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facts on

Gestational Diabetes

What is Gestational Diabetes?
Gestational diabetes, also known as gestational diabetes mellitus (GDM), is a sub-type of diabetes that is first identified during pregnancy. It consists of abnormal glucose tolerance or higher-than-normal blood glucose levels, which may or may not diminish following the birth of an infant. Over the past decades, rates of GDM have continued to increase in Canada and the rest of the world. Although GDM is usually asymptomatic, it is associated with serious perinatal complications for both the mother and the child. However, with early detection and management, these complications can be minimized.

Impact of GDM on Mother's Health
Mothers with GDM are at risk of a wide range of health issues throughout pregnancy, during birth, and after birth. These include, but are not limited to:

- Pre-eclampsia (a form of gestational hypertension characterized by protein in urine)
- Macrosomia (fetus that is large for gestational age), associated with delivery risks such as:
  - prolonged labour
  - the need for instrumental delivery and unplanned caesarean section
  - preterm birth and increased risk of postpartum hemorrhage
  - maternal birth injuries (e.g., risk of laceration and tear of vaginal tissue)
  - genital tract injury and uterine atony (the inability of the uterus muscle to properly contract)
- Post-pregnancy Type 2 diabetes
- Maternal death

Impact of GDM on Infant's Health
Babies born to mothers with GDM are at risk for:

- Macrosomia (large for gestational age)
- Neonatal hypoglycemia (low blood sugar in the newborn)
- Perinatal death and stillbirth
- Type 2 diabetes (in children, youth, and adults)
- Autism spectrum disorders
- Obesity and risk of being overweight later in life
- Cardiovascular disease later in life

Risk Factors for GDM
Some risk factors may increase the likelihood of a woman developing GDM during her pregnancy. Having one or more of these risk factors does not guarantee a GDM diagnosis, but rather suggests a need for GDM screening during pregnancy. They include:

- Polycystic ovary syndrome (PCOS)
- Genetics (family history of diabetes)
- Older maternal age (35 years and older)
- Fetal sex (women pregnant with a male fetus are at greater risk)
- Previous macrosomia
- Previous GDM diagnosis
- Ethnicity
  - Within Canada, First Nations women are the most at risk. Asian (particularly South and South East Asian), Pacific Island, African, and Latin American women may also be at higher risk, especially those born outside of Canada.

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Behavioural Risk Factors for GDM

Certain behavioural risk factors can also play a role in the development of GDM. Adjusting these behaviours before or during pregnancy may decrease the chances of developing GDM, or limit the effects of GDM on the mother and child's health. These factors include:

- Insufficient sleep duration and poor sleep quality
- Obesity and weight gain
- Unhealthy nutritional choices (i.e., high intake of red and processed meats, saturated fats, refined grains, sweets, high-fat dairy, and fried foods)
- Vitamin D deficiency
- Deficiency of iron from non-heme sources such as vegetables, fruits, legumes, and nuts
- Cigarette smoking

Screening and Diagnosis

GDM can be diagnosed at any point during a pregnancy. However, the typical time frame of diagnosis is between 24- and 28-weeks of gestation. Although a variety of screening methods have been used, the glucose challenge test (GCT) and the fasting plasma glucose (FPG) test are believed to be the best predictors of GDM. The World Health Organization (WHO) also recommends utilizing the oral glucose tolerance test (OGTT); a test that measures the ability of the body to use glucose (the body's main source of energy). Diabetes Canada recommends using both the GCT and the OGTT.

Management of GDM

Most women diagnosed with GDM can be helped to effectively manage their glucose levels through lifestyle interventions and monitoring of blood glucose levels. The first approach in stabilizing blood glucose levels during pregnancy typically includes exercise counselling and nutritional modification.

Dietary Intervention

Even though there is no universal dietary recommendation applicable to all women with GDM, some researchers propose a daily caloric intake and distribution model based on the American Diabetes Association's recommendations for managing type 2 diabetes. The recommendations incorporate dietary needs for fetal development, specifically the increased need for additional carbohydrates that promote fetal brain development.

Physical Activity

Exercise is part of a healthy pregnancy and may provide additional benefits for women diagnosed with GDM. The Society of Obstetricians and Gynecologists of Canada (SOGC) suggest that women with GDM follow the same physical activity guidelines as other pregnant women. Some exercise recommendations include: aerobic exercises three to four times a week (e.g., walking, jogging, running); along with resistance, weight-bearing, flexibility-balance, and stretch exercises (e.g., yoga, pilates, tai chi). Specifically, 20-30 minutes of moderate-intensity exercise per day is believed to lower glucose levels in women with GDM.

Glucose-Lowering Therapies

Women with GDM may be prescribed insulin as a means of controlling blood glucose levels during pregnancy; however, this form of therapy is usually only recommended if dietary intervention has failed to maintain target glucose levels. In some instances, metformin (an insulin sensitizer medication) is prescribed alongside insulin to improve glycemic control and reduce the needed insulin dose.

Prevention of GDM

Certain protective factors can help to prevent the development of GDM. These include:

- Physical activity before and during pregnancy (i.e., 150 minutes of moderate-intensity physical activity every week)
- Sleep (i.e., eight to nine hours of quality sleep per day)
- Nutrition (i.e., a well-balanced diet rich in vegetables, fruits, plant protein, and lean meats)
- Consumption of probiotic-rich products (e.g., yogurt)

Select References

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