GESTATIONAL DIABETES

Importance

Gestational diabetes mellitus (GDM) is defined as the onset or first recognition of carbohydrate intolerance during pregnancy.[1] GDM is a risk factor for the subsequent development of type 2 diabetes and impaired glucose tolerance (IGT) for the mother.

Maternal high blood glucose (hyperglycemia) during pregnancy is associated with numerous complications for the mother and fetus[2-4]:

- Excessive fetal growth, or macrosomia (defined as birthweight either greater that the 90th percentile for gestational age and gender or two standard deviations or more above the normal mean weight),
- Birth trauma, including nerve damage and perinatal depression
- Maternal hypertension,
- Excess amniotic fluid (polyhydramnios)
- Preterm labor
- Congenital malformations
- Fetal death late in pregnancy
- Neonatal low blood glucose (hypoglycemia)
- Other biological and biochemical alterations (jaundice, polycythemia, hypocalcemia)

After birth an infant suffers increased risk for obesity, glucose intolerance, and diabetes into adolescence and adulthood. Up to 25% of women with GDM will develop type-2 diabetes within 10 years of diagnosis.[2]

Women first diagnosed with hyperglycemia during pregnancy are at increased risk for having an infant with birth defects.[4] Risk increases with increasing blood sugar levels. It remains unclear if these women had preexisting diabetes that was coincidentally detected in pregnancy or gestational diabetes that developed during pregnancy. Women who have uncontrolled diabetes at the time of conception are four to ten times more likely to have and infant with a birth defect. The most common birth defects include heart and neural tube defects.[7]

Incidence:
Approximately 7% of all pregnancies are complicated by GDM, with a range of 1% to 14% of pregnancies depending on the population served.[2] In Los Angeles County an estimated 11,000 births annually are complicated by GDM.

Rationale:
Gestational diabetes is associated with important perinatal and long-term health risks for the mother and fetus. While more research is needed to establish its long term risks to the infant can be reduced with careful prenatal management. It is clear that preconception and prenatal management reduces the risk of perinatal mortality.

Key Principles

- Screening refers to testing persons in the absence of symptoms or signs indicating diabetes.
- Risk based screening (i.e., based on demographics, history or clinical risk factors) to identify women at increased risk for development of gestational diabetes places 90% of all pregnant women as at increased risk.[2] Because of this it is recommended that all women should be screening for diabetes in pregnancy.

- Early and continued prenatal care is important for assessment and follow-up to ensure optimal outcomes for mother and infant. Preconception assessment and care is optimal.
- Screening should be initiated at the first prenatal visit and repeated according to the recommended guidelines.[2]

Key Components of Best Practice

Assess woman's risk* for GDM at preconception visit and at the first prenatal visit.

- Women with the following risk factors should have a one-hour glucose tolerance test (50 gm GTT) at the first prenatal visit:
    - GDM in a past pregnancy,
    - an infant weighing more than 8 lbs 13 oz (4000 grams) at birth,
    - an unexplained stillbirth,
    - malformed infant,
    - Family History of overt diabetes in parent, sibling or children;
    - BMI > 30;
    - Age > 25 yrs;
    - >2+ glucosuria;
    - Member of an ethnic group at increased risk for diabetes, i.e., African American, American Indian, Hispanic, Asian Pacific Islander, Southeast Asian, Indigenous Australian;
    - taking medications causing hyperglycemia.
- Women with the above risk factors, who test negative at the first prenatal visit, should be re-tested at 24-26 weeks.
- Women between 24 and 26 weeks gestation not previously diagnosed with glucose intolerance are tested with 50g 1-hour glucose challenge test.
- Women with abnormal 1 hour glucose challenge test receive 100g, 3-hour oral glucose tolerance test.
- Women with diagnosis of gestational diabetes receive care from a multi-disciplinary team including a dietitian, health educator, diabetic nurse, with consultation available from obstetrician, perinatologist, and endocrinologist as indicated.
- Establish self-management goals.
- All women diagnosed with gestational diabetes should have a 75 g-2 hour glucose.
- A tolerance test between six weeks to six months post partum. This is done to detect on going need for diabetes care.
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Tools for Implementation

- California Diabetes and Pregnancy Program-Sweet Success Guidelines.
- Educational materials

Source Materials & Useful Resources

California Diabetes and Pregnancy-Sweet Success Program.

U.S. Preventive Services Task Force. Screening for gestational Diabetes Mellitus:

Recommendations and Rationale. Obstet Gynecol 2003;101(2):393-5.

U.S. Preventive Services Task Force. Rockville Maryland: Agency for Healthcare Research and Quality. www.preventiveservices.ahrq.gov

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7. Maresh M. Diabetes in pregnancy. Curr Opin Obstet Gynecol 2001;13:103-107.