Current Management of Gestational Diabetes. What’s new and why does it matter?

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OBJECTIVES
· Participants will be able to describe when women should be screened for gestational diabetes mellitus
· Participants will be able to distinguish different screening techniques for gestational diabetes
· Participants will be able to recognize different treatment options for gestational diabetes
· Participants will be able to identify management plans for women with gestational diabetes mellitus

OUTLINE
DETECTION
Who should be screened?
· All pregnant women at 24-28 weeks (ref 19)
What about early detection?
· Overweight and obese women with at least one risk factor (Box 1/adopted from ADA Suppl)
· EGGO results credit Dr. Harper on if it really makes a difference
Go back on who should be screened? All pregnant women at 24-28 weeks

How do we screen?
· Cutoffs????? 130 vs. 135 vs 140 for 1hr and NDDG vs. CC for 3hr cutoffs
  o Must have 2 of 4 abnormal values for the 3hr to receive a diagnosis
  o Take home is data for cut off is inconsistent and not that good
  o Providers need to be consistent and use a single cutoff for their patient population
  o The lower the threshold(s) the higher the frequency of GDM diagnosis established
· Women with abnormal 50g screen have worse outcomes then those without
  o Reference (with specifics???)
· Not enough clarity of risk of adverse outcomes for those with 1 abnormal 1 hour value
Controversies in screening
· IADPSG recommend universal 75g 2hr OGTT and GDM establish with any one single value
· Problems include increased prevalence (estimated almost over 15% of US population would be labeled GDM)
· Absence of clear evidence that supports the 75g one step approach
· Evidence that one-step likely increases GDM diagnosis without maternal/fetal benefit
  o Pocobelli (Obstet Gynecol)
Go back on how do we screen? At this time using the two step technique with consistent cutoffs would appear to be preferred

TREATMENT
· Nutrition and exercise counseling first (Ref 37 & 40)
  o Exact dietary composition and exercise routines are less well studied
  o Dietary guidelines should include a 3 meals and 2-3 snacks a day to reduce PP glucose fluctuations.
- Well balanced 40/20/40 (Ref 49) or diets with complex carbs (ref 50)
  - Exercise regimen can mirror those recommended in diabetic care to increase lean muscle mass and improve tissue sensitivity to insulin.
    - 30 minutes of moderate intensity aerobic exercise 5 days/week (ref 31)
    - Simple exercise 10-15 minutes after meals for those unable/unwilling to do more strenuous activity (ref 55).

- What to do when diet and exercise fail?
- No specific threshold value for demonstrating failure has been established (ref 56).
- Insulin is PREFERRED treatment for GDM in pregnancy once you deem additional therapy is needed
  - Insulin does not cross the placenta and can achieve tight metabolic control
  - If globally elevated will need multiple injections using long/intermittent-acting and ultra short-acting insulin and consider referral (MFM, endocrine, experienced obstetrician)
  - If isolated abnormal values at specific time of day, focus insulin regimen on that time of day.
    - Examples: abnormal fasting – NPH 20 units at night, abnormal dinner PP – Novolog 8 units

- Patients (or Providers) don’t want to use insulin as first line
- FIRST THING IS FIRST: Glyburide should ALMOST NEVER BE USED FIRST LINE FOR ORAL THERAPY
  - Meta-analysis have shown higher rates of macrosomia and neonatal hypoglycemia (ref 72).
  - Crosses the placenta and lacks long-term safety data
- So what about metformin vs. insulin?
  - FDA has never approved oral antidiabetic medications in GDM (ref 62).
  - Insulin is ADA-recommended first line therapy (ref 19).
  - Long-term metabolic influences of oral agents on offspring are unknown (ref 64).
  - A recent meta-analysis showed Metformin did not have superior outcomes when compared with insulin (ref 70).

- So should insulin always be used first line?
  - ACOG states “in women who decline insulin or who the obstetrical care providers believe will be unable to safely administer or cannot afford insulin, metformin (and rarely Glyburide) is a reasonable alternative choice in the context of discussing with the patient the limitations of the safety data and a high rate of treatment failure that requires insulin supplementation.”

In other words insulin is the preferred treatment for diabetes in pregnancy.

MANAGEMENT
- Should antenatal testing be administered?
  - Suboptimal glycemic control is associated with stillbirth thus any patient who is treated medically (insulin or oral agents) would be a candidate for antenatal testing starting around 32 weeks
  - No demonstrable increase in stillbirth with well controlled GDM not on medications or insulin and thus no consensus regarding testing.

- Delivery recommendations
  - Controlled without medication 39w0d to 40w6d
  - Controlled with medication 39w0d to 39w6d
    - Poorly controlled may consider early term (37.0 to 38.6)
- **Other reasonable antepartum options**
  - A single ultrasound for fetal growth after 36 weeks to assess for macrosomia
    - Only 22% of those with LGA on U/S were confirmed LGA at birth (ref 100).
  - If EFW>4,500g risk/benefits discussion of scheduled cesarean section
    - Estimated 588 CD needed to prevent one permanent brachial plexus palsy (ref 101)

- **Postpartum management**
  - Perform a 75g, 2hr oral glucose test at 4-12 weeks postpartum
  - If impaired fasting (>100mg/dL) or 2hr (>140mg/dL) refer to primary care physician for prediabetes/diabetic management
  - Even if normal testing women will need to continue physical activity and have a glycemic assessment with a primary care physician in 1-3 years.
    - Over 50% of women will maintain glucose intolerance or develop frank diabetes within 10 years of last pregnancy (JAMA Lowe 18).

**SELECTED REFERENCES**

15. Rouse DJ, Owen J, Goldenberg RL, Cliver SP. The effectiveness and costs of elective cesarean delivery for fetal macrosomia diagnosed by ultrasound.