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Impact of Management of Gestational Diabetes Mellitus on Pregnancy Outcome in Africa: A Narrative Review

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ABSTRACT

Gestational Diabetes Mellitus (GDM) has become a great threat during pregnancy, particularly in Africa. It often contributes to either mortality or morbidity for both mother and child. This narrative review aims to evaluate the impact of control of GDM on pregnancy outcomes in Africa from studies between 2014 and 2024. The review identifies relevant studies that identify the position of early diagnosis and appropriate management of GDM to improve maternal and foetal outcomes. The findings suggest that proper management of GDM can meaningfully decrease the risks of adverse pregnancy consequences like, preterm delivery, preeclampsia for mothers and macrosomia ,hypoglycemia for the newborn. However, there are challenges in the management of GDM in Africa, these include inadequate access to healthcare amenities, insufficient screening programs, and a lack of standardised treatment guidelines. Future studies should concentrate on strategies to improve the management of GDM in resource-limited settings to lessen maternal and newborn morbidity and mortality.

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INTRODUCTION

Gestational Diabetes Mellitus (GDM) is becoming a common complication of pregnancy globally, especially in Africa, and its management is crucial in ensuring optimal gestational outcomes for both the newborn and the mother. In Africa, the prevalence of GDM is on the rise, making it important to understand the impact of its management on pregnancy outcomes in this region (1–3). The purpose of this narrative review was to explore the effect of GDM management on pregnancy outcomes in Africa.

Gestational Diabetes Mellitus is defined as hyperglycemia that is first noticed at any time during pregnancy and caused by pregnancy hormones, among previously non-diabetic women (4). Diabetes during pregnancy, which has been a health concern globally, has many negative health implications for mothers and children. This is associated with long term and short-term complications. Regarding maternal short-term complications, a mother can have hyperglycemia, eclampsia, miscarriage and rectifiable birth injury, among others, while the long-term implications could include renal dysfunction, foetal complication can include, hypoglycemia, macrosomia and need for caesarean section, birth defect, non-rectifiable birth injury. The foetal long term complication include obesity, and later type 2 diabetes, among others (1,5). GDM is linked with more risk of unfavourable maternal and foetal consequences The incidence of GDM is increasing globally due to the rising rates of overweightness and sedentary lifestyle (1). In Africa, the burden of GDM is significant, with studies reporting prevalence rates ranging from 3.8% to 18.8% (1,3,6). According to reports, the prevalence of GDM increased sharply on a global scale from 15.3% in 2014 to 16.9% in 2016, with sub-Saharan nations accounting for a significant portion of this prevalence (7). Despite the high prevalence of GDM in Africa, there is inadequate research on the effect of management of GDM on gestational outcomes in this region.

METHODS

A literature exploration was steered by means of electronic databases such as PubMed, Scopus, and Google Scholar to find relevant studies published between 2014 and 2024. The search terms comprised "gestational diabetes mellitus," "pregnancy outcome," "Africa," "management," and "treatment." Only studies that focused on the impact of management of GDM on pregnancy outcomes in African populations were included in the review. Fifty-nine studies were retrieved and ten studies were reviewed hinged on the inclusion criteria and the objective of the narrative review.

Inclusion Criteria

For this review, studies conducted in African countries that investigated the impact of GDM management on pregnancy outcomes were included. Both quantitative and qualitative studies were considered, including case-control studies, and systematic reviews. Studies that presented maternal and gestational outcomes such as preterm birth, macrosomia, caesarean section rate, and neonatal hypoglycemia were included.

RESULTS

Out of a total of 59 studies that were retrieved. Ten studies were reviewed which included systematic reviews and original studies. These studies included studies from Nigeria, South Africa, Ghana and Botswana. Some of the studies highlighted the importance of early detection and appropriate management of GDM in improving pregnancy outcomes in African populations. Studies by Fan et al. (8), Sweeting et al. (9) and Xu et al. (10) highlighted that women with well-controlled GDM had a lower risk of macrosomia and neonatal hypoglycemia compared to those with poorly controlled GDM. Additional study by Mamabolo et al. (3) reported that women who received intensive management of GDM had a lower incidence of preeclampsia and caesarean delivery. This indicates that efficient management of GDM had a positive health outcome on both the mother and the foetus. Several studies such as Mwanri et al. (7), and Igwesi-Chidobe et al. (2) investigated the impact of GDM management on gestational outcomes. The findings of these studies indicate that effective management of GDM leads to enhanced gestational outcomes, including a reduced risk of macrosomia, preterm birth, and caesarean section. Additionally, proper management of GDM has been associated with a decreased risk of neonatal hypoglycemia (11–13) and gestational-related hypertensive disorder as highlighted by McIntyre (14).

However, according to Kapur et al. (15), Mamabolo et.al (5), McIntyre (6) and Sobugwi et.al (11) there are challenges in the management of GDM in Africa, these includes limited access to healthcare facilities, inadequate screening programs, differences in diagnostic criteria and a lack of standardised treatment guidelines. Mwari et al. (7) indicated differences in the screening methods even among studies in the same country which can pose challenges in diagnosing and managing GDM. Challenges in Africa that are detrimental to the management of GDM were also highlighted by Azeez et al (1) in a meta-analysis of the prevalence of GDM in Nigeria where the findings pointed out lack of access to health care. Agbozo et al. (16), Chukwunyere et al. (17), Mensah et al. (18) and Muche et al. (19) also emphasis the discrepancies in diagnostic criteria and management protocols in Ghana, it was pointed out that variation in diagnostic criteria might affect the effective management of GDM in the country. This indicates the loop holes in management of GDM in Africa and the need for more proactive measures.

LIMITATIONS

While the studies included in this review provide valuable insights into the impact of GDM management on gestational outcomes in Africa, and the loopholes that need urgent attention in the management GDM there are some limitations in the review that should be premeditated. The review is limited to only a few countries in Africa and limited to the studies inclusion criteria.

CONCLUSION

In conclusion, the management of GDM is highly important and contributes a crucial role in ensuring optimal pregnancy outcomes for women in Africa. Improving pregnancy outcomes in African women is highly important because of the alarming rate of maternal, perinatal and infant mortality and morbidity. Effective management of GDM has been shown to limit the danger of unfavourable gestational outcomes such as preterm birth, macrosomia and caesarean section. Nevertheless, there are challenges that are required to be addressed, which includes the absence of consistent diagnostic criteria and treatment protocols.

The severity of this condition makes it important to implement standardised guidelines and improve health care training. By implementing standardised guidelines and improving healthcare provider training, it is possible to enhance the management of GDM and improve pregnancy outcomes in Africa.

RECOMMENDATIONS

Based on the conclusions of this review, quite a few recommendations can be made to improve the management of GDM and enhance pregnancy outcomes in Africa. First, there is a need for standardised diagnostic criteria and treatment protocols for GDM across African countries to ensure consistency in care. Additionally, healthcare providers should receive adequate training on the management of GDM to improve awareness and adherence to guidelines. Finally, further research is needed to investigate the long-term impact of GDM management on maternal and neonatal health outcomes in Africa.

SIGNIFICANCE

This narrative review was premeditated to expand the frontier of knowledge needed for halting negative pregnancy outcomes of Gestational Diabetes Mellitus. The severity of this condition makes it important to review previous research on the impact of the management of pregnant women with GDM and pregnancy outcome. Hence, this narrative review has been able to highlight the impact of management of GDM on pregnancy outcome from scholarly studies, the limitations and implication for future studies to enable a better pregnancy outcome for women with Gestational Diabetes Mellitus.

RESEARCH GAP FOR FUTURE STUDIES

Subsequent studies should concentrate on strategies to improve the management of GDM in resource-limited settings to reduce maternal and neonatal morbidity and mortality.

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