UNIVERSAL SCREENING FOR DIABETES IN PREGNANCY?

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On behalf of HELEN BHAGWANSINGH’S DERPI
Douens and the lost child. Sketch by Rudolph Bissessarsingh

- Trinidadian Folklore  - Supernatural Elements  - Loss of Children
Figure 2: The Infant Mortality Rate, Neonatal Mortality Rate and Under-Five Mortality Rate for Trinidad and Tobago (1998-2009)

Source: Central Statistical Office (CSO) and the Ministry of Health Annual Statistical Reports (various years).

Note: Data from 2007 to 2009 were only available for Infant Deaths.
OBESITY AMONG WOMEN

% Overweight / Obese

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-24</td>
<td>35%</td>
</tr>
<tr>
<td>25-34</td>
<td>54%</td>
</tr>
<tr>
<td>35-44</td>
<td>72%</td>
</tr>
<tr>
<td>45-54</td>
<td>81%</td>
</tr>
</tbody>
</table>
Obesity affects ovulation, decreases fertility, increases obstetric risks and is associated with poorer neonatal outcomes. Table 32.1 [13] summarises the many adverse effects of obesity on pregnancy.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscarriage</td>
<td>3.05</td>
</tr>
<tr>
<td>Spina bifida</td>
<td>3.5</td>
</tr>
<tr>
<td>Omphalocele</td>
<td>3.3</td>
</tr>
<tr>
<td>Heart defects</td>
<td>2.0</td>
</tr>
<tr>
<td>Gestational diabetes</td>
<td>3.6</td>
</tr>
<tr>
<td>Pre-eclamptic toxaemia</td>
<td>2.14</td>
</tr>
<tr>
<td>Macrosomia</td>
<td>2.36</td>
</tr>
<tr>
<td>Intrauterine death</td>
<td>1.4</td>
</tr>
<tr>
<td>Induction of labour</td>
<td>1.70</td>
</tr>
<tr>
<td>Caesarean section</td>
<td>1.83</td>
</tr>
<tr>
<td>Postpartum haemorrhage</td>
<td>1.39</td>
</tr>
</tbody>
</table>
Prevalence of Diabetes/IFG among women in Trinidad and Tobago

– 25% among those 15-24 years old

– 29% among those 25-34 years old

– STEPS 2012
Effects of Diabetes on Pregnancy Outcomes

Diabetic pregnancy carries the following risks:

- X 2-fold increased risk of Caesarean section
- X 3-fold increased risk of trauma
- X 4-fold increased risk of admission to neonatal ICU
- X 8-fold increased risk of fetal abnormalities
High Background Rate of Diabetes in T&T

1,300,000 population
100,000 with T2DM
200,000 with prediabetes
State of Play

- 20,000 pregnancies per annum
- 1,000 enter pregnancy with diabetes (BUT half unaware of this!)
- 3,000 develop GDM
• 20,000 pregnancies per annum
• 1,000 enter pregnancy with diabetes (BUT half unaware of this!)
• 3,000 develop GDM
• COMMONEST MEDICAL CONDITION COMPLICATING PREGNANCY
• NO STANDARD APPROACH (at best, ad hoc)
To Screen or Not to Screen

CASE FOR:

• High background prevalence of diabetes
• High background prevalence of obesity
• Unexplained high neonatal mortality probably linked to BOTH
• MISSED GESTATIONAL DIABETES?
• ONLY QUESTION: Which test?
What is recommended elsewhere?

- ACOG-universal screening: 2 Step
- ADA-universal screening: 1 Step
- AAFP-universal screening but no recommendation
- Endocrine Society-universal screening but no recommendation
What test?

- 50 g GCT Non-fasting
- FBS
- HbA1c
- Risk factor screening e.g. age, BMI, previous GDM etc
- Urinalysis
- GTT, if so, 75g or 100g? And if so, 2h or 3h?
• **ONE STEP- GTT**
• **2-STEP: glucose challenge followed by GTT**
What Standard?

- NDDG e.g. FBS 105
- Carpenter-Coustan e.g. FBS 95
- IADPSG e.g. FBS 92
### C-C versus IADPSG

<table>
<thead>
<tr>
<th>Sample</th>
<th>C-C</th>
<th>IADPSG</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBS</td>
<td>95</td>
<td>92</td>
</tr>
<tr>
<td>1 hour</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>2 hour</td>
<td>155</td>
<td>153</td>
</tr>
</tbody>
</table>

Important difference:
IADPSG requires only 1 to be abnormal!
Outcomes

- QUALITY
- UNIVERSAL ACCESS
- MULTISECTORAL
- COMPREHENSIVE SCREENING
- FULFILL MANDATES OF MILLENNIUM DEVELOPMENT GOALS as well as DECLARATION OF POS
Evidence Base for GDM Screening

- **CERTAINTY** at least “B”

- **BENEFIT** at least *moderate*

- **RISK** at worst *minimal*
Timing

• High Background Diabetes Rate makes it essential to exclude PRE-GESTATIONAL diabetes

• Important to screen at FIRST ante-natal visit

• Repeat ROUTINE screening at 24-28 weeks
The Network

ROLES:
- Quality Control
- Trouble Shooting
- Data Collection
- Data Dissemination

Central Repository

Participating Labs

Payment

Ministry of Health

Practitioner/Clinic

GP Specialist Clinic

Patient
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