Maternal Obesity and Gestational Diabetes:

Protocol for Systematic Review

Dr. Maria Regina Torloni, Brazil
WHO Scholarship
Training Course in Reproductive Health Research
WHO 2007

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Obesity: Definition

BMI (Body Mass Index) = Kg / m²

- < 18.5 = underweight
- 18.5-24.9 = normal
- 25-29.9 = overweight
- 30 or + = obese

WHO
In 2005, WHO: there were at least 400 million obese adults in the world.

In 2000, 27% of all American adults were obese:
- compared to data from 1980: 75% increase

In the last 20 years, prevalence of obesity:
- ↑↑ in most developed countries
- ↑ also in many developing nations
BMI Brazilian population: females >20 yrs

Census by the National Bureau of Statistics (IBGE) 2002-2003
Female obesity in Brazil over time

<table>
<thead>
<tr>
<th>Year</th>
<th>Underwgt</th>
<th>Normal</th>
<th>Overwgt</th>
<th>Obese</th>
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<td>1974-5</td>
<td>10,2</td>
<td>53,4</td>
<td>4,1</td>
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<td>2002-3</td>
<td>5,2</td>
<td>41,7</td>
<td>13,1</td>
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45% increase from 1974-5 to 2002-3

Brazilian Census
Pre-pregnancy Obesity and Reproductive Health

↑ Risk for adverse perinatal outcomes:
- miscarriage
- malformations
- macrosomia
- birth injuries
- perinatal death

↑ Risk for adverse maternal outcomes:
- pre-eclampsia
- C-section
- anesthesia problems
- hemorrhage
- puerperal infection
- gestational diabetes
Gestational Diabetes (GDM)

• “Any degree of glucose intolerance with onset or first recognition during pregnancy “. (ADA)

• Prevalence: 1-14%

• Risk factors:
  • age
  • ethnic origin
  • obesity

Modifiable
Impact of GDM

- pre-eclampsia
- macrosomia
- operative delivery
- neonatal morbidity
- perinatal death
- childhood obesity
- type 2 DM

Casey et al. Obstet Gynecol 1997
Schmidt et al. Diabetes Care 2001
Why is this study important?

- cohorts and case-control studies:
  - association between obesity and GDM, but
  - ↑ risk for GDM is variable

- no systematic review on specific risk increase of GDM due to obesity
Justification for the study

Why is it important to QUANTIFY the relation between pre-pregnancy maternal BMI and the risk of GDM?

- better prediction of risk for individual patient (BMI)
- improve clinical surveillance during pregnancy
- pre-pregnancy counseling of obese young women:
  - ↓ weight → ↓ risk GDM → ↓ associated complications
Objectives
Objectives:

- To confirm the association between pre-pregnancy maternal obesity and increased risk of GDM.
- To quantify the degree of change in the risk for GDM according to increase in BMI.
Methods
**Type of studies:**
- Cohort
- Case-control
- Cross-sectional

**Participants:**
- women with pre-pregnancy or 1st trimester BMI
- any age, parity, ethnic origin
- not previously diabetic
- tested for GDM

**Outcome:**
GDM in index pregnancy
- WHO or
- ADA criteria
**Methodology**

- **Search strategy**
  - Experienced WHO librarian
  - MEDLINE
  - EMBASE
  - CINAHL
  - LILACS

- **No language restrictions**

- **Published from 1977 - 2007** (March 20)

- **Additional sources**
  - citations from 1ary studies
  - references of review articles
Search Terms

#1: Obesity OR Adiposity OR Body Weight OR Body Mass Index

#2: Gestational diabetes OR Pregnancy-induced diabetes OR Gestational diabetes mellitus

#1 AND #2
MEDLINE, EMBASE, CINAHL
1698 citations

Duplicates: nnn

Total number of citations: nnnnnn

LILACS nnn citations

Title/Abstract screening (1698)

Excluded: nnn

Full text evaluation: nnn

Excluded: nnn

Included: nnn
Methodology

- Screening & Selection
  - independently by 2 reviewers
  - Title/abstracts

- Full text articles
  - Data extraction form *
  - Quality checklist (score) *

* Created specifically for this Systematic Review
Methodology

- Data Analysis
  - Test heterogeneity ($I^2$)
  - Meta-analyses (if possible)
    - 1 for COHORT
    - 1 for CASE-CONTROL studies
## Time line

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• Lecturers and librarians University of Geneva
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Dr. Metin Gulmezoglu

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Thank you!

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Thank you!