Sweet Success: Diabetes and Pregnancy Newsletter

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WE HAVE A NEW LOOK!

We hope you like it! We would love to hear from you. We are looking for topics of interest, recurrent themes, and pictures of babies for future issues. If you have anything to share, please email either:

Leona Dang-Kilduff

leonad@stanford.edu

Kristi Gabel
gabelkt@sutterhealth.org

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Gestational Diabetes Mellitus (GDM): The Potential Diabetic and Her Offspring

Maribeth Inturrisi, RN, MS, APE, CDE

We are all well aware of the increased morbidity and mortality associated with type 1 and type 2 diabetes during pregnancy. But what about the women who actually experience diabetes for the first time after becoming pregnant?

Gestational diabetes Mellitus (GDM) or carbohydrate intolerance first recognized during pregnancy, carries an increased risk for not only pregnancy related problems but for future diabetes for both the mother and her offspring. GDM affects 1-14% (7%) of all pregnant women. This is more than 200,000 women in the US annually. Soon after giving birth, 90%- 95% GDMs screen negative for diabetes on the postpartum 75 gram- 2 hour OGTT. However, 4-9% will be diagnosed with overt diabetes, primarily type 2 and more than 20% will have impaired glucose tolerance (IGT) or impaired fasting glucose (IFG). Both or either of these conditions are now known as prediabetes. Of the women with prediabetes, 84% will progress to type 2 diabetes vs. 12% of those with without prediabetes within 5 years. By 36 months postpartum, 30% of women with previous GDM will have metabolic syndrome. More than 62% of the time, subsequent pregnancies are affected by GDM. Of women with previous GDM up to 70 % will develop type 2 diabetes within 5-10 years of the index pregnancy. Women with previous GDM who required insulin, are overweight or obese or remain inactive are most likely to convert to type 2 diabetes sooner. The risk for developing diabetes after GDM continues lifelong.

Historical Perspective: The Potential Diabetic...

Two centuries ago, in 1889 when my grandmother was born and 100 years before my oldest daughter was born, there was only obscure mention in the scientific literature of "puerperal diabetes" (GDM). My grandmother died from complications of type 2 diabetes as did all of her eight offspring including my mother. My mother's first pregnancy ended in a stillbirth at term and her subsequent 3 children all weighed over 9 lbs-all of us born in the 1940's.about twenty years before her diabetes was diagnosed. It wasn't until 1954 that the first publication describing GDM came out of Boston, Massachusetts where Dr. John B. O'Sullivan was working on an NIH grant to study this phenomenon. In 1962, John O'Sullivan and Claire Mahan's published mathematically based criteria for assessing the upper limit of glycemia beyond which predicted a future risk for type 2 diabetes. O'Sullivan published "The Potential Diabetic and Her Treatment During Pregnancy" in 1966 in Obstetrics and Gynecology describing gestational diabetes and it's relationship to future development of type 2 diabetes. For more than 40 years, the diagnosis of GDM has been based on criteria that predict the future risk of the mother developing diabetes.

And Her Offspring…. During the second half of pregnancy fetal growth is facilitated by increased production of placental substance which block insulin. Maternal glucose crosses the placenta freely but insulin is too large a molecule to cross. Therefore, the fetus must produce its own insulin to utilize the glucose. When normal pregnancy (nondiabetic) levels of glucose cross to the fetus (NORMAL = 50mg/dl-80mg/dl premeal and 90 – 120mg/dl one hour postmeal), fetal production of insulin is normal and facilitates normal growth. Maternal hyperglycemia (? unknown), however, induces fetal hyperinsulinemia, accelerated fetal growth, and excess fetal visceral and abdominal fat. Macrosomia (birth weight > 4000 gms) occurs in 27-62% in infants of diabetic mothers compared to approximately 10% in non-diabetic controls. But GDM confers much more than just the risk of being large at birth to the offspring. Macrosomia is

associated with increased rates of cesarean section and birth trauma, fetal death, and neonatal complications including hypoglycemia, hypertrophic cardiomyopathy, polycythemia, and hyperbilirubinemia. Infants who experienced fetal hyperinsulinemia due to maternal hyperglycemia are more likely to develop obesity, impaired glucose tolerance; cardiovascular disease and type 2 diabetes later on in life. The diagnostic values for identifying GDM have never before been correlated to these fetal risks- until now.

HAPO – The Hyperglycemia and Adverse Pregnancy Outcomes Study

The goal of this international study was to achieve a major advance in knowledge on levels of blood glucose during pregnancy that place the mother, fetus, and newborn at increased risk for adverse outcomes. HAPO is a seven year, basic epidemiologic investigation (not a clinical trial) of approximately 23,325 women at 15 centers in 9 countries. The association between hyperglycemia and poor outcome is continuous and this makes it difficult to identify threshold criteria below which no risk is present. However it does seem that the level of maternal blood glucose at which a diagnosis of gestational diabetes is made may need to be lowered. In 2008, the Spring meetings of the North American Diabetes and Pregnancy Study Group and the Diabetes and Pregnancy Study Group – West will be devoted to the 6th International Workshop Conference on Gestational Diabetes: Diagnosis and Classification. This is to be the third global meeting sponsored by the International Association of Diabetes and Pregnancy Study Groups, www.iadpsg.org. The conference will be held at the Hilton Hotel in Pasadena, California on Wednesday June 11 and Thursday June 12, 2008.

What does this mean to the potential diabetic and her offspring?

Perhaps in this century, pregnant women can be identified with abnormal glucose tolerance earlier and with more accuracy. Promotion of healthy eating and activity and medication if needed can begin before fetal hyperinsulinemia is established. More credibility may be given to follow-up of women and infants who are at risk for future metabolic derangement. Maybe – just maybe, we can impact the vicious cycle of diabetes and reduce the soaring epidemic of type 2 diabetes in the world today.

Stay tuned ……

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"Promotion of healthy eating and activity and medication if needed can begin before fetal hyperinsulinemia is established"

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Recommendation for a dental examination upon entry into program

Leona Dang-Kilduff, RN, MSN, CDE

Poor dental health is associated with increased rates of intrauterine growth retardation, spontaneous abortions, and preterm labor and delivery. For this reason, a dental exam is recommended, and any indicated treatment should occur before and/or during pregnancy.

Women with hyperglycemia potentially have poorer dental health due to hyperglycemia-mediated inflammation, an increased infection rate, and delayed healing.

Xiong, et al, wrote a review of the literature looking at the emerging concept of periodontal disease and its effect on pregnancy mortality and morbidity. They found seven studies that demonstrated evidence of an association (odds ratios ranging from 0.78 to 2.54). Three other clinical trials suggest that oral prophylaxis and periodontal treatment can lead to a 57% reduction in preterm low birth weight and a 50% reduction in preterm births.

The Michalowicz study is an intervention trial. It utilized a control group versus the intervention group that had root scaling, tooth polishing and received dental hygiene teaching. The control group had a small decrease in preterm birth by 0.8%; birthweights were 3239 grams in the control versus 3258 grams (increase in weight, of treated group) and spontaneous abortion (SAB) rate of 5 versus 14 in the control.

> *"...a dental exam is recommended, and any indicated treatment should occur before and/or during pregnancy"*

Due to these emerging studies, the Sweet Success Program will be recommending a dental exam and treatment during the pregnancy when indicated.

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WEB WONDER!

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National Diabetes Education Program

http://ndep.nih.gov/

NDEP offers resources for the health care professional to provide outreach education for your patients. It has brochures, tip sheets, provider kits, and more for your use. Materials are available in 16 languages.

Other online resources you can link to from this website are:

http://www.BetterDiabetesCare.nih.gov

http://www.DiabetesAtWork.org

Happy Searching!

CONVERSATION MAPS

A conversation map is a series of images and metaphors on a tabletop map used to engage a group of patients in conversations about their diabetes. The map is colorful and highly visual to assist with navigating the educational session. There are questions, discussion cards, and action plans as the general components to the map. You can get your free copy of maps and the facilitator handbook by attending the free 2-3 hour training session by visiting the link below.

http://www.healthyi.com/conversation-maps.aspx

If you need assistance, contact your CDAPP Regional Coordinator.

Beyond the Numbers: More on the Edinburgh Postnatal Depression Scale (EPDS) The Revision Division

Charlene Canger, MFT, LCSW, BCD

EPDS Translations

There were many responses to the last newsletter article on the EPDS and valuable information came in from "out in the field". Many sites requested multiple language translations of the screening tool. Several sites had already been tracking and intervening on depression and anxiety in their clinics and had sophisticated clinical questions from their current practice.

We had alert affiliate members who accurately corrected translated materials that were not appropriate for the diverse populations served throughout the state. For example, the Spanish translation was suitable for Latin American natives but would not be understood by women who emigrated from Mexico. Our bilingual-bicultural affiliates' knowledge was invaluable here as they "proofed" the translations, and found them lacking (Thank you, Sara and Ana). More research uncovered a Mexican Spanish version of the EPDS.

Edinburgh Postnatal Depression Scale (EPDS)

UNDERLINE the answer which comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.

1. I have been able to laugh and see the funny side of things.
0 As much as I always could
1 Not quite so much now
2 Definitely not so much
3 Not at all

2. I have looked forward with enjoyment to things.
0 As much as I ever did
1 A little less than I used to
2 Definitely less than I used to
3 Hardly at all

3. I have blamed myself unfairly when things went wrong.
0 No, never
1 Not very often
2 Yes, some of the time
3 Yes, most of the time

4. I have been anxious or worried for no real reason.
0 No, not at all
1 Hardly ever
2 Yes, sometimes
3 Yes, very often

5. I have felt scared or panicky for no real reason.
0 No, not at all
1 Hardly ever
2 Yes, sometimes
3 Yes, very often

6. Things have been too much for me.
0 No, I have been coping as well as ever
1 No, most of the time I have coped quite well
2 Yes, sometimes I haven't coped as well as usual
3 Yes, most of the time I haven't been able to cope at all

7. I have been so unhappy that I have had trouble sleeping.
0 No, not at all
1 Not very often
2 Yes, sometimes
3 Yes, most of the time

8. I have felt sad or miserable
0 No, not at all
1 Not very often
2 Yes, quite often
3 Yes, most of the time

9. I have been so unhappy that I have cried.
0 No, never
1 Only once in a while
2 Yes, quite often
3 Yes, most of the time

10. I have thought of hurting myself.
0 Never
1 Hardly ever
2 Sometimes
3 Yes, quite often

SCORE_____ (if greater than 9-12 points please refer for further examination)

Please contact me for the Mexican/Spanish version of the EPDS and the supporting research article at ccanger@stanford.edu.

Program Infrastructure Preparation For Depression Screening

Recording a screening tool score on the revised CDAPP data form is the final task in a series of clinical preparations and interventions. In addition to staff training and case consultation (either through CDAPP or other training resources). These may include:

- Current patient educational materials on signs of depression/anxiety to raise women's awareness and effectively intervene with mild-moderate conditions
- Listings of available resources in your respective community for counseling and supportive services
- Available mental health support for the site
- Understanding of insurance behavioral health services to inform and facilitate patient use
- Basic staff skill level for emergency intervention in high risk situations

Provider preparation is a major factor in a successful screening process since the sigma of "mental illness" and connotations of "being crazy" has a solid hold on most of us in our culture- and many others, for that matter. Our ability to "normalize" this to women in our care requires that we have attained a certain level of comfort ourselves. Our own fears must be well managed in order to address those we anticipate or actually encounter in our patients.

Recommendations for Screening and Diagnosis in Special Populations

Kristi Gabel, RNC, MSN, CNS

We are hard at work in revising the Sweet Success Guidelines for Care due out soon. Some new recommendations include:

Gastric Bypass Patient:

Screening with hypertonic glucose solutions in the population that has had prior gastric by-pass surgery can result in dumping syndrome. Dumping or rapid gastric emptying, happens when the lower end of the small intestine, the jejunum, fills too quickly with undigested food from the stomach. Foods high in sugar after ingestion can cause an osmotic shift in the small intestine drawing fluid in. This causes a myriad of uncomfortable symptoms including lightheadedness, sweating, fatigue, nausea, vomiting, diarrhea, bloating, heart palpitations, and shakiness. Glucola testing should NOT be done in this population.

Recommendations for screening include the following options:

- Fasting and 1 hour postprandial level checked at 22-24, 28-32, and 34 weeks gestation. (Sheiner, et. al., 2005, Fujioka, 2005)
- Obtain fasting and 1 hour post meal blood glucose for 1 week with a blood glucose meter while on her usual diet beginning in the second trimester and repeat as needed.

Treat as GDM if abnormal glucoses are detected at any testing point.

Hyperemesis gravidarum (HG)

A woman with HG may be unable to tolerate oral glucose. The following option is recommended:

- Test fasting and 1 hour post meal blood glucose levels for 1 week with a blood glucose meter beginning in the second trimester and repeat as needed.

For any patient that cannot tolerate oral glucose, a less common but still used test is the Jelly Bean test:

- Obtain fasting blood glucose. Administer 50 grams of CHO in the form of jelly beans (Brachs brand recommended) over 5 minutes and test blood glucose at 1 hour, 2 hour, and 3 hour intervals. (Lamar, et.al., 1999)

Impaired Glucose Tolerance of Pregnancy (IGTP)—One abnormal value on Oral Glucose Tolerance Test (OGTT):

Studies have demonstrated that there are increased risks associated with untreated pregnancies of women with one abnormal value on the OGTT. Risks to the fetus and/or neonate include fetal macrosomia, hyperinsulinemia, postpartum fetal hypoglycemia, newborn jaundice, and increased admissions to the NICU. (Lindsay, 1989; Schafer-Graf, 2003; Ostlund, 2003; Bo, 2004; Caughey, 2005) Maternal risks may include increased incidence of hypertension, preeclampsia and eclampsia and surgical delivery (Lindsay, 1989; Ergin, 2002; Ostlund, 2003; Gruendhammer, 2003; Lemieux, 2004; Takoudes, 2004).

The following are recommendations for the plan of care of a woman with one abnormal value:

Option 1: (refer to diagram)

Women with one abnormal value on the OGTT should be seen by:

- the RD for dietary assessment, education, and meal planning and the RN for education concerning self blood glucose monitoring. (These women may be loaned a meter for post meal testing for 1-2 weeks.)
- Return visit should be made with the RD and RN to assess her status and need for continued follow-up within 2 weeks.
- If all values are normal the woman may opt to continue blood glucose testing post meals on an as needed (prn) basis or continue diet and exercise and have random glucose testing when seen at prenatal visits.
- The referring provider is notified by letter when the patient is first seen and again when evaluated. Individualized follow up recommendations are made at that time.

Option 2:

- Repeat the 3 hr OGTT in 2 weeks from the date of the 1-abnormal OGTT or repeat at 30-32 weeks.

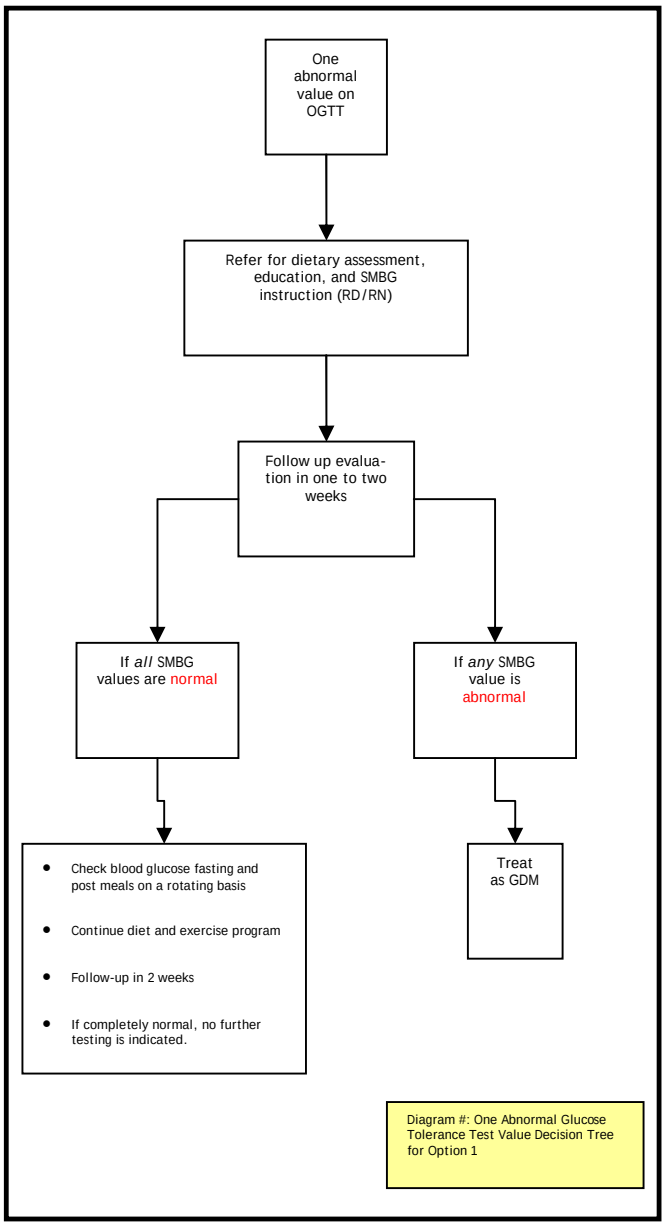

Diagram #: One Abnormal Glucose Tolerance Test Value Decision Tree for Option 1

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May 2008

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Northeast and East Bay Regions
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Region 6.1
Miller Children's Hospital Perinatal Outreach Education Program
562-595-7930

Region 6.2
Harbor/UCLA Medical Center South Bay
310-222-3651

Region 7
Inland Counties Region
909-558-3996

Region 8
Orange County Region
714-456-6706

Region 9
San Diego & Imperial Counties
858-536-5090

Region 10
Kaiser Permanente System-North
408-366-4102

Region 11
Kaiser Permanente System-South
951-353-3569

CDAPP Regional Data Center
562-945-6484

Upcoming Educational Opportunities

May 12

Mid-Coastal Regional California & Pregnancy Program (Region 4) Sweet Success Clinical Update Conference 2008, San Luis Obispo. Contact Leona Dang-Kilduff at leonad@stanford.edu or Susan Rasmussen at susan.rasmussen@tenethealth.com / 805-546-7915.

May 12-13

Sweet Success Affiliate Training Region 9; Regional Perinatal Systems Office San Diego. Contact Elaine Simon at 858-536-5090

June 6-10

ADA 68th Scientific Sessions, San Francisco. Registration information can be found at the following website http://www.diabetes.org/home.jsp

October 13

Sweet Success Affiliate Sharing Day for Regions 1 and 4, San Francisco. Contact Leona Dang-Kilduff at leonad@stanford.edu or Maribeth Inturrisi at Maribeth.Inturrisi@nursing.ucsf.edu

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