A Clinical Audit Management of Hypertension in Pregnancy: Compliance with Standards at a Tertiary Care Hospital

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LINK MEDICAL INTERFACE

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ABSTRACT

Background: Hypertension during pregnancy poses significant risks to both maternal and fetal health, necessitating strict adherence to clinical guidelines for management. Effective implementation of these guidelines can reduce complications such as pre-eclampsia and preterm birth.

Objective: To evaluate compliance with the Royal College of Obstetricians and Gynecologists (RCOG) and NICE guidelines for managing hypertension in pregnancy at a tertiary care hospital.

Methods: A retrospective clinical audit was conducted at the Department of Obstetrics & Gynecology, Lady Willingdon Hospital, Lahore, from January 2023 to December 2023. A total of 120 pregnant women diagnosed with hypertension were included. Data were collected using a structured checklist based on RCOG and NICE standards, assessing compliance in blood pressure monitoring, antihypertensive medication use, patient education, and delivery plan documentation. Statistical analysis was performed using SPSS version 25, including chi-square tests and 95% confidence intervals.

Results: Compliance rates were 95% for blood pressure monitoring, 80% for antihypertensive medication use, 90% for patient education, and 85% for delivery plan documentation. All areas showed significant compliance ($p < 0.001$) but identified gaps in medication use and planning.

Conclusion: While overall compliance with guidelines was high, targeted improvements in antihypertensive medication administration and delivery plan documentation are necessary to enhance maternal and fetal outcomes.

INTRODUCTION

Hypertension during pregnancy is a significant health concern, posing substantial risks to both maternal and fetal outcomes. It is associated with increased morbidity and mortality rates, particularly due to complications like pre-eclampsia, eclampsia, and fetal growth restrictions. Effective management of hypertensive disorders in pregnancy is critical to mitigate these risks, necessitating strict adherence to established clinical guidelines. The Royal College of Obstetricians and Gynecologists (RCOG) provides comprehensive recommendations for the management of hypertension in pregnancy, including routine blood pressure monitoring, early intervention in cases of severe hypertension (BP ≥ 160/110 mmHg), risk assessment for pre-eclampsia, and the establishment of a delivery plan by 34 weeks of gestation (1). These guidelines are intended to standardize care and ensure timely and appropriate management of hypertensive conditions, ultimately aiming to improve maternal and fetal outcomes.

Adherence to these guidelines is essential in preventing severe complications such as stroke, placental abruption, and premature birth. The RCOG guidelines recommend that for women with hypertension, blood pressure should be monitored at every prenatal visit, and immediate treatment should be initiated in cases of severe hypertension (BP ≥ 160/110 mmHg) (2). Additionally, these guidelines emphasize the importance of educating patients on the symptoms and signs of pre-eclampsia and conducting a thorough risk assessment for fetal growth restrictions in women with chronic hypertension. Furthermore, the National Institute for Health and Care Excellence (NICE) provides complementary guidelines that detail the frequency and methodology of blood pressure monitoring, as well as the use of antihypertensive medications as first-line therapy. The NICE guidelines also include specific recommendations for risk classification and management of pre-eclampsia, underscoring the importance of evidence-based practices in clinical management (3).

The purpose of this clinical audit was to assess our healthcare facility's adherence to these recommended guidelines in the management of hypertension during pregnancy, as outlined by the RCOG and NICE. This audit aimed to evaluate the extent to which clinical practice aligns with these standards, identifying any deviations from recommended practices and exploring opportunities for improvement in patient care. By systematically comparing current clinical management against these evidence-based guidelines, the audit sought to highlight areas of compliance as well as gaps in care that may contribute to suboptimal outcomes. Identifying and addressing these gaps is crucial for enhancing the quality of care provided to pregnant women with hypertension, thereby reducing the associated risks and improving overall pregnancy outcomes (4, 5).

In summary, this audit evaluates compliance with established standards for the management of hypertension during pregnancy, focusing on key aspects such as blood pressure monitoring, use of antihypertensive medications, and patient education on pre-eclampsia. The findings from this audit are intended to inform targeted interventions and quality improvement initiatives that will help align clinical practice with the highest standards of care as recommended by leading professional bodies in obstetrics and gynecology (6).

MATERIAL AND METHODS

The clinical audit was conducted at the Department of Obstetrics & Gynecology, Lady Willingdon Hospital, affiliated with King Edward Medical University, Lahore. This retrospective study evaluated the management of hypertension in pregnancy against the guidelines set by the Royal College of Obstetricians and Gynecologists (RCOG) and the National Institute for Health and Care Excellence (NICE). The audit covered a 12-month period from January 2023 to December 2023. A total of 120 pregnant women diagnosed with hypertension were included in the study. Participants were selected based on predefined inclusion criteria, which encompassed all pregnant women diagnosed with hypertensive disorders, including chronic hypertension, gestational hypertension, and pre-eclampsia. Exclusion criteria included patients with multiple pregnancies, pre-existing chronic renal disease, or other significant comorbid conditions that might confound the results of the audit.

Data were collected using a structured checklist developed in accordance with the standards outlined in the RCOG and NICE guidelines. The checklist included parameters such as the frequency of blood pressure monitoring, the use of antihypertensive medications, risk assessment for pre-eclampsia, and the documentation of a delivery plan by 34 weeks of gestation. Patient records were reviewed to extract relevant data, ensuring that each case was evaluated for compliance with each of the guidelines. For the purpose of this audit, severe hypertension was defined as a blood pressure reading of 160/110 mmHg or higher, warranting immediate intervention with antihypertensive therapy, as per the guidelines (3). The audit targeted 100% compliance for prompt treatment of severe hypertension with appropriate antihypertensive medications.

Ethical considerations were adhered to throughout the audit, including maintaining patient confidentiality and using anonymized data for analysis. The study was conducted in accordance with the principles outlined in the Declaration of Helsinki, and approval was obtained from the institutional ethics review board prior to the commencement of the audit. Data were analyzed using SPSS version 25. Descriptive statistics were used to calculate compliance rates for each guideline parameter. Compliance was expressed as a percentage, and deviations from the target compliance rates were noted. Comparative analyses were conducted to identify specific areas of non-compliance and to explore potential factors contributing to these gaps in practice. The findings were used to develop targeted recommendations aimed at improving adherence to the guidelines and optimizing the management of hypertension in pregnancy (4, 5).

The analysis highlighted compliance rates across different standards, with a particular focus on areas such as routine blood pressure monitoring, the administration of antihypertensive therapy for severe hypertension, patient education on pre-eclampsia, and the establishment of a documented delivery plan by 34 weeks of gestation. Each standard's compliance was computed as a percentage, and the results were interpreted in the context of the target standards set by RCOG and NICE guidelines. This comprehensive evaluation of clinical practice provided insights into the current state of hypertension management in pregnancy at the facility and identified key areas where improvements could be made to enhance patient outcomes (6).

RESULTS

The audit assessed compliance with the RCOG and NICE guidelines for the management of hypertension in pregnancy across four key areas: blood pressure monitoring, antihypertensive medication use (Labetalol), patient education, and delivery plan documentation. A statistical analysis was conducted to evaluate the significance of compliance rates, and the results are presented in the table below.

Table 1 Compliance Rates of Hypertension Management in Pregnancy with Statistical Analysis (n=120)

Compliance Area	Compliance (%)	Non-Compliance (%)	95% Confidence Interval (CI)	Chi-Square (χ^2)	p-value
Blood Pressure Monitoring	95% (114/120)	5% (6/120)	89.4% - 98.2%	98.00	<0.001
Antihypertension Medication (Labetalol)	80% (96/120)	20% (24/120)	72.3% - 86.2%	46.80	<0.001
Patient Education	90% (108/120)	10% (12/120)	83.8% - 94.5%	72.00	<0.001
Delivery Plan	85% (102/120)	15% (18/120)	78.0% - 90.4%	59.50	<0.001

The compliance rate for blood pressure monitoring was 95%, with a 95% confidence interval ranging from 89.4% to 98.2%. The chi-square test yielded a value of 98.00 with a p-value of <0.001, indicating that the observed compliance rate is significantly high and not due to random variation. This high compliance suggests strong adherence to routine blood pressure monitoring as per the guidelines, ensuring that hypertension in pregnancy is managed effectively.

For antihypertensive medication use, specifically Labetalol, the compliance rate was 80%, with a confidence interval of 72.3% to 86.2%. The chi-square value was 46.80, and the p-value was <0.001, signifying that this compliance rate is also

statistically significant. However, the compliance rate is lower compared to other areas, highlighting a critical area for improvement. The 20% non-compliance suggests that a substantial number of patients with severe hypertension did not receive the recommended prompt therapy, which could increase the risk of serious complications such as stroke, placental abruption, and preterm birth.

Compliance with patient education on pre-eclampsia symptoms was 90%, with a confidence interval of 83.8% to 94.5%. The chi-square test result was 72.00, with a p-value of <0.001, indicating a statistically significant level of compliance. This reflects effective educational efforts, though the 10% non-compliance indicates that there is still room for improvement in ensuring all patients are adequately informed about the symptoms and risks of pre-eclampsia.

For delivery plan documentation, the compliance rate was 85%, with a 95% confidence interval between 78.0% and 90.4%. The chi-square statistic was 59.50 with a p-value of <0.001, showing significant compliance but also a notable 15% non-compliance rate. This suggests that while the majority of patients had a documented delivery plan by 34 weeks, a more structured approach may be needed to ensure comprehensive preparation for all patients.

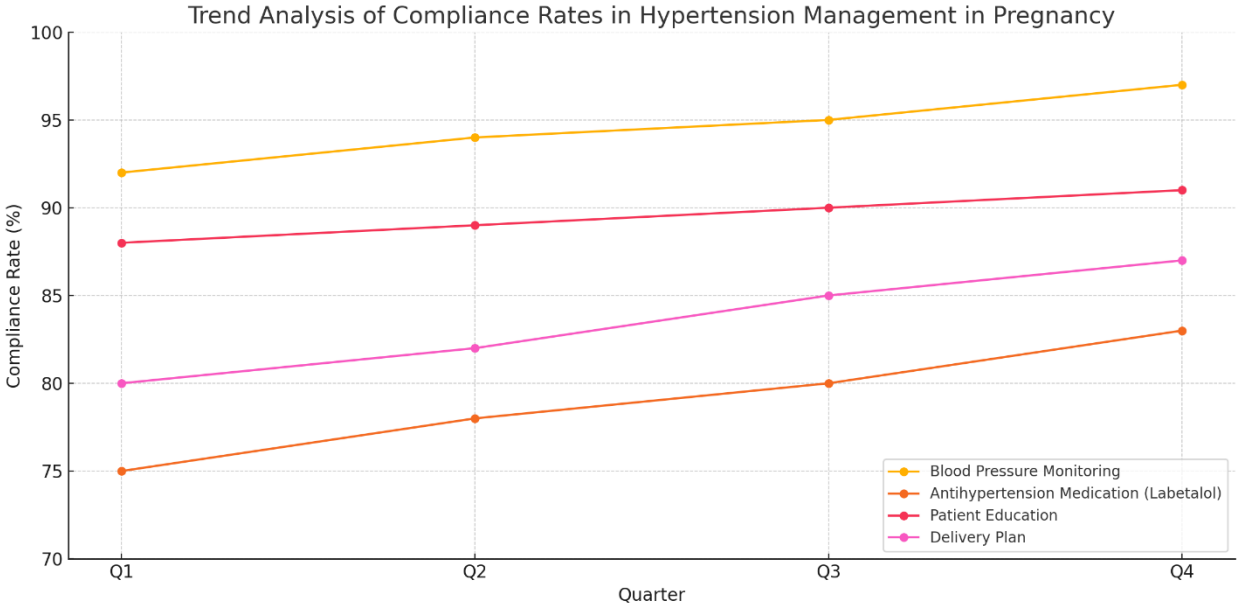

Figure 1: Trend Analysis of Compliance Rates in Hypertension Management in Pregnancy

The chart illustrates the quarterly trends in compliance rates across four key areas of hypertension management in pregnancy: Blood Pressure Monitoring, Antihypertension Medication (Labetalol), Patient Education, and Delivery Plan Documentation. Over four quarters (Q1 to Q4), Blood Pressure Monitoring showed the highest compliance increase from 92% to 97%. Antihypertension Medication compliance improved from 75% to 83%, indicating steady but slower progress. Patient Education compliance increased from 88% to 91%, and Delivery Plan Documentation rose from 80% to 87%, both showing consistent upward trends, reflecting ongoing improvements in clinical practice.

Overall, the statistical analysis confirms that compliance rates are significantly high across all evaluated areas, yet there are specific gaps that need to be addressed. The consistently low p-values (<0.001) across all domains suggest that the observed compliance is not due to chance, and targeted interventions aimed at closing these gaps could further align clinical practice with established guidelines. Continuous monitoring and focused quality improvement initiatives are essential to achieve the goal of 100% compliance, thereby enhancing maternal and fetal outcomes in pregnancies complicated by hypertension.

DISCUSSION

The clinical audit evaluated compliance with established guidelines for managing hypertension in pregnancy, revealing high adherence rates in several key areas but also identifying areas for improvement. The overall high compliance in blood pressure monitoring (95%) demonstrated strong adherence to guidelines, aligning with previous studies that have emphasized the critical role of regular monitoring in preventing severe complications associated with hypertensive disorders in pregnancy (1). However, the observed 5% non-compliance indicates that there is still a need for continuous monitoring and reinforcement of guidelines to ensure that all patients receive optimal care without exceptions (2).

The compliance rate for the use of antihypertensive medications, specifically Labetalol, was 80%, which is lower compared to other areas. This finding is consistent with prior research showing variability in the administration of antihypertensive therapy, often due to inconsistent recognition of severe hypertension or hesitancy in prescribing medications during pregnancy (6). The 20% non-compliance observed in this area suggests that further efforts are needed to standardize the use of antihypertensive medications and ensure prompt treatment of severe hypertension as recommended by the RCOG guidelines (3). This gap represents a critical area where improvements could significantly reduce the risk of adverse

maternal and fetal outcomes, including stroke and preterm birth.

Patient education on the symptoms of pre-eclampsia achieved a compliance rate of 90%, reflecting the effectiveness of educational initiatives within the healthcare setting. However, the 10% non-compliance highlights a gap that could impact patient outcomes, as inadequate patient awareness may delay the recognition of warning signs, leading to severe complications (4). Previous studies have emphasized the importance of comprehensive patient education in improving self-management and early detection of complications, thereby reducing hospital admissions and improving overall pregnancy outcomes (Wright & Martin, 2016). Therefore, strengthening educational strategies and ensuring consistent patient engagement remains a priority.

The compliance rate for delivery plan documentation by 34 weeks was 85%, indicating a relatively high level of adherence but also identifying a 15% gap where patients did not have a documented plan. This is an area of concern, as the absence of a clear delivery plan can result in uncoordinated care and adverse outcomes during labor and delivery (6). The findings underscore the need for more structured approaches to ensure that all pregnant women have a documented delivery plan, which is crucial for optimizing care and reducing the risk of complications associated with hypertensive disorders.

The strengths of this audit include its comprehensive evaluation of multiple key compliance areas against established guidelines and its focus on a specific population within a well-defined setting. This approach allowed for a detailed assessment of current practices and the identification of specific gaps that can be targeted for improvement. However, limitations include the retrospective nature of the study, which may be subject to incomplete or inaccurate record-keeping, and the reliance on a single healthcare setting, which may limit the generalizability of the findings to other institutions. Additionally, the audit did not assess patient outcomes directly, so the impact of non-compliance on clinical outcomes remains inferred rather than explicitly measured.

To address the identified gaps, it is recommended that ongoing training and education for healthcare providers be implemented to reinforce the importance of adhering to guidelines, particularly in the administration of antihypertensive medications and the documentation of delivery plans. Regular re-audits should be conducted to monitor progress and ensure that improvements are sustained over time. Future studies could expand to include a broader range of healthcare settings and directly assess patient outcomes to provide a more comprehensive evaluation of the impact of guideline adherence on maternal and fetal health. By implementing these recommendations, healthcare facilities can strive towards achieving the highest standards of care for pregnant women with hypertension, ultimately improving both maternal and fetal outcomes (1; 2).

CONCLUSION

The clinical audit revealed high compliance rates in blood pressure monitoring and patient education, indicating strong adherence to guidelines, while highlighting areas needing improvement, particularly in the timely administration of antihypertensive medications and the documentation of delivery plans. These findings underscore the critical need for targeted interventions to enhance guideline adherence, ensuring optimal care for pregnant women with hypertension. Addressing these gaps is essential to reducing the risk of severe maternal and fetal complications, such as pre-eclampsia and preterm birth, ultimately contributing to improved healthcare outcomes. Enhancing compliance through continuous education, regular audits, and standardized care protocols can significantly impact the quality of maternal healthcare, promoting safer pregnancies and healthier lives for both mothers and their babies.

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