INFORMED CHOICE: GLUCOSE TOLERANCE TESTING

DEFINITION: Gestational diabetes is defined as carbohydrate intolerance first recognized during pregnancy (ACOG, 2001b).

WHO IT AFFECTS: Gestational Diabetes (GDM) is identified in 4-7% of pregnancies in the US. Gestational Diabetes is strongly related to a woman's race and culture. Prevalence rates are higher in black, Hispanic, Native American, and Asian women than in white women. For example, typically, only 1.5-2% of white women develop gestational diabetes mellitus, whereas Native Americans from the southwestern United States may have rates as high as 15%. In Hispanic, black, and Asian populations, the incidence is 5-8%.

RISKS TO WOMEN AND BABIES ATTRIBUTED TO GDM INCLUDE:

- Fetal macrosomia (larger than average baby)
- Birth trauma (to mother and baby generally associated with macrosomia)
- Induction of labor or caesarean section
- Transient neonatal morbidity (illness)
- Neonatal hypoglycemia (low blood sugar)
- Perinatal death (death during pregnancy, birth, or early life)
- Obesity and/or diabetes developing later in life for mother and/or baby

ACCORDING TO THE RESEARCH: The adverse outcome most frequently associated with GDM is fetal macrosomia or large baby. Adverse outcomes of C-section, shoulder dystocia (difficulty in birth due to shoulders getting stuck), and trauma are all associated with macrosomia. However, assessment of pre-pregnant weight, pregnancy weight gain, pregnancy > 42 weeks are more predictive of fetal macrosomia than the glucose tolerance test. So wide use of glucose tolerance testing just to identify macrosomia is of limited value.

There is no evidence that treatment of women (with diet and/or medications) who have an abnormal glucose tolerance test will reduce perinatal mortality (baby dying during pregnancy or after birth) or morbidity (illness). Trials of dietary regulation for GDM do not demonstrate a significant effect on any outcome, with the possible exception of macrosomia. Trials comparing the use of insulin plus diet with diet alone show a reduction in macrosomia but no significant effect on other outcomes such as CS, incidence of shoulder dystocia or perinatal mortality. Also there is no evidence that such treatment reduces the incidence of neonatal jaundice or hypoglycemia (low blood sugar). One study assessed the use of elective CS for GDM. It found a statistically significant increase in maternal morbidity (illness such as excessive bleeding, infection, etc) with no benefit shown for baby. Another study found no significant difference in maternal or neonatal outcomes by use of elective induction of labor.

WHAT ABOUT THE TEST: The abnormal glucose tolerance test is not reproducible 50-70% of the time. In other words, if the same woman took the test twice she would get differing results 50-70% of the time. Screening all pregnant women with glucose tolerance testing is unlikely to make a significant impact on perinatal morbidity and mortality. There is great potential for doing more harm than good by performing glucose tolerance testing. A positive test labels a woman as having a form of diabetes. This may then cause her pregnancy to be considered high risk, invoking an extensive and expensive program of tests and interventions of unproven benefit. A negative test has a potential for harm since it reassures the provider and the woman that the risk engendered by the indication for the test has been removed.

CONCLUSION: So, all in all, the greatest risk with GDM is a large baby. Large babies have a greater chance of getting stuck at the shoulders coming out. When this happens the woman and the baby may experience trauma in the form of large episiotomies and excessive pulling and tugging on the baby's head, which can cause temporary or permanent damage. Of course the mental and emotional trauma of this for both mom and baby can be significant as well. With increasing frequency, early induction of labor or even CS are done in order to try to avoid this possibility. Each of these have significant risks and side effects for both mother and baby.

Unfortunately, there is a documented increase in babies dying during late pregnancy in women with diabetes. It is unclear if this increase is truly in women with gestational diabetes who theoretically have only been "diabetic" for the later half of pregnancy or less, or if some women were diabetic prior to pregnancy but not identified until they were checked in pregnancy. Pregnancy in a woman who is diabetic prior to pregnancy is very different from gestational diabetes and a much more potentially stressful situation for baby.

WHAT DO I RECOMMEND? Due to the above information, I do not suggest routine testing for GDM for all pregnant women. As a homebirth candidate, you have been screened for your risk related to diabetes and your risk of having a large baby. Another piece of that is assessment of your health habits and your commitment to providing a healthy environment for your baby. There is a small genetic influence on fetal size but <u>the size of your baby at birth largely depends on your diet</u>.

A DIET HIGH IN SIMPLE CARBOHYDRATES (including fruit juice, white bread, white rice, white potatoes, white pasta) and excessive fats GROWS A LARGE BABY.

A diet high in COMPLEX carbohydrates, vegetables, fruits (not excessive) and reasonable amounts of protein (preferably plant based) tends to grow a healthy, normal size baby.

As some would say, "Birth is as safe as life gets". In other words, nature has been doing this a long time and is very good at it. That said, it is true that any process in nature occasionally goes wrong. Some of that is beyond our control no matter what we do. However, we have considerable influence to increase or decrease some of those possibilities. I will work with you from the moment you start care to keep you healthy, happy and free of complications. If you show risk factors associated with diabetes or large baby we will talk about that and what your choices are relative to that. Your focus on diet and regular exercise will ensure the best possible pregnancy outcome.

RISK FACTORS FOR SCREENING:

- BMI above 30 kg/m2
- Previous macrosomic baby weighing 4.5 kg (almost 10lbs) or above
- Previous gestational diabetes
- First-degree relative with diabetes
- Family origin with a high prevalence of diabetes (South Asian, black Caribbean and Middle Eastern)

SCREENING AND DIAGNOSIS:

Offer:

• Screening for gestational diabetes using risk factors (see above) in early pregnancy

• 2-hour 75 g oral glucose tolerance test (OGTT) at 16–18 weeks to test for gestational diabetes <u>if the woman has had</u> <u>gestational diabetes previously</u>, followed by OGTT at 28 weeks if the first test is normal. (This is currently the recommended test for GDM, however, PVH is not currently offering it so the one hour glucose challenge test is still in use.)

• An OGTT to test for gestational diabetes at 24–28 weeks if the woman has any other risk factors Do not offer:

• Screening for gestational diabetes using fasting plasma glucose, random blood glucose, glucose challenge test or urinalysis for glucose

RESOURCES:

A Guide to Effective Care in Pregnancy and Childbirth. Oxford University Press, 2000.

Chapter 11, Gestational Diabetes. Murray Enkin, Marc J.N.C. Keirse, James Neilson, Caroline Crowther, Lelia Duley, Ellen Hodnett and Justus Hofmeyr

NICE and Diabetes: A Summary of Relevant Guidelines. The National Institute for Health and Clinical Excellence (NICE). November 2009

Birthwise Midwifery Care