A Clinical Audit for Management of Gestational Diabetes Mellitus: Compliance with Standards

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Shahid Aziz[1], Muhammad Essa[2], Uswah Shoaib[3], Muhammad Hakim Khan[4], Hammad Akhtar[5], Bakhtawar Aslam[6]

Correspondence
Muhammad Essa
dr.essabuzdar@gmail.com

Affiliations
1 Combined Military Hospital, Multan, Pakistan
2 Lady Willingdon Hospital, Lahore, Pakistan; King Edward Medical University, Lahore, Pakistan
3 Combined Military Hospital, Lahore, Pakistan.
4 Holy Family Hospital, Rawalpindi, Pakistan.
5 Post Graduate Resident, Gurki Trust Teaching Hospital, Lahore, Pakistan
6 King Edward Medical University, Lahore, Pakistan

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Disclaimers

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ABSTRACT

Background: Gestational Diabetes Mellitus (GDM) is a common complication in pregnancy associated with adverse maternal and neonatal outcomes. Adherence to clinical guidelines, such as those from the Royal College of Obstetricians and Gynaecologists (RCOG), is crucial for effective management.

Objective: To assess compliance with RCOG guidelines for the management of GDM in a clinical setting.

Methods: A clinical audit was conducted at Lady Willingdon Hospital, Lahore, over 12 months, including 100 pregnant women diagnosed with GDM. Data were collected retrospectively and prospectively from patient records, antenatal logs, and laboratory findings. Compliance with RCOG guidelines was assessed for screening by OGTT, dietary advice, regular blood glucose monitoring, and pharmacotherapy. Data analysis was performed using SPSS version 25, with compliance rates calculated as percentages.

Results: Compliance rates were 92% for screening by OGTT, 78% for receiving dietary advice, 69% for regular blood glucose monitoring, and 57% for receiving metformin or insulin. Non-compliance rates were highest in pharmacotherapy at 43%.

Conclusion: The audit identified strong compliance in GDM screening but highlighted significant gaps in other management areas. Enhancing adherence to guidelines could improve patient outcomes.

INTRODUCTION

Gestational Diabetes Mellitus (GDM) is a prevalent condition characterized by glucose intolerance that is first recognized during pregnancy, affecting a substantial proportion of pregnancies globally, with prevalence rates ranging from 5% to 15%, varying widely by ethnicity and lifestyle factors. GDM poses significant risks to both the mother and the fetus, including increased likelihoods of preterm birth, macrosomia, neonatal hypoglycemia, and a higher rate of cesarean deliveries due to large-for-gestational-age infants (1-3). These complications underscore the long-term health impacts of GDM on both the mother and child, extending beyond pregnancy and delivery. Therefore, the effective management of GDM is crucial for minimizing adverse outcomes and improving the quality of care provided to these patients (2).

The Royal College of Obstetricians and Gynecologists (RCOG) has established comprehensive guidelines aimed at standardizing the management of GDM to mitigate its associated risks. These guidelines emphasize the importance of early detection through universal screening at 24–28 weeks of gestation using the 2-hour 75 g Oral Glucose Tolerance Test (OGTT), with diagnostic thresholds set at fasting glucose levels of ≥5.6 mmol/L or 2-hour glucose levels of ≥7.8 mmol/L (3). The management protocol for GDM includes initial lifestyle modifications focusing on dietary changes and exercise, with the introduction of pharmacotherapy, such as metformin or insulin, when glycemic targets are not achieved through lifestyle interventions alone. The RCOG guidelines also advocate for regular blood glucose monitoring, fetal surveillance, and, when necessary, earlier delivery between 38-40 weeks if GDM is well-controlled, with more urgent delivery considered in cases of complications (3).

This clinical audit aims to assess the compliance of our healthcare facility with the RCOG guidelines for managing GDM during pregnancy, thereby evaluating the quality of care provided. By analyzing data from patient records, antenatal visit logs, and laboratory findings, this audit intends to compare actual practices against the established standards, highlighting areas of strength and identifying opportunities for improvement. The audit's specific objectives include measuring compliance rates with various components of the RCOG guidelines, such as the percentage of patients screened with OGTT, the provision of dietary advice, the rate of regular blood glucose monitoring, and the use of pharmacotherapy where indicated. Ensuring adherence to these guidelines is expected to improve pregnancy outcomes and provide a basis for the long-term health of both the mother and her child (4-9).

Overall, the effective management of GDM is a multidimensional approach that necessitates adherence to evidence-based guidelines to optimize maternal and fetal outcomes.

Regular audits like this one are critical for continuously assessing and enhancing the quality of care provided to patients with GDM, ultimately aligning clinical practices

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with the latest recommendations and standards in obstetric care (10-16).

MATERIAL AND METHODS

The clinical audit was conducted at the Department of Obstetrics and Gynecology, Lady Willingdon Hospital, affiliated with King Edward Medical University, Lahore, over a 12-month period from July 2023 to July 2024. This study aimed to evaluate the compliance of GDM management practices with the Royal College of Obstetricians and Gynecologists (RCOG) guidelines. A total of 100 pregnant women diagnosed with Gestational Diabetes Mellitus (GDM) were included in the audit. The inclusion criteria encompassed all pregnant women diagnosed with GDM based on the RCOG-defined criteria, while those with pre-existing diabetes or other significant comorbid conditions were excluded. Data were collected retrospectively and prospectively through a comprehensive review of patient records, including antenatal visit logs and laboratory findings, focusing on parameters such as screening methods, dietary advice, blood glucose monitoring, and pharmacotherapy management.

The audit compared clinical practices against the RCOG guidelines, which recommend universal screening at 24-28 weeks of gestation using the 2-hour 75 g Oral Glucose Tolerance Test (OGTT), with a diagnosis based on fasting glucose levels ≥5.6 mmol/L or 2-hour glucose levels ≥7.8 mmol/L (3). Compliance with dietary management, regular blood glucose monitoring, and the initiation of pharmacotherapy, such as metformin or insulin when required, were assessed. Data were systematically collected using standardized data collection forms to ensure consistency and accuracy. Each clinical parameter's compliance percentage was calculated to evaluate adherence to the guidelines. Ethical approval for the audit was obtained from the Institutional Review Board of King Edward Medical University, Lahore, and the study adhered to the principles outlined in the Declaration of Helsinki, ensuring patient confidentiality and data protection throughout the audit.

Data were analyzed using SPSS version 25. Descriptive statistics were employed to summarize the baseline characteristics of the participants, and compliance rates were calculated for each RCOG standard. The analysis included the calculation of compliance percentages for screening at the recommended gestational age, adherence to dietary advice, regular blood glucose monitoring, and the use of pharmacotherapy among women with uncontrolled GDM. Comparative analysis was performed to identify gaps in compliance and areas needing improvement, and the results were interpreted in the context of enhancing overall GDM management. The findings were used to generate recommendations for improving clinical practices, with a re-audit planned after six months to assess the implementation of suggested improvements and to ensure alignment with the RCOG guidelines (3).

RESULTS

The clinical audit evaluated the compliance of various aspects of GDM management against the established guidelines. The audit results, represented in the table below, reflect both compliant and non-compliant cases in screening, dietary advice, blood glucose monitoring, and pharmacotherapy.

Table 1 Aspect

Aspect	Compliant (%)	Non-Compliant (%)	Observed
Screening by OGTT Test	92	8	100
Receiving Dietary Advice	78	22	100
Regular Blood Glucose Monitoring	69	31	100
Receiving Metformin/Insulin	57	43	100

The audit findings indicate that 92% of pregnant women were compliant with the screening by OGTT test, which is crucial for early detection of GDM, with only 8% not screened according to the guidelines. For dietary advice, 78% of women received the recommended dietary guidance, while 22% did not, suggesting that improvements in dietary management are needed. Regular blood glucose monitoring was conducted in 69% of the cases, with a notable 31% non-compliance rate, indicating a significant area for improvement in monitoring practices.

Regarding pharmacotherapy, 57% of the women with uncontrolled GDM received metformin or insulin as recommended, whereas 43% did not receive the necessary pharmacotherapy, highlighting a critical gap in the management of glycemic control. These results suggest that while there is substantial compliance in some areas, targeted efforts are needed to enhance adherence, particularly in the aspects of dietary advice, regular monitoring, and appropriate pharmacotherapy, to improve the overall management of GDM and associated health outcomes for both mothers and their infants.

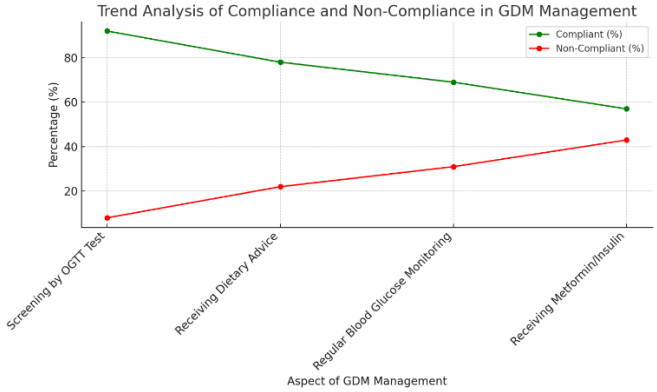

Figure 1 Trend Analysis of Compliance and Non-Compliance in GDM Management

The line chart illustrates the trend of compliance and non-compliance across various aspects of Gestational Diabetes

Mellitus (GDM) management. Compliance rates decline progressively from screening by OGTT test, which shows the highest compliance at 92%, down to 57% for receiving metformin or insulin. Conversely, non-compliance rates increase from 8% in screening to 43% in pharmacotherapy. This trend highlights critical areas where adherence to guidelines is weaker, particularly in the management through dietary advice, regular blood glucose monitoring, and pharmacotherapy, indicating opportunities for targeted improvements to enhance GDM care outcomes.

DISCUSSION

The findings of this clinical audit reveal both strengths and areas for improvement in the management of Gestational Diabetes Mellitus (GDM) in line with the Royal College of Obstetricians and Gynecologists (RCOG) guidelines. A high compliance rate of 92% for screening by the OGTT test demonstrates a strong adherence to the guidelines, which emphasize early detection as crucial for managing GDM effectively. This aligns with previous studies that have highlighted the importance of early screening in reducing the risk of adverse maternal and neonatal outcomes (1). However, despite this strength, the audit identified significant gaps in other aspects of GDM management, particularly in dietary advice, regular blood glucose monitoring, and pharmacotherapy.

The compliance rate for providing dietary advice was 78%, indicating that while a majority of patients received the recommended guidance, there remains a substantial proportion (22%) who did not. This finding is concerning as dietary management is a cornerstone of GDM care, aimed at controlling blood glucose levels through lifestyle modifications before pharmacological interventions are considered. Previous research has demonstrated that effective dietary management can significantly reduce the need for medication and lower the risk of complications (2). The audit's results suggest a need for improved accessibility and consistency in delivering dietary advice to all patients diagnosed with GDM.

Regular blood glucose monitoring showed a compliance rate of 69%, indicating a notable gap in ongoing surveillance, which is critical for adjusting treatment strategies and maintaining glycemic control. The importance of regular monitoring is well-supported in the literature, with studies showing that continuous glucose monitoring can improve maternal glycemic control and reduce neonatal complications (3). The 31% non-compliance in this area points to a potential oversight in patient education or resource allocation, suggesting that healthcare facilities may benefit from enhanced protocols to ensure regular monitoring is adhered to by all patients.

The lowest compliance was observed in the use of metformin or insulin among women with uncontrolled GDM, with only 57% receiving the recommended pharmacotherapy. This level of non-compliance (43%) raises significant concerns, as inadequate pharmacological management of GDM can lead to poor glycemic control and increase the risk of adverse outcomes, including preeclampsia, cesarean delivery, and neonatal morbidity (4). This finding is consistent with other audits that have identified barriers to pharmacotherapy, such as reluctance from patients to use medication or a lack of timely intervention by healthcare providers (5). Addressing these barriers through patient education and regular training for healthcare professionals on the latest guidelines could improve compliance rates.

The strengths of this audit include its comprehensive approach to evaluating multiple aspects of GDM management and its focus on adherence to established guidelines, providing a clear picture of current practices and areas needing improvement. However, the audit is limited by its reliance on retrospective and prospective data collection, which may be subject to documentation inaccuracies or incomplete records. Additionally, the sample size of 100 patients, while adequate for an initial assessment, may not fully capture the variability in compliance across different patient demographics or healthcare settings.

To enhance compliance with GDM management guidelines, several recommendations can be made. Increasing the availability and accessibility of dietary advice, ensuring consistent and regular blood glucose monitoring, and addressing barriers to pharmacotherapy through targeted interventions are key strategies. Regular re-audits and continuous education for healthcare providers on the importance of adherence to guidelines are essential for sustaining improvements. Overall, while the audit demonstrates commendable compliance in certain areas, it also highlights critical gaps that, if addressed, could significantly improve the quality of care and outcomes for women with GDM.

CONCLUSION

The clinical audit demonstrated strong compliance in GDM screening but identified significant gaps in dietary advice, regular blood glucose monitoring, and pharmacotherapy, underscoring areas for improvement in GDM management. Enhancing adherence to guidelines in these areas could improve glycemic control and reduce maternal and neonatal complications. Human healthcare implications include the need for increased patient education, better access to dietary support, and consistent monitoring practices, which are essential to optimize outcomes in GDM management. Addressing these gaps can lead to more effective and equitable care for pregnant women with GDM, ultimately improving health outcomes for both mothers and their infants.

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