Diabetes and Pregnancy

Developed by
Kathleen Gibson RD CDE
May 2011

Objectives

During this session, you will learn about:
1. The prevention and management of gestational diabetes
2. The care and management of existing diabetes and pregnancy
3. Current resources about diabetes and pregnancy

Now for a few questions before we begin...

Question 1. In the second trimester of a normal pregnancy, insulin resistance ______ and blood sugars ______.
   a. Increases, rise
   b. Decreases, fall
   c. Increases, fall
   d. Doesn’t change, don’t change

Question 2. What is the target fasting glucose value for a pregnant woman with diabetes?
   a. 4.0 – 7.0 mmol/L
   b. Less than 10 mmol/L
   c. There are no targets for pregnant women
   d. 3.8 – 5.2 mmol/L

Question 3. Women diagnosed with gestational diabetes should get a repeat 75-g OGTT within ______ after the baby is born?
   a. 4 weeks
   b. 1 year
   c. 6 weeks to 6 months
   d. Not required
   e. 6 months to 1 year

Question 4. Women with existing diabetes should take multivitamins containing ______ folate at least 3 months before getting pregnant.
   a. 0.4 – 1.0 mg
   b. 5 mg
   c. 0.4 – 4.0 mg
   d. 1.0 mg
Question 5. Babies who are born to moms with existing diabetes before conception are more likely to be born ________________?

a. With congenital malformations
b. As still births
c. As large-for-gestational age infants
d. All of the above

Question 6. How comfortable do you feel discussing diabetes and pregnancy with people in your community?

<table>
<thead>
<tr>
<th>Not Very</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
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<td>3</td>
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<td>5</td>
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Outline

1. National Picture
2. Overview of Pregnancy
3. First Nations in Alberta
4. Gestational Diabetes
5. Existing Diabetes and Pregnancy
6. Case Study
7. Resources
8. Post-Presentation Questions

Diabetes & Pregnancy Working Group (DPWG)

- Collaboration between Maternal Child Health (MCH), Aboriginal Diabetes Initiative (ADI), Canada Prenatal Nutrition Program (CPNP) and Office of Nursing Services (ONS).
- Conducted an environmental scan and literature review in 2009 to understand the current state of diabetes in pregnancy in First Nations communities across Canada.
- The environmental scan involved a survey of regional representatives from the four programs on gestational diabetes (GDM) prevention, treatment and care of First Nations women

Diabetes 101 – key phrases

Glucose – the main form of sugar used as fuel by our bodies; comes from food and is made by our bodies
Insulin – a hormone produced by the pancreas
Hypoglycemia – low blood sugar
Hyperglycemia – high blood sugar
Insulin Resistance – body doesn’t let insulin do it’s job
Insulin Sensitivity – body reacts more to insulin than usual

Recommendations from the DPWG

Environmental Scan
- Increase awareness of GDM
- Screen for GDM according to the 2008 CPG
- Train front-line workers to address risk factors
- Support research to enhance evidence-based programs/services

Literature Review
- Focus on healthy weights and diabetes management in women of child-bearing age
- Provide screening earlier in pregnancy and follow-up post partum
- Promote healthy maternal weight gain
- Improve breastfeeding initiation and duration
What is it about pregnancy?

Pregnancy alters the normal balances between glucose and insulin in ALL women

First Trimester:
• Sensitivity to insulin increases resulting in lower blood sugars and increased energy stores for the mother.

Second Trimester:
• Pregnancy hormones are high enough to work against insulin; insulin resistance increases, insulin production increases and blood sugars are increased.

Third Trimester:
• Insulin resistance is increased as long as the placenta functions.

What is Gestational Diabetes Mellitus?

Gestational diabetes (GDM) is defined as hyperglycemia with onset or first recognition during pregnancy. Caused by the insulin resistance during the second and third trimesters.

In Canada, the prevalence of GDM varies from ~4% in the non-Aboriginal population to 8-18% in Aboriginal populations.

Hyperglycemia is associated with increased risk of complications for the fetus.
• Heavy birth weight (> 4000g or 9 lbs)
• Large-for-gestational age
• Polyhydramnios
• Fetal distress and possible still birth
• Neonatal complications
• Increased risk of childhood obesity and Type 2 diabetes
Risk Factors for GDM

- Previous diagnosis of GDM or delivery of large baby
- Member of a high-risk population (Aboriginal, African, Asian, Hispanic or South Asian)
- Pre-pregnancy Body Mass Index ≥ 30 kg/m²
- Maternal age ≥ 35 years old
- History of polycystic ovary syndrome
- History of acanthosis nigricans
- History of corticosteroid use

Management of GDM

1. Strive to reach target glucose values.
   - Fasting/premeal BG: 3.8 to 5.2 mmol/L
   - 1 hour post meal BG: 5.5 to 7.7 mmol/L
   - 2 hour post meal BG: 5.0 to 6.6 mmol/L
2. Self-monitoring of blood glucose (SMBG).
   - Check before breakfast and 1 hour after the start of each meal
3. Receive nutrition counselling from a registered dietitian.
4. Check ketones every morning to prevent starvation ketosis.
5. Increase your present level of physical activity if safe.
6. Begin insulin therapy if glucose targets not met within 2 weeks.

How much weight gain is healthy?

<table>
<thead>
<tr>
<th>Pre-pregnancy weight</th>
<th>Recommended total weight gain</th>
<th>Weight gain in 1st trimester</th>
<th>Weight gain per week in 2nd and 3rd trimesters</th>
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<tr>
<td>Very Thin or underweight (BMI &lt; 18.5)</td>
<td>25 to 35 lbs (11.5 to 16 kg)</td>
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<td>Healthy Weight (BMI 18.5 – 24.9)</td>
<td>15 to 25 lbs (7 to 11.5 kg)</td>
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<td>Overweight (BMI 25-29.9)</td>
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<td>Obese (BMI ≥30)</td>
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How to eat for healthy weight gain

You don’t need a lot of extra food to gain the right amount of weight during pregnancy

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These need to fit into the meal plan.

After the baby is born...

Often the mother’s blood glucose will return to normal.

Breastfeeding should be encouraged for prevention of obesity and Type 2 diabetes in baby and mother.

Maintain a healthy body weight to reduce risks of Type 2 diabetes.

Get a repeat OGTT within 6 weeks to 6 months of delivery.

Get screened for diabetes every 1-3 years.
Planning future pregnancies

• Be tested for diabetes before conception happens.
• Maintain a healthy weight to reduce risks during pregnancy.
• Follow a healthy eating and active living plan.
• Take a multivitamin with 0.4 to 1.0 mg folic acid at least 3 months before conception, and throughout pregnancy and breastfeeding.

EXISTING DIABETES AND PREGNANCY

Diabetes and Pregnancy health concerns

Pregnant women with existing diabetes have higher rates of complications compared to the general population.

• Perinatal mortality
• Congenital malformations**
• High Blood Pressure
• Pre-term delivery
• Large-for-gestational age infants
• Caesarean delivery
• Neonatal morbidities

This is why it is important to have blood sugars in control before conception.

Questions?

Glycemic targets for pre-conception and during pregnancy

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Women with existing diabetes should begin supplementing their diet with multivitamins containing 5 mg folic acid at least 3 months pre-conception and for 12 weeks post-conception.

Women should switch from oral diabetes medications to insulin before conception.
Pre-conception diabetes complications screening

Retinopathy or Eye Damage
Ophthalmologic assessment should happen before conception, during the 1st trimester, as needed during pregnancy and within the 1st year postpartum.

High Blood Pressure
Any type of high blood pressure is strongly associated with poor outcomes. Women will need to switch to an anti-hypertensive med approved for pregnancy.

Kidney Disease
Screening using a random urine ACR and blood creatinine eGFR. If early kidney disease found, then repeat checks in each trimester.

Heart Disease
Women should discontinue any statin medications for cholesterol.

How to manage existing diabetes and pregnancy

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Reminder about activity!

*“Sometimes it’s good to change your walking routine! Instead of walking alone for blocks, instead of wandering around the kitchen.”*

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After the baby is born...

Begin using contraception as soon as possible.

Breastfeeding should be encouraged for prevention of obesity and Type 2 diabetes in baby and obesity in the mother.

Strive for regular targets for control of blood sugar.
Fasting and pre-meal: 4.0 – 7.0 mmol/L
2h post meal: 5.0 – 10.0 mmol/L

Maintain a healthy body weight.

Maintain contact with health care team for routine follow-up and counselling before subsequent pregnancies.
Let’s meet Melody...

Melody, aged 20, joins your prenatal group at 8 weeks gestation. This is Melody’s 3rd pregnancy. She had gestational diabetes in her last pregnancy two years ago, and was managed with diet and exercise. Melody’s pre-pregnancy weight was 168 lbs and her BMI was 28 kg/m². Melody’s current weight is 171 lbs.

Is Melody at risk for Gestational Diabetes again?
Is Melody at risk for Type 2 Diabetes?
Is there any other information you would need?
What do you recommend Melody do?

Your next meeting with Melody...

Melody returns after her Gestational Diabetes Screen with a diagnosis of gestational diabetes. She says she does not have Type 2 diabetes.
Melody does not have a glucometer (she gave hers to an uncle with diabetes), and does not remember exactly what she did last time.

What can you do to support Melody with her pregnancy complicated by diabetes?

WHERE CAN I LEARN MORE?

Melody had a baby boy!

Melody had a well-managed pregnancy and she delivered a full-term, 8 lb baby boy. You see her when she brings her son for his 2 month postnatal visit.

Besides the health of the baby, what specific things do you need to remind Melody of?
We’re leading the fight against diabetes by helping people with diabetes live healthy lives while working to find a cure.

Website:  www.diabetes.ca

- Evidence-based information about topics related to diabetes
- Home of the 2008 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada (pdf copy)
- The CDA material developed about gestational diabetes has been posted on the Telehealth portal (www.onehealth.ca/videos) for your use.

Dr. Edmond Ryan, University of Alberta

“I specialize in diabetes and pregnancy and have been conscious of the need for solid easily accessible information about gestational diabetes, Type 1 or Type 2 diabetes and pregnancy being available to people for whom this is a concern. This need became very apparent when I found out about a woman with Type 1 diabetes who was pregnant in a northern area of Alberta, Canada and was feeling lost. She did not know much about the changes that were happening to her diabetes, what risks her baby had and felt her local caregivers did not know enough to answer her questions. Just providing good information to her questions was a relief.”

Nursing eLearning Portal

Site maintained by Nursing, First Nations & Inuit Health
Contact person: Lorraine Trojan, lorraine.trojan@hc-sc.gc.ca

Website:  http://www.abnurse-elc.com/campus/

Links to Alberta Perinatal Health Education Campus
- STORC (Strategies for Teaching Obstetrics to Rural and Urban Caregivers); Module 14 deals with Diabetes in Pregnancy.
- Healthy Maternal Weight Gain; Module 1 provides information about and tools to assist with maternal weight gain issues.

Thank you for joining us!

Please FAX all **three** pages of the evaluation to **780-495-7338**
Attn: Nicole Leclair