Prevalence, Impacts and Efforts to Combat GDM in Indonesia

Rima Irwinda

The world’s largest island country, with more than 13,000 islands, and at 1,904,569 square kilometres

Prevalence of diabetes mellitus on population > 15 years old based on blood test

<table>
<thead>
<tr>
<th>Year</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>6.9%</td>
</tr>
<tr>
<td>2018</td>
<td>8.5%</td>
</tr>
<tr>
<td></td>
<td>10.9%</td>
</tr>
</tbody>
</table>

Nasional Basic Health Research 2013, 2018
GDM in Indonesia

- Sarwono: The prevalence of GDM (according to O’Sullivan’s diagnostic criteria) was 1.9 to 3.6%.
- No national data about the prevalence of GDM.

Factors contributing GDM

Proportion overweight and obese on adult > 18 years old

<table>
<thead>
<tr>
<th>Overweight</th>
<th>Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>2013</td>
</tr>
<tr>
<td>8.6</td>
<td>11.5</td>
</tr>
<tr>
<td>10.5</td>
<td>14.8</td>
</tr>
</tbody>
</table>

Prevalence of obesity (BMI > 25) on women > 18 years old

Nasional Basic Health Research 2007, 2013, 2018
**Prevalence of central obesity on population ≥ 15 years old**

- 2007: 18.8%
- 2013: 26.6%
- 2018: 31.0%

*Nasional Basic Health Research 2007, 2013, 2018*

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**Energy consumption from carbohydrate, protein and fat**

- Carbohydrate: 61%
- Protein: 25.6%
- Fat: 13.3%

*Nasional Basic Health Research 2010*

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**Research Article**

**Fiber, Coffee, Cigarette and Gestational Diabetes Mellitus in Makassar Indonesia**

Ridwan Amiruddin, Tanti Asrianti and M. Tahir Abdullah

1Department of Epidemiology, Faculty of Public Health, Hasanuddin University, Indonesia
2Department of Biostatistic and Reproductive Health, Faculty of Public Health, Hasanuddin University, Indonesia

- Methodology: observational analytic with retrospective design. Samples were as many as 135 respondent consisting of 45 cases (undergoing GDM) and 90 control group (not undergoing GDM).
- Results: The pre diabetes and GDM risk increases by the existence of less fiber consumption history (OR = 2.355, 95% CI: 1.12-4.94) and less coffee consumption history (OR = 2.406, 95% CI: 1.10-5.25).


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**Proportion less fruits/vegetables consumption on population ≥ 5 years**

*Nasional Basic Health Research 2018*
Assessment of the nutrient intake and micronutrient status in the first trimester of pregnant women in Jakarta

Noroyono Wibowo,1 Saptawati Bardosono,2 Rima Irwinda,3 Inayah Syafitri,3 Atikah S. Putri,3 Natasya Prameswari3

- A descriptive study was conducted towards 234 pregnant women with gestational age no more than 14 weeks.
- The serum iron were assessed by NIOSH, serum zinc by ICP-MS, serum vitamin A, B12 and folic acid by HPLC, serum vitamin D (diasonin) by CLIA.

### Maternal nutrient status

<table>
<thead>
<tr>
<th>Maternal Blood</th>
<th>Mean±SD/Median (min–max)/%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A (µg/L)</td>
<td>470 (160–7,260)</td>
</tr>
<tr>
<td>Low</td>
<td>69.7</td>
</tr>
<tr>
<td>Normal</td>
<td>29.9</td>
</tr>
<tr>
<td>High</td>
<td>0.4</td>
</tr>
<tr>
<td>Folic acid (ng/dL)</td>
<td>19.5 (10.7–40)</td>
</tr>
<tr>
<td>Normal</td>
<td>49.6</td>
</tr>
<tr>
<td>High</td>
<td>50.4</td>
</tr>
<tr>
<td>Vitamin B12 (pg/mL)</td>
<td>414.5 (145–997)</td>
</tr>
<tr>
<td>Low</td>
<td>2.6</td>
</tr>
<tr>
<td>Normal</td>
<td>97.0</td>
</tr>
<tr>
<td>High</td>
<td>0.4</td>
</tr>
<tr>
<td>Vitamin D (ng/mL)</td>
<td>11.3 (4.3–30.4)</td>
</tr>
<tr>
<td>Low</td>
<td>99.6</td>
</tr>
<tr>
<td>Normal</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Vitamin E (mg/L) 12.9 (5.1–24.4)
- Low
- Normal
- High

Zinc (µg/L) 61 (28.3–1,641.4)
- Low
- Normal
- High

Low level of vitamin A, D and zinc


### Anemia in Pregnancy

- 73.2% had been given iron supplementation

<table>
<thead>
<tr>
<th>Year</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>37.1</td>
</tr>
<tr>
<td>2018</td>
<td>48.9</td>
</tr>
</tbody>
</table>

Nasional Basic Health Research 2013, 2018

### ANC

- 85% midwives
- 14% Obgyn
- 1% GP

Nasional Basic Health Research 2018
Comprehensive antenatal care

- Measure body weight and height
- Measure blood pressure
- Measure mid-upper arm circumference (MUAC)
- Measure fundal height
- Determine fetal presentation and heart rate
- Screen Tetanus immunization status and give Tetanus Toxoid immunization if needed
- Give iron supplementation
- Laboratory examination (routine and on indication)
- Management
- Counselling

- Since a blood sugar test during pregnancy had not been included as a screening test in maternity guidelines, it has not so far been carried out in all pregnant women. As a result, the actual prevalence of gestational diabetes and the need for intervention is largely unknown.

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Indonesian Clinical Practice Guidelines for Diabetes in Pregnancy

Dyah Purnamasari, Sarwono Waspadji, John MF Adam, Ahmad Rudijanto, Dicky Tahapary

on behalf of the Indonesian Society of Endocrinology (ISE)

The guidelines were developed by the Indonesian Task Force on Reproductive Diseases

- The Indonesian Society of Endocrinology (PERKENI) suggests to do screening tests in all pregnant women at baseline and reevaluate at 26-28 weeks of gestation if the first evaluation is normal.
- PERKENI uses the WHO OGTT method (oral glucose tolerance test using 75 g of anhydrous glucose)

Pocket book: Maternal health services in basic and referral health facilities
Conclusions

- Due to lack of data, more epidemiological studies on GDM in Indonesia need to be conducted to add information to the current evidence.
- National guidelines should be developed to screen gestational diabetes