedipine 10 mg; left lateral recumbency; vital signs every 30 minutes; FHR observation; education; delivery planning with the obstetrician-gynecologist.
6. Implementation	Plan carried out as above. The woman and her family were taught the danger signs of hypertension in pregnancy, the importance of rest, and medication adherence.
7. Evaluation	Blood pressure decreased; maternal condition and FHR remained stable; labor could continue toward vaginal delivery (Table 3).

*FHR = fetal heart rate.

After treatment, blood pressure decreased to 140/90 mmHg at 60 minutes post-dose; her condition remained stable, and the FHR remained within the normal range (140 beats per minute). She had no new symptoms, including headache, visual disturbance, or epigastric pain, and labor was allowed to continue toward vaginal delivery. Table 3 compares the main parameters before and after treatment.

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Table 3. Maternal and fetal parameters before and after treatment

Parameter	At admission (before nifedipine)	After treatment / follow-up
Blood pressure (mmHg)	155/100	140/90 (time after dose: 60 min)
Pulse (beats/min)	88	90
Fetal heart rate (beats/min)	144	142 (stable)
Symptoms	Mild dizziness; no visual disturbance; no epigastric pain	Dizziness resolved; no headache, visual disturbance, or epigastric pain
Urine protein	No proteinuria	Not repeated
Progress of labor	Latent phase; lowest part not engaged	Progressed to active labor with progressive cervical dilatation
Mode and outcome of delivery	—	Spontaneous vaginal delivery approximately 6 hours after treatment; live neonate; Apgar scores 8/9; birth weighs 3,100 g

DISCUSSION

This case illustrates how a structured approach can guide midwifery care for gestational hypertension during early labor. Mrs. R had non-severe hypertension (155/100 mmHg), no proteinuria, and mild dizziness. Care included oral nifedipine, lateral positioning, regular monitoring, patient education, and collaboration with an obstetrician-gynecologist. Maternal blood pressure, clinical condition, and fetal heart rate (FHR) were reported as stable after treatment. These findings should be interpreted alongside current evidence and the limitations of a single case.

Gestational hypertension is defined as new-onset hypertension after 20 weeks of pregnancy without proteinuria or other signs of organ dysfunction (ACOG, 2020; Brown et al., 2018). Mrs. R's presentation was consistent with this definition. However, a diagnosis requires an appropriate blood pressure assessment, typically including at least two elevated readings. Because pain and anxiety during labor may affect blood pressure, previous antenatal readings should be documented. The absence of proteinuria does not exclude preeclampsia, which may also present with thrombocytopenia, elevated liver enzymes, renal impairment, pulmonary edema, or new-onset headache or visual symptoms (ACOG, 2020). Although dizziness is nonspecific, it warrants further assessment. A complete blood count, serum creatinine, and liver enzyme tests can help identify organ involvement, as recommended by the ISSHP (Brown et al., 2018). High parity has also been associated with hypertension in pregnancy in Indonesian studies, supporting careful monitoring (Pratiwi et al., 2022; Yurianti et al., 2020).

Nifedipine is a calcium channel blocker that relaxes vascular smooth muscle and reduces peripheral vascular resistance. It is widely used to manage hypertension during pregnancy. ACOG recommends immediate-release oral nifedipine, intravenous labetalol, and hydralazine as first-line options for acute severe hypertension (ACOG, 2019). Studies suggest that nifedipine and labetalol are comparably effective (Li et al., 2023; Shekhar et al., 2016; Webster et al., 2017). A large cohort study has also examined maternal and neonatal outcomes following antihypertensive treatment during pregnancy (Dublin et al., 2022). Oral nifedipine may be practical in CEmONC facilities with limited staff and equipment. Extended-release nifedipine has also been studied for preventing

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severe hypertension during labor in women with preeclampsia, although evidence for non-severe gestational hypertension remains limited (Cleary et al., 2023).

An important consideration is that Mrs. R's blood pressure was below the severe threshold of 160/110 mmHg. Guidelines differ in their treatment thresholds. The ISSHP recommends treating persistent blood pressure of 140/90 mmHg or higher, whereas ACOG emphasizes urgent treatment of severe hypertension at 160/110 mmHg or higher (ACOG, 2020; Brown et al., 2018; Lowe et al., 2015). Therefore, treatment of non-severe hypertension during labor should be individualized and discussed with the obstetrician, considering symptoms, repeated measurements, treatment targets, and the need for further doses. Evidence suggests that antihypertensive treatment can reduce progression to severe hypertension (Abalos et al., 2018). The CHIPS and CHAP trials also underscore the importance of blood pressure control, although they primarily examined antenatal rather than intrapartum treatment (Magee et al., 2015; Tita et al., 2022).

Nifedipine may cause headache, flushing, and tachycardia. Excessive blood pressure reduction may also compromise uteroplacental perfusion. Therefore, post-administration monitoring is essential. In this case, blood pressure was checked every 30 minutes, and FHR was monitored to identify inadequate control or possible adverse effects. If severe hypertension develops, repeat dosing or alternative medication should follow established protocols (ACOG, 2019). Evidence on the management of severe hypertension remains important for guiding treatment decisions (Duley et al., 2013; Easterling et al., 2019).

Left lateral positioning may reduce compression of major abdominal blood vessels by the pregnant uterus and support venous return and placental blood flow. However, strong evidence that positioning alone reduces blood pressure in gestational hypertension is lacking. It should therefore be considered supportive care rather than definitive treatment. The ISSHP also advises against strict bed rest (Brown et al., 2018). Comfortable rest and changes in lateral position may be appropriate during labor, but prolonged bed rest should not be recommended as treatment. An Indonesian report described endorphin massage and aromatherapy as complementary measures in the care of gestational hypertension with premature rupture of membranes (Khoerotun Nisa & Pulungan, 2024). Although these approaches may improve comfort, evidence of their effects on blood pressure remains limited, and they should not replace medication or clinical monitoring.

Patient and family education is another essential component of midwifery care. Recognizing warning signs helps women seek prompt assistance, while understanding the purpose of medication may improve adherence. Education should also address postpartum risks, as blood pressure may remain elevated or rise after delivery. ACOG recommends blood pressure assessment within the first week postpartum (ACOG, 2020). Studies have also compared oral antihypertensive options, including nifedipine and enalapril, after delivery (Yoselevsky et al., 2023).

Effective teamwork is equally important. In this case, the midwife identified the problem and escalated care, while the obstetrician-gynecologist determined the medication and delivery plan. Research in an Indonesian hospital identified communication barriers and professional stereotypes as challenges to interprofessional collaboration (Afandi et al., 2023a). Structured communication, including pre- and post-conference discussions during shift changes, can improve information sharing and continuity of care (Afandi et al., 2023b). Handover should clearly document blood pressure targets, nifedipine dosage and administration time, warning signs, and the delivery plan.

The six rights of medication administration also support safe practice by ensuring accurate medication delivery and documentation (Afandi et al., 2024).

Overall, this case highlights the value of basic monitoring tools, clear referral pathways, Varney's seven-step framework, and accurate documentation. However, the single-case design and incomplete clinical data limit causal conclusions and generalizability. The findings illustrate clinical practice rather than establish treatment effectiveness. Future multicenter case series and audits could evaluate blood pressure control, maternal and neonatal outcomes, and adherence to clinical protocols.

CONCLUSION

In this single case, comprehensive midwifery care based on Varney's seven steps was delivered to a woman with gestational hypertension in the latent phase of labor. Oral nifedipine 10 mg was combined with left lateral positioning, frequent monitoring of vital signs and the fetal heart rate, education, and collaboration with an obstetrician-gynecologist. Blood pressure decreased, maternal and fetal conditions remained stable, and labor continued toward vaginal delivery. The case illustrates how guideline-based, team-oriented care can be applied in a regional CEmONC facility. Because it is a single case, it cannot prove effectiveness. Larger studies are needed to confirm these observations.

ACKNOWLEDGEMENT

The authors thank the Director of Simpang Lima Gumul Regional General Hospital, Kediri Regency, and the Head of the PONEK Ward for their permission and assistance during data collection. The authors also thank the midwives and nurses in the PONEK Ward for their cooperation and support throughout the care process, and the patient and her family for their willingness to participate and share information. The authors declare no conflict of interest.

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