Gestational Diabetes Practice Recommendation for Department of Family Medicine

Subject: Department of Family Medicine

Purpose:

- To standardize screening and treatment for gestational diabetes according to our population and national guidelines within the department (care of patients with pre-existing diabetes is not discussed here)
- To optimize care and reduce adverse outcomes in this population
- To educate residents and faculty with updates in the diagnosis and management of GDM

Policy: This is a Guideline, and it is good medical practice to individualize healthcare

Definitions:

- Gestational Diabetes (GDM): Abnormal glucose tolerance with onset or first recognition during pregnancy, type 2 diabetes cannot be diagnosed during pregnancy
- Type A1 GDM: Diet controlled GDM
- Type A2 GDM: GDM treated with medications, can be controlled or uncontrolled

Why diagnose and treat GDM?

Women with uncontrolled glucoses in first trimester are at risk for fetal anomalies. Gestational diabetes is associated with the risks below which can be minimized or eliminated with appropriate treatment.

Maternal Morbidity

Subsequent development of DM II
Preeclampsia / Gestational Hypertension
Operative delivery
Shoulder dystocia

Fetal Morbidity

Shoulder dystocia and birth trauma
Macrosomia & large for gestational age
Neonatal hypoglycemia & other metabolic complications (hyperbilirubinemia, hypocalcemia)
Subsequent adolescent and childhood obesity and/or metabolic syndrome
Birth defects
Polyhydramnios
Stillbirth / perinatal mortality
Neonatal respiratory problems

Who is at risk and should have early screening for GDM at the first antenatal visit?

Consider testing all women who are overweight or obese (ie, have a body mass index greater than 25 or greater than 23 in Asian Americans) and have one or more of the following additional risk factors:

- Physical inactivity
- First-degree relative with diabetes
- High-risk race or ethnicity (eg, African American, Latino, Native American, Asian American, Pacific Islander)
- Have previously given birth to an infant weighing 4,000g (approximately 9 lb) or more
- Previous gestational diabetes mellitus
- Hypertension (140/90 mm Hg or on therapy for hypertension)
- High-density lipoprotein cholesterol level less than 35 mg/dL (0.90 mmol/L), a triglyceride level greater than 250 mg/dL (2.82 mmol/L)
- Women with polycystic ovarian syndrome
- A_{1C} greater than or equal to 5.7%, impaired glucose tolerance, or impaired fasting glucose on previous testing
- Other clinical conditions associated with insulin resistance (eg, prepregnancy body mass index greater than 40 kg/m^2, acanthosis nigricans)
- History of cardiovascular disease

2018 review of our patient population indicates that over 90% of our patients meet criteria for early screening, therefore it would be better to think of who does NOT qualify for early screening.

DFM Practice Recommendation

- Consider testing all Fam Med OB patients who are at risk for preexisting DM with A1c at the first OB visit
  - If it is >5.7, consider performing 75-gm glucose challenging test to confirm Type 2 DM.
- Pregnant women who do not meet criteria for early screening should be screened between 24-28 weeks with routine 1 hr GTT

Note: For those with PCOS on metformin, started in order to conceive:

- Should continue on metformin during first trimester (till 12 weeks) as decreases miscarriage.
- If no other signs of GDM and no history of documented glucose intolerance consider discontinuing metformin after first trimester. If discontinued, should still have an early 1 hr GTT after discontinuation.

How should screening and diagnostic testing be done?

Screening 1-hour (50 gm) nonfasting GTT

Abnormal: glucose>130 mg/dL

(WHC uses 140 as cutoff. At the 130 mg/dL threshold, sensitivity and specificity were 88- 99% and 66-77%, respectively. At the 140 mg/dL, sensitivity was lower (70-88%), but specificity was higher (69-89%). Given our patient population, our group elected to use 130 as cutoff)

Diagnostic 3-hour (100-gm) fasting GTT (Carpenter/Coustan)

- Normal fasting glu < 95 mg/dL
- Normal 1-hour glu < 180 mg/dL
- Normal 2-hour glu < 155 mg/dL
- Normal 3-hour glu < 140 mg/dL

DFM Practice Guideline

- Use 2 step approach
- Normal is 1 hr GTT of 130 or less
- GODM diagnosed with 2 or more abnormal values on 3 hour GTT

How should women with GDM be treated?

Initial treatment should consist of lifestyle modifications including diet changes, exercise and glucose monitoring. Follow up should be frequent until there is evidence of normoglycemia.

Diet

- Nutrition education or referral to dietician for education regarding a reduced carbohydrate diet
- Carbohydrates – 33-40% kcal / day, protein – 20% kcal / day, fat – 40% kcal /day (Level III expert opinion paper)

Exercise

- At least 30 min at least 5 days/week, preferably 15-min walking after each meal.

Glucose monitoring 4 times daily: morning fasting, and once after each of 3 meals

- Fasting glucose <= 95 mg/dL
- 1-hour postprandial <= 140 mg/dL
- 2-hour postprandial <= 120 mg/dL

If blood sugars are not controlled with lifestyle modifications alone consider medications:

Pharmacologic treatment is recommended when target glucose levels cannot be consistently achieved through nutrition therapy and exercise. However, a systematic review found no conclusive evidence for a specific threshold value at which medical therapy should be started.

DFM Practice Recommendation

Insulin is preferred medication for uncontrolled GODM. However, for women who decline insulin therapy or if obstetric care providers believe she will be unable to safely administer insulin, or for women who cannot afford insulin, metformin is a reasonable alternative choice.

Insulin – preferred as it does not cross the placenta	Total daily dose: 0.7-1.0 units/kg Dosage should be divided with a regimen of multiple injections using long-acting or intermediate-acting insulin in combination with short-acting insulin
Metformin – reasonable to use if patient cannot afford or refuse to use, but non-preferred due to lack of long term safety data. Document in the clinic note	Start 500 mg nightly for 1 week, then increase to 500 mg twice daily. Maximum dose is 2500-3000 mg/day in 2-3 divided doses
Glyburide – avoid if at all possible, but better than no treatment	Start low and increase cautiously to prevent hypoglycemia (dose range 2.5-20 mg in divided doses)

Fetal surveillance in pregnancies complicated by GDM:

Type A1 GDM:

- Managed as regular pregnancy, no testing or early induction necessary

Type A2 GDM:

- begin at 32 weeks gestation
- No consensus on monitoring, can be "local practice"
- Consider at least weekly NSTs, ideally twice weekly
- Because hyperglycemia can cause polyhydramnios, it is reasonable to monitor growth monthly and AFI twice weekly, although recommend frequency is not established.
- Consider more frequent or earlier testing in patients with uncontrolled blood sugars

Timing of delivery

Type A1 GDM:

- No indication for early induction, expectant management to 40 6/7

Type A2 GDM:

- With controlled blood glucose: induction of labor within the 39th week
- With uncontrolled blood glucose:
- Weighing risks of prematurity, consider induction between 37 and 39 weeks
- If uncontrolled glucose even in the hospital setting or with abnormal testing for fetal surveillance, consider induction between 34 and 37 weeks with appropriate consultation with OB

Route of delivery:

- C-section could be offered to pregnant with GDM and EFW ≥ 4.5 kg (now level C opinion)
- Plan for vaginal birth if EFW < 4.5 kg

Intrapartum management of pregnant with GDM on oral medications or insulin:

- Per L&D protocols

Postpartum management of GDM:

See figure to the right

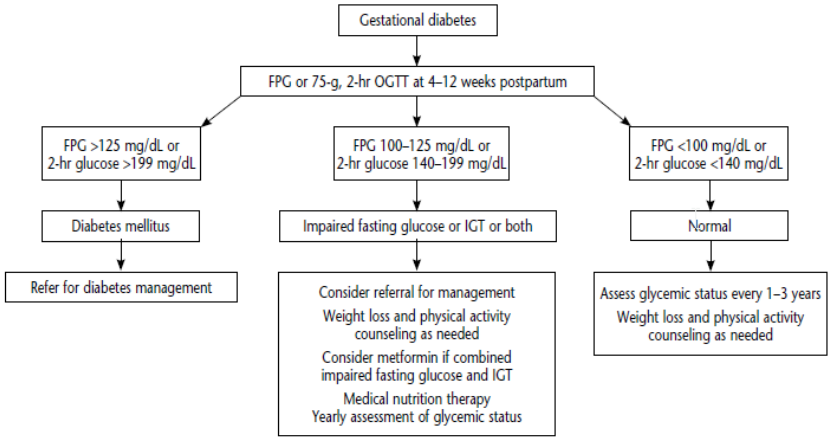

Figure 1. Management of postpartum screening results. Abbreviations: FPG, fasting plasma glucose; OGTT, oral glucose tolerance test; IGT, impaired glucose tolerance. ⇦

Figure 1 Taken from ACOG Practice Bulletin Gestational Diabetes Mellitus Number 190, Feb 2018

References:

American College of Obstetricians and Gynecologists "Practice bulletin no. 190: gestational diabetes mellitus." Number 190, Feb 2018
Revised at OB faculty meeting March, 2019