

MOC Preparation

Gestational Diabetes Mellitus

Beginning in 2008, anyone who became board certified in general obstetrics-gynecology since 1986 is required to register for the Maintenance of Certification (MOC) examination. Part III is the Cognitive Expertise portion of the MOC process—a “closed book” written examination expected to consist of 100 multiple-choice questions. Are you ready?

Spot check your knowledge base by taking this month’s MOC preparation quiz prepared by Dr Alvin Schamroth of ExamPro Advanced, the nation’s leader in OB/GYN board prep services. For more valuable products and services to help you pass the MOC, go to www.examproadvanced.com.

- 1. A 1-hour glucose tolerance test (GTT) cut-off of 130 mg/dL, as opposed to 140 mg/dL, will:**
 - A. Increase sensitivity
 - B. Increase specificity
 - C. Increase positive predictive value
 - D. Detect a left skew as opposed to a right skew
- 2. Which of the following regarding glucose intolerance testing is true?**
 - A. A 1-hour GTT should only be done between 24 and 28 weeks gestation
 - B. An “early” 1-hour GTT (< 24 weeks) is not indicated for those with increased risk for gestational diabetes mellitus (GDM)
 - C. If an “early” 1-hour GTT (< 24 weeks) result, performed for any reason, is negative, there is no need for further testing
 - D. A 1-hour GTT requires no dietary preparation
- 3. Which of the following statements regarding treatment of patients with GDM are true?**
 - A. Weight gain for obese diabetic women in pregnancy should be limited to 25 lb
 - B. Dietary caloric intake should be calculated as 35 kcal/kg/day
 - C. Dosage for commencing insulin therapy is typically 0.5-0.7 U/kg/day
 - D. Target fasting and 1-hour postprandial glucose levels are 90 and 125 mg/dL
- 4. Postpartum GDM patients should be screened with which test:**
 - A. Fasting glucose or 100-gm 2-hour GTT
 - B. Fasting glucose or 50-gm 1-hour GTT
 - C. 75-gm 2-hour GTT or 50-gm 1-hour GTT
 - D. 75-gm 2-hour GTT or fasting glucose

Answers found on page 43.



MOC Preparation: Answers and Review

A 1-hour GTT cut-off of 130 mg/dL, as opposed to 140 mg/dL, will:

Answer: **A, Increase sensitivity.**

The following is true regarding glucose intolerance testing:

Answer: **D, A 1-hour GTT requires no dietary preparation.**

The following statement regarding treatment of patients with GDM is true:

Answer: **B, Dietary caloric intake should be calculated as 35 kcal/kg/day.**

Postpartum GDM patients should be screened with this test:

Answer: **D, 75-gm 2-hour GTT or fasting glucose.**

In a lengthy review article published in 2011, Landon and Gabbe provided the current understanding regarding screening, diagnosis, and treatment of gestational diabetes.

Gestational diabetes mellitus (GDM) represents multiple different types of impaired glucose metabolism that are first diagnosed in pregnancy.

Screening

- Certain low-risk groups do not require screening (eg, age < 25 years, no personal or family history of glucose intolerance, non high-risk ethnic group, normal pre-pregnancy weight). However, since this group makes up only 10% of the general population, it is reasonable to screen the entire population for fear of missing someone in the 90% who is glucose intolerant.
- Screening tests currently available are flawed from an obstetric point of view: they assess for increased risk of developing subsequent non-gestational DM (later on in life) and do not predict maternofetal complications in the current pregnancy.
- Various studies have analyzed different screening options, eg, 1-, 2-, or 3-hour glucose tolerance test (GTT), neonatal body fat, large for gestational age (LGA), and cord C-peptide, but controversy persists regarding the percentage of the population that should be screened,



threshold sensitivities, and subsequent cost. Also over-diagnosis can result in increased induction rates, cesarean delivery rates, and associated increased morbidity and cost. The threshold for diagnosis thus remains controversial.

- Current screening practices in the United States typically comprises a 2-step approach:
 - 50-gm 1-hour GTT screening test.
 - ♦ Test sensitivity depends on cut-off (eg, 130 vs 135 vs 140 mg/dL; 135 is used most often).
 - ♦ Fasting is not essential but will improve sensitivity.
 - 100-gm 3-hour GTT confirmatory test.
- Screening usually occurs at 24 to 28 weeks (when hormonal influences of pregnancy have risen to the point sufficient to create glucose intolerance that can be detected by screening).
- If, however, the patient has risk factors for DM, testing should be done earlier (with the hope of being able to positively impact the pregnancy at an earlier gestational age).
 - Many cases with positive “early” 1-hour GTT results are thought to be DM that predated the pregnancy but were only first diagnosed during pregnancy.
 - If an early screen is negative, repeat screening is still warranted at 24 to 28 weeks.
- Some authors also recommend screening diet-controlled patients with ultrasound, looking for large abdominal girth. If greater than the 75th percentile, this would indicate a need to add insulin.

Treatment

- It remains unclear the extent to which increased (as opposed to routine) prenatal care is beneficial. While some studies have shown a decreased incidence in macrosomia and shoulder dystocia with treatment, others dispute

FOCUSPOINT

Gestational diabetes mellitus is a highly prevalent disease for which thresholds for diagnosis and treatment are not fully resolved. This has significant consequences on the subsequent management and cost. While clinicians do currently have a reasonable approach, much has still to be scientifically confirmed.

this benefit. Additional studies show that even mild gestational diabetic patients can benefit from treatment.

- Treatment remains initially dietary (2,000-2,500 kcal/day or 35 kcal/kg/day of current weight).
- Diet comprises one-third carbohydrates, with 3 meals and 2 snacks per day.
- If obese, GDM-related complication risk is greater, and pregnancy weight gain should be limited to 11 to 20 lb.
- Exercise is an additional “treatment,” which can improve insulin sensitivity.
- Glucose monitoring
 - Typically consists of 1 fasting and three 1-hour postprandial measurements.
 - Target thresholds are 95 and 120 mg/dL for fasting and 1-hour postprandial tests, respectively. These threshold levels were chosen as indicators for treatment because increased perinatal morbidity (macrosomia) can be expected above these levels.
- When dietary measures do not accomplish euglycemia, there are two options:
 - Glyburide
 - ♦ Virtually the same benefits as insulin with increased patient adherence.
 - ♦ If fails to achieve euglycemia, switch to insulin.
 - Metformin
 - ♦ Acceptable and not teratogenic.
 - ♦ Nevertheless, a higher percentage of patients (compared to glyburide) will “fail” therapy and subsequently require insulin.
- Insulin
 - Starting dose 0.7 to 1.0 U/kg/day.
- Increased fetal surveillance
 - Not required if euglycemia is maintained and there are no obstetric complications (eg, hypertension, macrosomia).
 - If above conditions are absent, begin twice-weekly fetal heart rate testing beginning at 32 weeks.

Delivery

- Timing
 - Scheduled delivery (induction or cesarean delivery) is warranted at term if there is hypertension, history of stillbirth, or suboptimal glycemic control. Further study is needed to confirm if such practice is appropriate.
- Mode
 - The big concern regarding vaginal delivery is the potential for shoulder dystocia.



- At an estimated fetal weight of 4,500 gm, approximately 500 cesarean deliveries will be required to prevent 1 permanent brachial plexus injury.
- ACOG supports cesarean delivery if estimated fetal weight is greater than 4,500 gm in a diabetic patient.
- The authors of this article suggest that, in addition, individual factors should be considered in determining possible cesarean delivery for the fetus weighing 4,000 to 4,500 gm.
- Postpartum
 - Those with GDM have a 7-fold increased risk of developing DM later in life.
 - Thus both ACOG and the ADA recommend that *all* GDM patients receive postpartum evaluation either with a fasting glucose or a 75-gm 2-hour GTT.
 - ♦ Despite this guideline, the prevalence for such testing is only about 33%.
 - All these patients should receive lifestyle modification education. Those that prove glucose intolerant postpartum should in addition receive medical nutritional therapy, personalized exercise advice, and possibly also preventative pharmacotherapy (eg, with metformin).



Source: Landon MB, Gabbe SG. Gestational diabetes mellitus. *Obstet Gynecol.* 2011;118(6):1379-1393.

DISCLAIMER: The questions and review were not developed by the American Board of Obstetrics and Gynecology (ABOG), and the developers of this material have no association with the ABOG. These questions are to be used as a study guide to test knowledge on subjects that may or may not be covered in the recertification examination.