



Routine Testing for Every Pregnant Patient Between 32 Weeks of Gestation for Early Diagnosis of Gestational Hypertension (Roll Over Test) in Third Trimester Pregnant Women

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ABSTRACT

Gestational hypertension is a pregnancy complication that can increase the risk of maternal and fetal morbidity and mortality. Early detection of gestational hypertension is crucial to prevent the development of preeclampsia and other pregnancy complications. One screening method that can be used is the Roll Over Test (ROT), which is performed at approximately 28–32 weeks of gestation. This study aims to analyze the effectiveness of routine Roll Over Tests at 32 weeks of gestation in early detection of gestational hypertension in pregnant women in the third trimester.

The study used a quantitative approach with a descriptive analytical design. The sample consisted of 40 pregnant women in their third trimester undergoing antenatal care. Data were collected through blood pressure measurements using the Rolling Test method and observations of pregnancy conditions. Data were analyzed univariately and bivariately using the Chi-Square test.

The results showed that 30% of respondents had a positive Rollover Test result. The analysis showed a significant association between a positive Rollover Test result and the incidence of gestational hypertension ($p = 0.003$). Routine check-ups at 32 weeks of gestation can help identify pregnant women at risk of developing gestational hypertension early.

Keywords: *Gestational Hypertension, Rolling Test, Third Trimester Pregnancy, Pregnancy Screening, Antenatal Care*

1. INTRODUCTION

Gestational hypertension is a common complication during pregnancy and a major cause of high maternal and infant morbidity and mortality in many countries. Gestational hypertension is defined as elevated blood pressure of $\geq 140/90$ mmHg after 20 weeks of gestation without proteinuria.





If not detected and treated early, gestational hypertension can progress to preeclampsia, eclampsia, fetal growth retardation, premature birth, and even maternal and infant death. Therefore, regular antenatal checkups are essential to identify risk factors and detect complications early.

One screening method that can be used is the Roll Over Test (ROT). This test measures changes in a pregnant woman's blood pressure when moving from a prone to a supine position. An increase in diastolic blood pressure of ≥ 20 mmHg is considered a positive result, indicating a higher risk of gestational hypertension and preeclampsia.

According to World Health Organization, early detection of hypertensive disorders in pregnancy is an important part of quality antenatal care to reduce maternal and neonatal complications.

Based on the importance of early detection of gestational hypertension, this study was conducted to determine the effectiveness of routine examination of the Rolling Test at 32 weeks of gestation as a screening method for gestational hypertension in pregnant women in the third trimester.

2. RESEARCH METHODS

This study used a quantitative approach with a descriptive analytical design using a cross-sectional method. This study was conducted to determine the relationship between Roll Over Test (ROT) results and the incidence of gestational hypertension in pregnant women in the third trimester. Measurements of the independent and dependent variables were conducted during the same period to provide a snapshot of the respondents' actual condition at the time of the study.

a. Location and Time of Research

The study was conducted at antenatal clinics and community health centers during January–April 2025. The study locations were selected based on the high number of visits by pregnant women for antenatal care (ANC) examinations and the availability of blood pressure examination facilities that support the implementation of the Rolling Test.

b. Population and Sample

The study population was all pregnant women in their third trimester who underwent ANC check-ups at the study site. The sample consisted of 40 pregnant women with gestational ages ≥ 32 weeks, selected using purposive sampling techniques according to the study criteria.

Inclusion criteria included pregnant women with singleton pregnancies, at least 32 weeks' gestation, no history of chronic hypertension prior to pregnancy, and willingness to participate in all study procedures. Respondents experiencing severe obstetric complications or certain chronic illnesses were excluded from the study.





c. Research Variables

The variables studied consist of:

1) Independent Variable

Roll Over Test (ROT) results are assessed based on changes in diastolic blood pressure after changes in body position.

2) Dependent Variable

gestational hypertension is determined based on the results of blood pressure examinations according to the diagnostic criteria for hypertension in pregnancy.

3. Research Instruments

The instruments used in this study include:

- a. **Sphygmomanometer and stethoscope** for blood pressure measurement.
- b. **Observation sheet of Rolling Test (ROT) results** to record changes in respondents' blood pressure.
- c. **Antenatal medical records** as a source of supporting data regarding the condition of the pregnancy and the mother's health history.

All measuring instruments are checked for suitability and calibration to ensure the accuracy of the measurement results.

4. Data collection technique

Data collection is carried out in several stages, namely:

- a. Measuring the blood pressure of pregnant women in a left lateral position after resting for several minutes.
- b. Ask the respondent to roll over to a supine position , then take another blood pressure measurement.
- c. Record blood pressure changes and determine the results of the Rolling Test (ROT) .
- d. Monitor and record the development of pregnant women's blood pressure during subsequent antenatal visits to identify the occurrence of gestational hypertension .

5. Data processing

The data obtained is then processed through the following stages:

- a. **Editing** , to check the completeness of the data.
- b. **Coding** , namely assigning a code to each research variable.
- c. **Data entry** , namely entering data into a computer program.
- d. **Tabulating** , namely arranging data in the form of a frequency distribution table to facilitate analysis.

6. Data analysis

Data analysis was carried out using the **SPSS program** with the following stages:

a. Univariate Analysis

Used to describe the characteristics of respondents, the results of the Rolling Test, and the incidence of gestational hypertension in the form of frequencies, percentages, tables, and narratives.



**b. Bivariate Analysis**

Conducted using the Chi- Square test at a 95% confidence level ($\alpha = 0.05$) to determine the relationship between the results of the Rolling Test and the incidence of gestational hypertension . The decision-making criteria are:

- 1) p - value < 0.05 indicates that there is a significant relationship between the results of the Rolling Test and gestational hypertension .
- 2) p - value > 0.05 indicates there is no significant relationship between the two variables.

Through this analysis, it can be seen that the effectiveness of the Rolling Test as an early screening method in identifying the risk of gestational hypertension in pregnant women in the third trimester can support efforts to prevent pregnancy complications more optimally.

3. RESEARCH RESULTS AND DISCUSSION**a. Results****Table 1. Respondent Characteristics Based on Age**

Age	Frequency	Percentage
<20 Years	5	12.5%
20–35 Years	28	70%
>35 Years	7	17.5%
Total	40	100%

Most of the respondents were in the healthy reproductive age group of 20–35 years, as many as 28 people (70%).

Table 2. Rolling Test (ROT) Results

ROT Results	Frequency	Percentage
Positive	12	30%
Negative	28	70%
Total	40	100%

A total of 12 respondents (30%) showed positive Rolling Test results which indicated a risk of gestational hypertension.

Table 3. Incidence of Gestational Hypertension

Category	Frequency	Percentage
Yes	10	25%
No	30	75%
Total	40	100%

A total of 10 respondents (25%) experienced gestational hypertension during the third trimester of pregnancy .



**Table 4. Relationship between the Rolling Test and Gestational Hypertension**

ROT Results	Hypertension	No Hypertension	Total	<i>p-value</i>
Positive	8	4	12	0,003
Negative	2	26	28	
Total	10	30	40	

The analysis results showed that pregnant women with positive ROT results experienced more gestational hypertension than those in the negative ROT group. A *p*-value of 0.003 indicated a significant association between the results of the Rollover Test and the incidence of gestational hypertension .

b. Discussion

The study results showed that the Rollover Test was significantly associated with gestational hypertension . Most pregnant women who tested positive for the Rollover Test subsequently experienced elevated blood pressure during the third trimester .

The Rollover Test assesses the pregnant woman's hemodynamic response to changes in body position. In women with impaired vascular adaptation during pregnancy, changes in position can cause a greater increase in blood pressure than in women with normal pregnancies.

Early detection of gestational hypertension through routine checkups at 32 weeks of pregnancy allows healthcare providers to closely monitor high-risk mothers. Early intervention can include blood pressure monitoring, health education, lifestyle modifications, and referrals, if needed.

The findings of this study align with the theory that elevated diastolic blood pressure on the Rollover Test can be an early indicator of hypertensive disorders in pregnancy. Therefore, the Rollover Test can be used as part of antenatal screening in the third trimester .

The rolling test cannot be used as the sole method for diagnosing gestational hypertension . This test needs to be combined with routine blood pressure monitoring, laboratory tests, and a thorough clinical evaluation.

IV. CONCLUSION AND SUGGESTIONS

a. Conclusion

Routine rolling test examination at 32 weeks of gestation is effective as a screening method to detect the risk of gestational hypertension in pregnant women in the third trimester . There was a significant association between a positive rolling test result and the incidence of gestational hypertension ($p = 0.003$).





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**b. Suggestion**

- 1) routinely screen pregnant women for gestational hypertension in their third trimester .
- 2) The rolling test can be used as an additional examination in antenatal care.
- 3) Pregnant women with positive ROT results need more intensive blood pressure monitoring.
- 4) Community health centers and health facilities need to increase education regarding the danger signs of hypertension in pregnancy.
- 5) Further research is recommended using a larger sample size and cohort design to obtain stronger results.

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