Cultural Diversity in Gestational Diabetes Mellitus (GDM) Education Program

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What is GDM?
Diagnosis of GDM

All pregnant women between 24 and 28 weeks gestation
If there is a high risk of GDM based on multiple clinical factors, screening should be offered at any stage in the pregnancy

Preferred Approach

- 50 g glucose challenge test
  - FPG 1 hour later

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<tr>
<th>&lt;7.8 mmol/L</th>
<th>7.8-11.0 mmol/L</th>
<th>≥11.1 mmol/L</th>
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- Normal
- Reassess at 24-28 weeks if tested earlier

If 1 value is met or exceeded

Gestational diabetes

(Canadian Diabetes Association, 2013)

**Fasting:** ≥5.3 mmol/L

**1 hour:** ≥10.6 mmol/L

**2 hours:** ≥9.0 mmol/L
Pathophysiology and Prevalence

Occurs in 3% - 20% of all Pregnancies
Who should be tested for gestational diabetes

- Every Pregnant?
- Elevated Blood Sugar?
- History of Gestational Diabetes?
Which of the following is NOT a risk factor for GDM

- Ethnicity
- Smoking
- Pregnancy >35 years of age
What are the Risk Factors

- GDM in a previous pregnancy
- Previous macrosomia (baby weighing over 4 kg/ 9 lbs)
- History of Prediabetes
- Family history of type 2 diabetes
- Age (over 35) or Obesity (BMI >35)
- Medical conditions (PCOS, Thyroid disease, fertility treatment, corticosteroid use)
- Member of a high risk ethnic group
Ethnic group?

- Ethnic Group: Asian, South Asian, Hispanic, African and Aboriginal

- Asian descent: Chinese, Philippines, Vietnamese, Japanese, Korean and many more

- South Asians: Heterogeneous group - countries of origin, religions, cultures, genders, ages, class, caste and occupation
Diabetes doesn’t affect all societies equally

- 36.3 % of GDM in South Asians
  (START study, Canada among 1012 SA with singleton Jan 2011 to Nov 2015)
- Higher in Chinese and South Asian Canadians: 2 folds higher in SA (AB and BC) and 3 fold higher in Chinese women (BC)
- Increased maternal age (32.7, 33.0) in Chinese women (Yeung, RO.2017)
Diabetes doesn’t affect all societies equally!

GDM prevalence is higher in Chinese and South Asian Canadians: 2004 to 2010

➢ Result: Overall GDM 4.8% in AB, 7.2% in BC
➢ General population: AB: 4.2%, BC: 5.8%
➢ Chinese in AB 11%, BC 13.5%
➢ SA: 8.4% in AB, 13.9% in BC

## Why are we concerned?

### Fetal and maternal risks and complications

<table>
<thead>
<tr>
<th></th>
<th>Fetal</th>
<th>Maternal</th>
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<tbody>
<tr>
<td><strong>Short-term</strong></td>
<td>• Macrosomia</td>
<td>• Cesarean delivery</td>
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<td></td>
<td>• Respiratory distress syndrome</td>
<td>• Preterm labour</td>
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<td></td>
<td>• Neonatal hypoglycemia</td>
<td>• Birth trauma</td>
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<td></td>
<td>• Hyperbilirubinemia</td>
<td>• Hypertension (DM2)</td>
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<td></td>
<td></td>
<td>• Pre-eclampsia (DM1)</td>
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<td><strong>Long-term</strong></td>
<td>• Childhood obesity</td>
<td>• GDM in future pregnancies</td>
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<td>• IGT and DM2 in adulthood</td>
<td>• DM2 in 5 – 10 years</td>
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</tbody>
</table>
Risk For Mother

Possibility of:

- Early delivery
- Trauma during birth when baby is large
- 2 in 3 chances of developing GDM in future pregnancies
- Higher risk of developing type 2 diabetes in the future
Risk For Infant

- Large: over 9 lbs (4 kg)
- Higher risk of injury during birth
- Hypoglycemia glucose after birth
- Breathing problems
- Jaundice
Case Study: Meet Mary?

• 36-year-old South-Asian woman at 24 weeks gestation being diagnosed with GDM and told by her Ob’s secretary “sugar problem” & referred to see a diabetes educator

• **Considerations and Possible Complications:** Past obstetric history (vaginal delivery of 8 lb, 2 oz. baby), family history of T2DM (mother), overweight: pre-pregnancy BMI 26 kg/m²

• **Social Considerations:** Mary reveals she is very anxious about the impact on her child; however, she is a very busy mom and does not always have time to exercise.

• **Dietary assessment:** She started to eat two meals a day, gave up sugar not sure if sweeteners are safe. Often drinks 100% juice to satisfy her cravings. Avoids “hot foods” suggested by her family member.

• **Supplements:** takes her daily prenatal multi vitamin+ mineral supplement

• She is worried that she will not be able to breast feed her baby

Adapted from: http://journal.diabetes.org/clinicaldiabetes/v17n31999/pg140.htm
GDM Management: CPG Recommendations

- **Home monitoring of blood glucose:**
  4 x day
  Fasting BG Target: 4.0 - 5.2 mmol/L
  2 hrs post-prandial: 5.0 mmol/L to 6.6 mmol/L

- **Urine ketone testing:**
  Done to identify and correct starvation/dieting
Nutrition Therapy

Seeing an RD is very important for management of GDM!

- Euglycemia
- Weight gain
- Moderate carbohydrate restriction
- Carbohydrate distribution
Culture and Healthcare

- Consider patient as a WHOLE
- Understand cultural aspects
- Provide relevant info in a safe and comfortable environment
- Understand barriers; sociocultural based health beliefs
Understanding Cultural Diversity

Papadopoulos, Tilki, and Taylor: Model for Developing Cultural Competence
Communication is Key

(Betancourt, Green, Carrilo, & Ananeh-Firempong, 2003)
Sample meal plan

☑ 3 balanced meals and 3 snacks per day
☑ Eat every 2 – 3 hours
☑ Meals: 45 – 60 g CHO
☑ Snacks: 15 – 30 g CHO
Changes to her diet:

- Resume 3 regular meals, provide recommendations regarding adequate carbohydrate intake at mealtime
- Balance of CHO free food groups (fat, veggies, protein, cheese, Greek yogurt)
- Swap fruit juice with fresh/frozen fruit x 3/day
- Can enjoy treats (small amount)
- Sweetener are safe (discuss upper limit)
- Walking 10 min after larger meals
Sample meal plan  from my GDM prog

BREAKFAST
• 2 slices of whole wheat bread -OR 1½ cups dry/cold cereal OR 1 English muffin OR 1½ cups cooked oatmeal OR 1 cup of congee
• 1 cup milk OR 1 cup yogurt (plain/unsweetened) OR 1 fruit
• 1 egg OR 1 tbsp. peanut butter OR 1 ounce cheese OR 1oz of meat
• Vegetables as desired

MORNING SNACK
• 4-6 crackers OR 1 slice of bread OR 1 fruit OR 1 cup of milk OR 1 cup of yogurt
• Handful nuts OR 1 tbsp. peanut butter OR 1 ounce cheese OR ½ cup of cottage cheese

LUNCH
• 1 cup of rice OR 2 (6” thin) roti/tortilla OR 2-3 slices of bread OR 6 dumplings
• 1 cup milk/yogurt OR 1 medium fruit
• 3 ounces meat, fish, poultry OR cheese OR vegetarian alternative
• Vegetables as desired
Sample meal plan from my GDM prog

**AFTERNOON SNACK**
- 1 slice of bread OR 4-6 high fibre crackers OR medium fruit OR 1 cup milk OR yogurt
- 1 ounce cheese or 1 tbsp. peanut butter or 1 tbsp. hummus

**DINNER**
- 1 cup of rice/puttu OR 1-1½ cups pasta/couscous/quinoa OR 1 medium potato OR 2 roti/tortilla OR 6 string hoppers OR 3 oz barberi/lavash bread
- 1 medium fruit OR 1 cup of milk OR 1 cup of yogurt
- 3 ounces meat, fish, poultry OR vegetarian alternative
- Vegetables as desired

**BEDTIME SNACK**
- 1 slice of bread OR 3 cups of popcorn or 3-6 social tea cookies OR 1 cup milk/yogurt OR 1 small tub of rice pudding or no sugar added apple sauce
- Slice cheese or 1 tbsp. peanut butter or 1 tbsp. hummus
Plate Models
Take away

"One Size Fits all"

I'm Sure He'll Fit...
References


• Building Competency in Diabetes Education: Advancing Practice.


• The Papadopoulos, Tilki, and Taylor Model for Developing Cultural Competence. (2008). Leonardo Da Vinci Partnership Project – Intercultural Education of Nurses and Medical Staff in Europe (IENE)