The Obstetric Implications of Diabetes & Diabesity in Malaysia

G MUNISWARAN
OBSTETRICIAN & GYNAECOLOGIST
HOSPITAL RAJA PERMAISURI BAINUN, IPOH
Ganeshan Muniswaran\textsuperscript{1}, Japaraj RP\textsuperscript{1}, SA Soelar \textsuperscript{2}, SD Karalasingam\textsuperscript{2}, R Jeganathan\textsuperscript{3}

1- Hospital Raja Permaisuri Bainun, Ipoh
2- Clinical Research Centre, Kuala Lumpur
3- Hospital Sultanah Aminah, Johor Bahru
BACKGROUND REVIEW

► Diabetes is highly prevalent in Malaysia

National Obstetrics Registry (NOR)

► Obesity is a modern epidemic

► The implications of diabetes and obesity in pregnancy are significant

► Implications of diabesity in pregnancy?
OBJECTIVE

National Obstetrics Registry (NOR)

- To compare the obstetric implications of diabetes and diabesity
METHODS

- Cross sectional retrospective cohort study

- Dataset is from the National Obstetric Registry of Malaysia
  
  (Fourteen major tertiary hospitals in nationwide)

- Three year study period from 1st January 2010 till 31st December 2012
**DEFINITIONS**

**Inclusion criteria**
- Pre-gestational DM
- Hyperglycaemia in pregnancy (WHO)
- Obesity – Booking BMI > 30kg/m²
- Diabesity – Pre-gestational DM and Obesity

**Exclusion criteria**
- GDM were excluded
- Booking > 18 weeks of pregnancy
METHODS

Sample size
399,274 pregnant mothers

Diabetes
34,619 pregnant mothers

Diabesity
17,770 pregnant mothers
Outcome Variables

**Primary outcomes**
- Fetal macrosomia
- Caesarean section rates
- Stillbirths

**Secondary outcomes**
- Shoulder dystocia
- Primary Post partum haemorrhage

*Adjusted for maternal age, parity & ethnicity*
STATISTICAL ANALYSIS

- Multivariate analysis using logistic regressions

- Crude and adjusted odds ratio with respective 95% confidence interval

- Paired sample t-test to compare the mean difference between odds ratio
RESULTS
Incidence of diabesity in pregnancy – 4.5%

Most prevalent among Indians

Most common age group 35-39 years of age
### Fetal Macrosomia

<table>
<thead>
<tr>
<th>Condition</th>
<th>Fetal macrosomia</th>
<th>Crude OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>Yes</td>
<td>1,307</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4,024</td>
<td>1.1</td>
</tr>
<tr>
<td>Diabesity</td>
<td>Yes</td>
<td>780</td>
<td>6.7</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4,551</td>
<td>1.2</td>
</tr>
</tbody>
</table>

*P value based on simple logistic regression, OR Odds Ratio*
<table>
<thead>
<tr>
<th>Condition</th>
<th>Caesarean Section</th>
<th>Crude OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Yes</td>
<td>12,542</td>
<td>36.2</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>82,543</td>
<td>23.0</td>
</tr>
<tr>
<td>Diabesity</td>
<td>Yes</td>
<td>5,357</td>
<td>46.6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>89,728</td>
<td>23.5</td>
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</tbody>
</table>

*P value based on simple logistic regression, OR Odds Ratio*
## STILLBIRTH

<table>
<thead>
<tr>
<th>Condition</th>
<th>Stillbirth</th>
<th>Crude OR (95% CI)</th>
<th>P value</th>
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<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>319 (0.9)</td>
<td>34,410 (99.1)</td>
<td>1.17 (1.04-1.31)</td>
</tr>
<tr>
<td></td>
<td>2,836 (0.8)</td>
<td>357,914 (99.2)</td>
<td>1.00 (ref)</td>
</tr>
<tr>
<td>Diabesity</td>
<td>136 (1.2)</td>
<td>11,418 (98.8)</td>
<td>1.50 (1.26-1.79)</td>
</tr>
<tr>
<td></td>
<td>3,019 (0.8)</td>
<td>380,906 (99.2)</td>
<td>1.00 (ref)</td>
</tr>
</tbody>
</table>

*P value based on simple logistic regression, OR Odds Ratio*
# PRIMARY PPH

<table>
<thead>
<tr>
<th>Condition</th>
<th>Primary PPH</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Crude OR (95% CI)</td>
<td>P value</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>Yes</td>
<td>356</td>
<td>1.0</td>
<td>34,694</td>
<td>2.24 (1.99-2.51)</td>
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<tr>
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<td>No</td>
<td>1,663</td>
<td>0.5</td>
<td>362,561</td>
<td>1.00 (ref)</td>
</tr>
<tr>
<td>Diabesity</td>
<td>Yes</td>
<td>140</td>
<td>1.2</td>
<td>11,507</td>
<td>2.50 (2.10 -2.97)</td>
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<tr>
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<td>1,879</td>
<td>0.5</td>
<td>385,748</td>
<td>1.00 (ref)</td>
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</table>

*P value based on simple logistic regression, OR Odds Ratio*
# Shoulder Dystocia

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes</th>
<th>No</th>
<th>Percentage</th>
<th>Crude OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
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<tr>
<td>Diabetes</td>
<td>Yes</td>
<td>193</td>
<td>0.6</td>
<td>34,857</td>
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<tr>
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<td>No</td>
<td>565</td>
<td>0.2</td>
<td>363,659</td>
<td>99.8</td>
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<tr>
<td>Diabesity</td>
<td>Yes</td>
<td>74</td>
<td>0.6</td>
<td>11,573</td>
<td>99.4</td>
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<td>684</td>
<td>0.2</td>
<td>386,943</td>
<td>99.8</td>
</tr>
</tbody>
</table>

*P value based on simple logistic regression, OR Odds Ratio*
CONCLUSION

- Combination of diabetes & obesity has far greater obstetrics complications

- More prevalent then what is perceived!

- Risk of fetal macrosomia & caesarean section is extremely significant
STRENGTH OF STUDY

- Large sample size
- Adequately powered
LIMITATIONS

- Retrospective study
- Based on a single registry
RECOMMENDATIONS

- Better awareness
- Urgent need of an aggressive & holistic approach
- Global Initiative & National Health Policy & Declaration

National Obstetrics Registry (NOR)


Mcmillen IC, Robinson J. Developmental origin of the metabolic syndrome. Physiol Rev. 2005;85:471-633
THANK YOU