

Gestational Diabetes Mellitus

DEFINITION, DETECTION, AND DIAGNOSIS

Definition

Gestational diabetes mellitus is defined as carbohydrate intolerance of variable severity with onset or first recognition during pregnancy (1). The definition applies whether insulin is used for treatment or the condition persists after pregnancy but does not exclude the possibility that the glucose intolerance may have antedated the pregnancy.

Detection

All pregnant women should be screened for glucose intolerance because selective screening based on clinical attributes or past obstetric history has been shown to be inadequate. Pregnant women who have not been identified as having glucose intolerance before the 24th wk should have a screening glucose load between the 24th and 28th wk consisting of 50 g of oral glucose given without regard to time of the last meal or time of day. Venous plasma glucose is measured 1 h later. A value of ≥ 7.8 mM (≥ 140 mg/dl) is recommended as a threshold to indicate the need for a full diagnostic glucose tolerance test.

Diagnosis

Diagnosis is based on results of the 100-g oral glucose tolerance test during pregnancy interpreted according to the diagnostic criteria of O'Sullivan and Mahan (2). Definitive diagnosis requires that two or more of the venous plasma glucose concentrations be met or exceeded: fasting, 5.8 mM (105 mg/dl); 1

h, 10.6 mM (190 mg/dl); 2 h, 9.2 mM (165 mg/dl); 3 h, 8.1 mM (145 mg/dl).

OBSTETRIC AND PERINATAL CONSIDERATIONS

The offspring of mothers who experience both fasting (≥ 105 mg/dl) and postprandial (≥ 120 mg/dl) hyperglycemia are at greatest risk for intrauterine death or neonatal mortality, and such mothers must undergo careful antepartum fetal surveillance. Perinatal mortality for offspring of the patient with gestational diabetes who maintains normal fasting and postprandial glucose levels is not increased above that observed in the general population under conditions of optimum obstetric care and restitution of fasting and postprandial plasma glucose to normal limits. All patients with gestational diabetes are at significant risk for fetal macrosomia and other neonatal morbidities, including hypoglycemia, hypocalcemia, polycythemia, and hyperbilirubinemia.

THERAPEUTIC STRATEGIES

- Close surveillance of mother and fetus must be maintained in all instances of gestational diabetes mellitus. Maternal surveillance should be directed toward monitoring for elevations of fasting or postprandial glucose in capillary blood or venous plasma and designed to detect any deterioration of glucose homeostasis as gestation proceeds. Self-monitoring of capillary blood glucose also has been found useful in allowing the woman to participate in her own management.
- Monitoring of maternal urinary glucose is not adequate or sufficient.

- Increased fetal surveillance is appropriate. The starting time, frequency, and techniques utilized to assess fetal well-being should depend on the cumulative degree of risk that the fetus is believed to bear. Clinical estimation of fetal size and asymmetric growth by serial ultrasonography may improve the identification of the macrosomic infant.
- All women with gestational diabetes mellitus should receive nutritional counseling, by a registered dietitian when possible, consistent with the recommendations for calorie distribution proposed by the American Diabetes Association. Individualization of the diet depending on maternal weight and height is recommended. Diet therapy should include the provision of adequate calories and nutrients to meet the needs of pregnancy, and should be consistent with the maternal blood glucose goals that have been established. Intake of sucrose and other caloric sweeteners should be limited.
- If dietary management does not consistently maintain the fasting plasma glucose ≤ 5.8 mM (≤ 105 mg/dl) and/or the 2-h postprandial plasma glucose ≤ 6.9 mM (≤ 120 mg/dl) on two or more occasions within a 1- to 2-wk interval, insulin therapy should be considered. Morbidity such as macrosomia might be reduced using lower fasting values. Self-monitoring of blood glucose is a requirement for effective insulin therapy. If insulin is prescribed, only human insulin should be used.
- Oral hypoglycemic agents cannot be recommended during pregnancy.
- Women with an active life-style may continue a program of moderate exercise.
- Low dose oral contraceptives may be used safely in women with prior gestational diabetes whose postpartum glucose tolerance is normal.
- Noncaloric sweeteners may be used in moderation.
- Breast-feeding should be encouraged in women with gestational diabetes mellitus.

PROGNOSTIC

CONSIDERATIONS — Women in whom gestational diabetes mellitus is diagnosed should be followed postpartum to

.....
 ORIGINALLY APPROVED MARCH 1986. REVIEWED OCTOBER 1987. REVISED 1993.

COPYRIGHT 1986 BY THE AMERICAN DIABETES ASSOCIATION.

BASED ON THE SUMMARY AND RECOMMENDATIONS OF THE 3RD INTERNATIONAL WORKSHOP-CONFERENCE ON GESTATIONAL DIABETES MELLITUS, *DIABETES* 40 (SUPPL. 2):1-201, 1991.

detect diabetes early in its course. They should be evaluated initially at the first postpartum visit by a 2-h oral glucose tolerance test with a 75-g glucose load. Follow-up at regular intervals should be continued.

References

1. Metzger BE (Ed.): Proceedings of the Third International Workshop-Con-

ference on Gestational Diabetes Mellitus. *Diabetes* 40 (Suppl. 2):1-201, 1991

2. O'Sullivan JB, Mahan CM: Criteria for the oral glucose tolerance test in pregnancy. *Diabetes* 13:278-85, 1964