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Prevalence of Gestational Diabetes Mellitus in Pregnant Women Attending a Tertiary Care Center in Kathmandu, Nepal

¹Maharjan R ²Mall D

¹Department of Obstetrics and Gynecology Department, Civil service Hospital, Kathmandu, ²Diabetes,Thyroid and Endocrinology ,Internal Medicine, National academy of medical sciences ,Kathmandu,
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Abstract

Background: : Gestational diabetes mellitus (GDM) is one of the most common metabolic disorders in pregnancy. Early identification and treatment are crucial to prevent adverse maternal and neonatal outcomes. This study aimed to assess the prevalence of GDM among pregnant women visiting Civil Service Hospital, Kathmandu, Nepal, between January 2023 and January 2024. **Methods:** Pregnant women at 26 weeks of gestation or earlier, as per clinical indication, underwent glucose challenge tests (GCT) followed by oral glucose tolerance tests (OGTT) if GCT ≥ 140 mg/dL. Diagnostic criteria followed the DIPSI and IADPSG recommendations. **Results:** Among 2108 pregnant women screened, 367 had abnormal GCT results. Of these, 140 were diagnosed with GDM. The youngest and oldest GDM cases were aged 24 and 47, respectively. Among the GDM cases, 51 were primigravida and 89 multiparous. A past history of GDM was noted in 43 cases, and 83 reported a family history of diabetes mellitus. Only 409 women had awareness about GDM. **Conclusion:** The prevalence of GDM in this population was 6.64%. The findings underscore the importance of universal screening, especially in settings like Nepal where diabetes literacy remains low. Lifestyle modifications remain the cornerstone of treatment, with metformin and insulin as adjuncts where necessary.

Key Words : Diabetes mellitus, Gestational Diabetes, Pregnancy

Introduction

Gestational diabetes mellitus (GDM) is defined as glucose intolerance with onset or first recognition during pregnancy^[1]. It is associated with increased risk of complications such as preeclampsia, cesarean delivery, macrosomia, neonatal hypoglycemia, and long-term metabolic syndrome for both mother and child^[2,3]. In South Asia, including Nepal, increasing urbanization, dietary changes, and obesity have contributed to a rise in GDM prevalence. Screening for GDM is crucial to identify at-risk pregnancies early and initiate appropriate treatment. This study was conducted at Civil Service Hospital, Kathmandu, to determine

the prevalence of GDM using standardized screening methods and to analyze associated risk factors.

Methods

This was a prospective observational study conducted from January 2023 to January 2024. All pregnant women attending the antenatal clinic at Civil Service Hospital were considered for screening. Women were screened for GDM using the Glucose Challenge Test (GCT) between 24–28 weeks gestation or earlier if risk factors were present. Those with GCT ≥ 140 mg/dL underwent a 75g Oral Glucose Tolerance Test (OGTT).

Definition of GCT and OGTT:

- GCT involves administering 50g of oral glucose and measuring plasma glucose at 1 hour. A value ≥ 140 mg/dL indicates the need

Correspondence Author

Dr Rima Maharjan, Assistant Professor, Department of Obstetrics and Gynecology, Civil Service Hospital, Kathmandu, Nepal. Email ID: rimamaharjan15@gmail.com

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for OGTT [4].

- OGTT is performed with 75g glucose, measuring fasting, 1-hour, and 2-hour glucose levels. According to IADPSG and WHO, GDM is diagnosed if any one of the following is met: FPG ≥ 92 mg/dL, 1-hour ≥ 180 mg/dL, 2-hour ≥ 153 mg/dL [5,6].

DIPSI criteria, widely followed in India and

Nepal, use a single 2-hour post-75g glucose value of ≥ 140 mg/dL as diagnostic [7].

Results

Out of 2108 pregnant women screened, 367 had abnormal GCT results (≥ 140 mg/dL). OGTT confirmed GDM in 140 cases (6.64% prevalence).

Table 1: Demographic breakdown

Particulars	Age (Years)
Youngest GDM Patient	24
Oldest GDM Patient	47
Particulars	Number (n=140)
Primigravida with GDM	51
Multipara with GDM	89
Past history of GDM	43
Family history of diabetes mellitus	83

Among 140 cases of GDM only 52 had a delivery in our hospital. GDM knowledge: Only 409 out of 2108 women (19.4%) reported any awareness about gestational diabetes.

Discussion

Our study revealed a GDM prevalence of 6.64%, comparable to recent studies from Nepal and neighboring South Asian countries. For instance, Prevalence was shown by a systemic review and meta-analysis by Pokharel et al in has shown prevalence from 2.61 -6.56 % as per different criteria for diagnosis of GDM [8] while a study in India by Seshiah et al. reported rates ranging from 10% to 17% depending on

the population [9]. In Pakistan, Shaikh et al. reported a prevalence of 9.5% [10], and in China, Liu et al. noted 14.8% [11]. The high prevalence underscores the growing burden of GDM in South Asia.

Only 19.4% of women had awareness of GDM, highlighting a significant gap in maternal health education. This aligns with findings from Bangladesh, where Islam et al. noted limited GDM awareness even in urban centers [12].

Screening should be universal, especially in high-risk groups such as those with obesity, prior GDM, family history, or conceived

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via ART (IVF/IUI) [13]. In ART pregnancies, studies show a higher prevalence of GDM, necessitating early screening [14]. DIPSI and WHO criteria are cost-effective and feasible in resource-limited settings like Nepal.

Management includes lifestyle changes (diet and exercise), which remain the first line of treatment [15]. If glycemic targets are unmet, metformin is often preferred, followed by insulin as per national and FIGO guidelines [16,17]. In Nepal, human insulin (NPH and regular) and metformin are commonly used.

Complications of GDM include macrosomia, birth injuries, neonatal hypoglycemia, and long-term metabolic disorders [18,19]. Tight glycemic control and antenatal monitoring reduce risks.

Our findings emphasize the need for national policies on GDM screening and awareness. Civil Service Hospital's protocol can serve as a model for other centers.

Conclusion

The prevalence of GDM among pregnant women attending a tertiary care hospital in Kathmandu was 6.64%. Despite the high burden, awareness remains low. There is an urgent need for widespread screening and educational programs. Universal screening, especially in ART pregnancies and those with risk factors, should be implemented. Lifestyle interventions remain the cornerstone, with pharmacologic therapy as needed.

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