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Mini Review

Will Gestational Diabetes Mellitus Increase Risk of Type 2 DM?

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Abstract

A descriptive study to assess the knowledge on gestational diabetes mellitus among gestational diabetic mothers on selected hospital. The objectives of the study is to assess the knowledge on gestational diabetes mellitus among antenatal mothers with gestational diabetes mellitus and associate the level of knowledge with the selected demographic variables. The Quantitative approach and Descriptive design was used for the study. The study was conducted among 60 gestational diabetic mothers attended the Antenatal OPD and admitted in Rajiv Gandhi government women and children hospital, Puducherry. Convenient sampling technique was used to select mothers with GDM. The data were collected for the period of 1 week by using self-structured questionnaire and the data were analyzed by using the descriptive statistics and inferential statistics such as chi-square test. The study reveals that the maximum number (60) of mothers were having moderately adequate knowledge on Gestational Diabetes mellitus and also states age, gravida, religion, occupation, income, residence, type of family, history of previous pregnancy with GDM and Family history of DM had significant association between knowledge of mother and GDM.

Keywords: *Gestational Diabetes Mellitus; Type 2 DM*

Epidemiology

The International Diabetes Federation (IDF) estimates that as of 2015, 16.2% of women with live births had some form of hyperglycemia in pregnancy, 85% of which were due to gestational diabetes. There is a notable difference in the prevalence of GDM, with the South East Asia Region having the highest prevalence (87.6%) [1].

What is meant by gestational diabetes mellitus?

Gestational diabetes mellitus is defined as any degree of glucose intolerance with onset or first recognition during pregnancy. The definition applies whether insulin or only diet modification is used for treatment and whether or not the condition persists after pregnancy [8].

What causes gestational diabetes mellitus?

The Gestational diabetes mellitus is due to hormonal changes like increased placental hormones acts as insulin antagonizers causing insulin resistance and decreased insulin sensitivity [3].

Who are under risk for gestational diabetes?

Risk assessment for GDM:

Low risk

- No known diabetes in first degree relatives
- Age < 25 years
- Weight normal before pregnancy
- Weight normal at birth
- Ethnic group with low prevalence of GDM
- No history of abnormal glucose metabolism
- No history of poor obstetrical outcome [2,3].

High risk

- Obesity
- Age >30 years
- Polyhydramnios
- History of diabetes in previous pregnancy.
- Strong Family history of type 2 DM
- Previous history of gestational diabetes mellitus, impaired glucose mechanisms or glucosuria [2,3].

How gestational diabetes can be identified?

- Unusual very thirsty
- Frequent urination
- Fatigue
- Repeated infections
- Dry mouth [7].

What are screening strategy available for GDM?

- **Low risk:** Blood glucose testing not routinely required.
- **Average risk:** Perform blood glucose testing at 24 - 28 weeks. 50 g oral glucose challenge test (GCT) followed by a diagnostic 100 g OGTT those meeting the threshold value in GCT. One step procedure diagnostic 100g OGTT performed on all subjects.
- **High risk:** perform blood glucose testing. If one or more of these are present such as obesity, family history of type 2 DM, previous history of GDM. If not diagnosed, blood glucose testing should be repeated at 24 to 28 week of gestation or at any times symptoms or signs suggest hyperglycemia [2].

What are the goals of treating gestational diabetes?

Treatment goals is to Maintain glycemic control will lead to improved pregnancy outcomes, including decreases in macrosomia, clinical neonatal hypoglycemia, and cesarean section rates, decreases incidence of congenital malformations etc.

What are the management options?

- Pre-conception
- Counselling to achieve tight control of diabetes before the onset of pregnancy.
- Careful supervision and glycemic control.
- Diet and nutrition: Dietary assessment and advice is essential so that insulin dosage can be adjusted according to the women eating habits. Diet with 2000 - 2,500 kcal/day for normal weight woman and restriction to 1,200 - 1800 kcal/day for overweight woman is recommended.
- Carbohydrates: 40-50% of total calories. Mostly complex carbohydrates.
- Protein: About 20%
- Fat 30 - 40% and saturated fat < 10%
- Exercise: aerobic, brisk walking are safe in pregnancy.
- Oral hypoglycemic agents
- Insulin therapy [4,5].

Will GDM increase the risk of type 2 DM?

Studies show that the women having GDM in pregnancy more likely to develop diabetes within 10 years compared to women with no GDM after controlling for other confounding variables. Delivering a child after 30 years, being treated with insulin during the pregnancy and delivering a baby weighing more than 3.5 kg were significant predictors of development of type 2 DM [6].

What will be maternal complications?

- Abortion
- Infection
- Increased incidence of preeclampsia
- Maternal distress
- Diabetic retinopathy and nephropathy
- Diabetic ketoacidosis
- Prolonged or obstructed labor [5].

How the neonate will be affected by GDM?

- Congenital malformations
- Fetal Macrosomia
- Trauma during delivery
- Neural tube defects
- Renal agenesis
- Single umbilical artery [3].

What long term considerations should be taken after delivery?

Reclassification of maternal glycemic status should be performed at least 6 weeks after delivery and according to the guidelines of the 'Report of the expert committee on the diagnosis and classification of diabetes mellitus'. If glycemic levels are normal postpartum,

reassessment after should be done at 3 years intervals. These patients should have individualized exercise program, Life style modifications including maintenance of normal body weight and physical activity because of high risk of developing DM. Avoidance of medications that worsen insulin resistance e.g. Glucocorticoids, nicotinic acid. Education regarding the need for family planning to ensure optimal glycemic regulation form the start of any subsequent pregnancy. Low dose estrogen-progestogen oral contraceptives may be used in women with prior histories of GDM [8].

Conclusion

Gestational diabetes mellitus is any degree of glucose intolerance that occurs with pregnancy or is first discovered during pregnancy. It need continuous monitoring and screening for diagnosis and to prevent its maternal and neonatal complications. Proper follow up and long term considerations are also needed to prevent future complications such as increased incidence of type 2 diabetes mellitus.

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