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Gestational Diabetes Mellitus among Women

Abstract

The present review takes into account the fact that India holds the dubious claim of 'Diabetes Capital' of the world.[14] By 2030, the IDF predicts, India will have 100 million people with diabetes.[24] Gestational Diabetes Mellitus (GDM) is a serious concern and poses severe threat to both the mother as well as the foetus. Present review attempts to describe what GDM is all about- the background, prevalence, risk factors and the symptoms associated with GDM. The review tries to explain the impact of GDM on the woman and the baby and also throws light on the treatment of GDM and its importance in maintaining the pregnancy. Appropriate knowledge regarding GDM will help make the coping process less stressful for the women thereby improving the maternal and foetal conditions.

Keywords: GDM, Prevalence, Risk Factor, Symptoms, Psychological Impact, Physiological Impact.

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Introduction

Diabetes Mellitus is a group of metabolic disorders in which the body's ability to produce or respond to the hormone insulin is impaired, resulting in abnormal metabolism of carbohydrates and elevated levels of glucose in blood. India has an estimated 62 million people with Type 2 diabetes mellitus (DM); this number is expected to go up to 79.4 million by 2025.[16]Diabetes is of three major types[1]:

Type 1 Diabetes Mellitus- also known as IDDM (Insulin Dependent Diabetes Mellitus) is characterized by an absolute deficiency of insulin secretion caused by the destruction of pancreatic beta cells. It accounts for approximately 10% of all cases.

Type 2 Diabetes Mellitus- also known as NIDDM (Non-Insulin Dependent Diabetes Mellitus) is caused by a combination of peripheral resistance to insulin action and an inadequate compensatory response of insulin secretion by the pancreatic beta cells. Approximately 80-90% of patients have Type 2 diabetes.

Gestational Diabetes Mellitus- It is a form of high blood sugar affecting pregnant women. It happens only during pregnancy. It is characterized by an elevated level of glucose in the blood during pregnancy, typically resolving after birth.

Gestational Diabetes Mellitus has been defined as any glucose intolerance with onset or first recognition of pregnancy.[21]During pregnancy the placental hormones can lead to a buildup of glucose in the blood thereby causing hyperglycaemia (high blood sugar).A woman is diagnosed with gestational diabetes mellitus when glucose intolerance continues beyond 24 to 28 weeks of gestation.The fact that those who develop Gestational Diabetes are at higher risk of developing Type II later in life makes it useful to explore the dynamics of the Gestational Diabetes Mellitus (GDM) status of women.

Objective of the Study

The research objectives of this review are: 1) to explain what is GDM; 2) to elucidate the impact of GDM on the woman and the baby; and, 3) to describe why it should be treated.

Screening for Gestational Diabetes Mellitus

A glucose intolerance test is used to diagnose gestational diabetes. Most pregnant women have a glucose screening test between 24 and 28 weeks of gestation.[3,23] This test checks for gestational diabetes. The test may be done earlier if one has high glucose levels in the urine during the routine prenatal visits or if one has a high risk for diabetes.

DIPSI (Diabetes in Pregnancy Study Group in India) recommends non- fasting Oral Glucose Tolerance Test (OGTT) with 75g of glucose with

a cut-off of ≥140 mg/dl after 2-hours, whereas World health organization-WHO (1999) recommends a fasting OGTT after 75 g glucose with a cut-off plasma glucose of ≥ 140 mg/dl after 2-hour.[21] A 2hrs plasma glucose greater than 140mg/dl is taken as GDM.

Prevalence of Gestational Diabetes mellitus

Indian women have 11 times more risk of developing GDM as compared to women in other parts of the world.[25]The prevalence of gestational diabetes has been reported from 3.8% to 17.9% in different parts of India.[4,18,22]Globally, one in ten pregnancies is associated with diabetes, 90% of which are GDM.[19] The highest GDM incidence was seen among Asian women at 11.5%, compared with Australian women at 3.7% and older maternal age and non-Australian birth increased a woman's risk of developing GDM and this increase was most evident among Asian women.[5] It is estimated that about 4 million women are affected by GDM in India, at any given point.[13]GDM was also found to be associated with increasing age, higher educational level and socio-economic status, higher pre-pregnancy weight and BMI, higher weight gain during pregnancy, family history of diabetes or hypertension and past history of GDM.[19]High prevalence of GDM among Indian population could be due to trend towards older maternal age, decrease in physical activity and adoption of modern lifestyles, and increasing prevalence of obesity in urban area.[20] Indian women living in urban areas have greater observed incidence than those living in rural areas of India.[2,26]

Risk factors for Gestational Diabetes Mellitus

Maternal Age

The prevalence rate of GDM was found to be higher in women above 25 years of age.[3,12,23]

Family History

Women having family history of diabetes were at a greater risk of developing GDM.[3,12,23,26]

Obesity

Women having high maternal weight have greater chances of developing GDM.[3,12,23]

Educational qualification and Socio-economic Status

Women having higher educational qualification and higher socio-economic status have a higher possibility of developing GDM.[19]

Ethnicity

Non- Hispanic Asian/Pacific Highlander (API) women, especially Asian women with both normal and high BMI, have increased risk of GDM.[11]

Symptoms

Most women with gestational diabetes mellitus have no symptoms, though a few may experience:

1. · Unusual thirst
2. · Frequent urination in large amounts
3. · Sugar in the urine
4. · Excessive fatigue
5. · Sores that heal slowly
6. · Blurred vision
7. · Tingling or numbness in the hands and/or feet

Impact of Gestational Diabetes Mellitus

Psychological impact on the woman

GDM not only affects the physical health of the woman but has a profound impact on the psychological state of the woman as well. Since pregnancy in itself is a very unique phase in a woman's life she is extremely sensitive to all the events taking place in the process. Women with GDM show higher anxiety and stress levels than non-GDM women because of the constant fear regarding the complications arising as a result of GDM in their pregnancy.[10] Many women described their experience of diagnosed and living with GDM during pregnancy as a process from "stun to gradual balance".[17] Women with GDM are likely to be more depressed than non-GDM women.[15]

In India, the growing concern of family and friends for a pregnant woman and her baby is a major factor. Almost everyone within the family has an opinion. This can confuse and complicate the pregnant woman's decisions to follow the health-care professional's advice. The lack of information in communities and sometimes cultural perspectives are barriers to GDM care. Some patients are even reluctant to ask questions, suggesting poor interaction with the health-care providers leading to misconceptions. Hence, many women remain sedentary during pregnancy because of these perceived barriers. Studies show that GDM patients often encountered fear and emotional disturbances when informed about the consequences of the disease.[6,9]

Physiological impact on the woman

Preeclampsia

A serious complication of pregnancy involving high blood pressure including signs of kidney and liver damage.

Future Diabetes

Women with GDM are at a higher risk of developing Type 2 diabetes in the future.

Physiological impact on the baby

Macrosomia

Women with GDM deliver "fat"babies having excessive birth weight, greater than normal which may lead to a C-section delivery to avoid the baby being wedged in the birth canal.[26]

Respiratory Distress syndrome

Babies of mothers with GDM may experience difficulty in breathing when they are born because of early delivery due to early labour as a result of increased sugar in the blood.

Obesity

Due to the extra insulin made by the baby's pancreas the newborn has a very low blood glucose level during birth and a higher risk to become obese as well as develop Type 2 diabetes in the future.

Future risk of Diabetes

The children of mothers with uncontrolled diabetes – either pre-existing or originating during pregnancy- are four to eight times more likely to develop diabetes in later life compared to their siblings born to the same parents in a non-GDM pregnancy.[7]

Treatment of Gestational Diabetes Mellitus

It is essential to treat GDM because it poses a threat not only to the mother but the baby as well.

The lack of awareness on GDM among patients is a major hurdle to its successful management. It is vital to educate the patients about the disease, its complications and management strategies. Educating the women about the importance of medicine and adhering to dietary recommendations improves their medicine intake and makes them more likely to embrace a healthier routine.[8] The treatment of GDM involves three main points:-

Diet

A healthy diet is needed to maintain an adequate blood sugar level in pregnancy. It provides essential nutrients and adequate calories while avoiding excess sugar, carbohydrates and fatty foods. Foods that contain a lot of sugar should be avoided like cakes, pastries and soft drinks. Instead plenty of whole fruits and vegetables should be included in the diet.

Exercise

Physical exercise of moderate intensity has been proven to be beneficial in improving the pregnancy outcomes in women with GDM.

Anti-diabetic Medication and Insulin

Insulin injections, being the standard medication for GDM, are needed to maintain normal blood glucose levels in pregnancy. The medical health practitioner can also prescribe certain oral medicines to keep the blood sugar level in check. Regular checkups and monitoring of the glucose levels is a must.

Conclusion

The review throws light on Gestational Diabetes Mellitus and highlights the significance of taking into account the physical and psychological impact of GDM on the woman and the baby. It highlights the importance on the treatment of the GDM and attempts to explain the fact that proper awareness and precautions can make a GDM pregnancy the most beautiful and memorable phase of a woman's life.

End notes

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