

Awareness of gestational diabetes and its risk factors among pregnant women in Thiruvallur district

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ABSTRACT

Introduction: India has the largest diabetes population in the world and has been named the diabetes capital of the world. One of the subtypes of diabetes is the Gestational diabetes mellitus (GDM), the prevalence of which is constantly increasing. GDM is a result of glucose tolerance in the body that is first detected during pregnancy. **MATERIALS AND METHODS:** This study was conducted in the Thiruvallur district of Tamil Nadu. The questionnaire was designed to collect information on demographic details such as the age, education, occupation, followed by questions which was mainly focused on the general awareness of DM and GDM, the risk factors, diagnosis, treatment, and consequences of GDM. The source of knowledge of pregnant women was thus obtained. **Result:** The study shows that majority of the pregnant women, who took up the survey belonged to the age group of 20-30 years, majority of them belonging to a middle class economic families. It was found that among the 50 pregnant women that were surveyed, only 41.7% of the pregnant women were aware of GDM and also that GDM can occur for the first time during pregnancy. Overall, from this study, it was found that majority of the pregnant women in the Thiruvallur district were completely unaware of GDM and its risk factors. **Conclusion:** In the present day scenario, mass media plays a major role in enlightening people. It's unfortunate that, the education of the pregnant women by the health workers is far less. It's important for the doctors to educate and enlighten the women about GDM and its risk factors which could pose a potential threat to the fetus if left undiagnosed and untreated. Therefore, it's necessary to spread awareness among the pregnant women in the rural as well as the urban areas to prevent complications.

KEY WORDS: Gestational diabetes, thiruvallur, pregnant women

INTRODUCTION

India has the largest diabetes population in the world and has been named the diabetes capital of the world.^[1] One of the subtypes of diabetes is the gestational diabetes mellitus (GDM), the prevalence of which is constantly increasing. GDM is a result of glucose intolerance in the body that is first detected during pregnancy.^[2] GDM poses greater risk of pre-eclampsia for mothers in the antepartum period and also increased risk for macrosomia, hypoglycemia, jaundice, respiratory distress syndrome, polycythemia, and hypocalcemia in infants.^[3] After delivery, the glucose levels return to normalcy. Although the mother might still be at a higher risk for Type 2 DM (T2DM), and the child of a mother with GDM is at an increased risk for metabolic syndrome.^[3]

Diabetes occurs between 1 and 20% of all pregnancies worldwide that includes pre-GDM (PGDM) and GDM.^[4] There are certain differences in the occurrence and prevalence of PGDM and GDM. The South Asian race is at a higher predisposition for both T2DM and GDM.^[5,6] It was found that GDM was detected among 17.8% of the women in urban, 13.8% in semi-urban, and 9.9% of women in rural areas in South India, according to a study conducted by Seshiah *et al.*, which was based on the 2-h 75 g post-glucose value ≥ 140 mg/dL.^[7]

According to the World Health Organization, obesity and T2DM to a large extent are attributed to each other, which includes high-level consumption of calorie-rich and nutrient-poor imported food and a lack of physical exercise.^[8] The risk factors for GDM include increased maternal age, familial T2DM, overweight before pregnancy,^[9] excessive gestational weight gain, and a history of GDM/

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glucose intolerance.^[10] Diet and lifestyle can affect glucose intolerance in GDM and have been associated with higher birth complications.^[11] Evaluating awareness about GDM and its risk factors may result in increased self-care which might result in its prevention.^[12]

Various challenges related to maternal health care persist due to the reduced focus on prevention and lack of preconception planning. Utilization of health care is minimal, especially in the rural areas due to lack of access to care and financial issues which pose as some of the major barriers.^[13] Furthermore, health literacy is also becoming a well-known and relatable factor that has been shown to decrease the risk of adverse outcomes in non-pregnant diabetic patients.^[14]

Knowledge plays an important role in health literacy.^[6] Studies have shown that lesser knowledge about the disease eventually leads to poor understanding of medical information, which, in turn, leads to limited adherence to management strategies and ultimately unfavorable pregnancy outcome.^[7] Several cultural factors also play a key role in health-seeking behavior, especially among the pregnant women in the Indian subcontinent. There have been several studies that have assessed the knowledge and awareness of T2DM among patients; however, the same among pregnant women about GDM is limited. This study was aimed at evaluating the knowledge of GDM, including risk factors, among pregnant women in Thiruvallur district.

MATERIALS AND METHODS

This study was conducted in the Thiruvallur district of Tamil Nadu. The questionnaire was designed to collect information on demographic details such as the age, education, and occupation, followed by 12 questions which were mainly focused on the general awareness of DM and GDM, the risk factors, diagnosis, treatment, and consequences of GDM. The source of knowledge of pregnant women was thus obtained.

The questions based on risk factors assessed the awareness on pre-pregnancy obesity, family history of diabetes, diabetes during previous pregnancy, and rapid weight gain during the current pregnancy. The options provided were yes or no.

The knowledge of the pregnant women on diagnosis of GDM was assessed by plotting questions on time for testing and the test which is employed to detect it. The options provided for time for testing were 12–16 weeks, 18–22 weeks, 24–28 weeks, and during delivery. If the response was 12–16 weeks or 24–28 weeks, it was considered as the correct answer.^[15] The test employed for GDM included

options that were urine test, blood test, or blood test following glucose load. If the response was chosen as blood test following glucose load, then it was considered as the right answer.

The evaluation of knowledge on treatment of GDM was done by asking the questions with options as diet and exercise, oral antidiabetic drugs, and insulin injections. Diet and exercises or insulin injections were considered as the correct answer.

The knowledge of pregnant women on course and consequences of GDM was assessed by questions on whether GDM usually disappeared after delivery, posed a risk to the unborn baby if untreated, and whether women diagnosed to have GDM were at an increased risk for future Type 2 diabetes. If they answered yes for each of these, then it was considered as a correct response.

Questionnaire

1. Are you aware of gestational diabetes during your pregnancy? (Yes/No)
2. Are you aware that gestational diabetes can occur for the 1st time during pregnancy? (Yes/No)
3. Do you know that family history of DM is a risk factor for gestational diabetes? (Yes/No)
4. Are you aware that pregnancy obesity can result in gestational diabetes during pregnancy? (Yes/No)
5. Are you aware that gestational diabetes during the first pregnancy can result in the same during the second pregnancy as well? (Yes/No)
6. Rapid gain weight during pregnancy is also a risk factor? (Yes/No)
7. Are you aware that diagnosis can be done during
 - 12–16 weeks of pregnancy
 - 24–28 weeks of pregnancy
 - blood test following oral glucose load
 - None
8. Are you aware that diet and exercise are a treatment choice for GDM? (Yes/No)
9. Are you aware that insulin injections can be administered for treating GDM? (Yes/No)
10. Are you aware that GDM disappears after delivery? (Yes/No)
11. Are you aware that the child may be affected if the mother is not treated? (Yes/No)
12. Are you aware that women with GDM are at a risk of developing type II DM? (Yes/No)
13. Are you aware that the child may be affected if the mother is not treated? (Yes/No)
14. Are you aware that women with gestational diabetes are at a risk of developing type II DM? (Yes/No)
15. Does sedentary lifestyle play a major role in gestational diabetes? (Yes/No)
16. Is diet a major factor in the development of gestational diabetes? Yes/No

RESULTS

The study shows that majority of the pregnant women, who took up the survey belonged to the age group of 20–30 years, majority of them belonging to a middle-class economic families. Overall, from this study, it was found that majority of the pregnant women in the Thiruvallur district were completely unaware of GDM and its risk factors.

DISCUSSION

It was found that among the 50 pregnant women that were surveyed, only 41.7% of the pregnant women were aware of GDM and also that GDM can occur for the 1st time during pregnancy. About three-quarter of the population felt that family history of DM may result in GDM. A little over half the population felt that obesity could play an important role in the occurrence of GDM among pregnant women. Majority of the women were not aware of the fact that GDM during the first pregnancy can result in the same during the second pregnancy as well. Equal number of participants felt that rapid gain weight could result in GDM and is a potential risk factor. Majority of the participants were not aware that sedentary lifestyle and diet could play a major role in the development of GDM.

Similar results were obtained by a study which was carried by Poth and Carolan, where it was reported that most pregnant women were not aware of other risk factors related to GDM and also were unable to understand how lifestyle and diet can reduce the risk of GDM.^[16] Results from a study by Rhoads-Baeza and Reis published similar results that showed that majority of women did not understand the relationship between GDM, T2DM, or familial risk factors.^[17] Only one-quarter of the women, that is, 25% answered the time of diagnosis right, which was blood test following oral glucose load. Equal responses were obtained for exercise as a treatment choice of GDM. Majority of the women were not aware that insulin injections can be administered for the treatment of GDM. About 58.3% of pregnant women were not aware of the fact that GDM disappears after delivery. About 50% of them felt that the child may be affected if the mother is left untreated. Equal number of responses was obtained, for the risk of developing T2DM. GDM is generally considered, as a transient condition which is likely to exist only during pregnancy and disappears after delivery of the fetus.^[18] The previous studies reported that women with GDM developed T2DM within 9-year postpartum.^[19]

Their reasons for poor knowledge of GDM among pregnant women can be many. A study that was conducted in Chennai, among a representative

population, showed that nearly 25% of the residents of Chennai were not even aware about a condition called diabetes.^[20] Hence, it is not surprising that awareness and knowledge of diabetes during pregnancy or GDM among pregnant women are poor, both in urban and rural areas. Moreover, even among urban physicians, as seen from an earlier survey that was conducted all over India, it was concluded that more than half of the diabetologists/endocrinologists and obstetrician/gynecologists do not consistently follow any recommended guideline for the proper diagnosis of GDM.^[21]

CONCLUSION

In the present day scenario, mass media play a major role in enlightening people. It's unfortunate that the education of the pregnant women by the health workers is far less. It is important for the doctors to educate and enlighten the women about GDM and its risk factors which could pose a potential threat to the fetus if left undiagnosed and untreated. Therefore, it's necessary to spread awareness among the pregnant women in the rural as well as the urban areas to prevent complications.

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