

Screening for gestational diabetes mellitus and associated neonatal outcomes



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Background

It is well established that a diagnosis of gestational diabetes mellitus (GDM) carries an increased risk of adverse maternal and neonatal outcomes. Undiagnosed or untreated GDM carries even further risks for perinatal morbidity.¹ Preterm birth (PTB) (defined as gestational age <37 weeks) and foetal macrosomia (defined as birth weight >4500g) represent two potential outcomes, each with their own sequelae. A diagnosis of GDM is based entirely on a single step oral glucose tolerance test (OGTT) at 24-28 weeks gestational age and is the current gold standard.² The main principle of GDM management is early glycaemic control. For various reasons, some women do not undergo routine screening for GDM during pregnancy.

Aims

To determine if there are any significant correlates between the rate of both PTB and foetal macrosomia in women screened for GDM compared to women unscreened for GDM.

Methods

This is a retrospective cohort study including all women with a singleton pregnancy and a date of confinement within a 3-month period at a public hospital. Women were divided into two groups (screened and unscreened) based on OGTT result. The screened population included women with GDM and women with a normal OGTT result, and the unscreened population included all women who did not undergo OGTT during pregnancy. Women with pre-existing diabetes or those who had an HbA1c result in lieu of OGTT were not included in the study. A diagnosis of GDM was determined using the results of OGTT based on the current clinical guideline. Patient charts were reviewed for neonatal outcomes.

Analysis

- Data were summarized using frequencies and percentages for all categorical variables.
- Pearson's chi-square test was used for statistical analysis of GDM screening status and neonatal outcomes.
- P<0.05 was considered to be statistically significant.

Results

Table 1: Rate of gestational diabetes mellitus (GDM) based on oral glucose tolerance test (OGTT)

OGTT result	Total	Rate (%)
Normal	291	65.39
GDM	121	27.19
Not done	33	7.42
Total	445	100.00

GDM diagnosis with OGTT²

One or more of:

- Fasting BGL \geq 5.1 mmol/L
- 1 hour BGL \geq 10 mmol/L
- 2 hour BGL \geq 8.5 mmol/L

Table 2: Rate of screening for gestational diabetes mellitus (GDM) with oral glucose tolerance test (OGTT)

Status	Total	Rate (%)
Screened (GDM + normal OGTT)	412	92.58
Unscreened	33	7.42
Total	445	100.00

Table 3: Rate of preterm birth (PTB)

GDM screening	PTB	Total	Rate (%)
Yes	35	412	8.49
No	3	33	9.09

Table 4: Rate of foetal macrosomia

GDM screening	Macrosomia	Total	Rate (%)
Yes	7	412	1.70
No	1	33	3.03

No relationship was identified between GDM screening status and the rate of PTB or foetal macrosomia (p>0.05).

Conclusions

Babies born to mothers unscreened for GDM did not have statistically significant rates of PTB or foetal macrosomia when compared to babies of mothers who did undergo screening. However, the incidence of PTB and macrosomia remained higher in the unscreened group, and this result may warrant further investigation. It is important that we continue to counsel women early in their pregnancy regarding GDM and its many implications. Early education and discussion around routine screening may result in diagnosis of otherwise undiagnosed/untreated GDM. Accordingly, appropriate antenatal management may improve neonatal outcomes.

References

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- Maternal and Neonatal Guidelines. Department of Health. Queensland Clinical Guideline: Gestational diabetes mellitus. August 2015.