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Aspects of Gestational Diabetes: Screening System, Maternal and Fetal Complications

## ABSTRACT

The appropriateness of universal screening for gestational diabetes mellitus (GDM) has been strongly questioned, since it does not satisfy ethical principles for screening.

The aims of these studies were to determine the prevalence of GDM, expressed in terms of impaired glucose tolerance (IGT) and diabetes mellitus (DM), to evaluate different screening models using traditional anamnestic risk factors and repeated random B-glucose, to determine whether GDM increases risks for maternal complications such as preeclampsia, and to determine whether IGT during pregnancy, if left untreated, is associated with increased maternal or neonatal morbidity.

Of 4,918 pregnant non-diabetic women attending maternal health care, 73.5% agreed to have a 75 g oral glucose tolerance test (OGTT). GDM was diagnosed in 1.7%, IGT in 1.3% and DM in 0.4%. Traditional risk factor criteria were fulfilled by 15.8%. Prior GDM and a prior macrosomic infant showed the highest association with GDM. No selective or two-step universal screening model would have detected all cases of GDM. A constructed model comprising prior GDM, a prior LGA/macrosomic infant, or a cut-off random B-glucose level of 8 mmol/l as an indication for OGTT reduced the need for OGTT to 7.3% compared to the selective screening model with traditional risk factors. Such a universal two-step screening model had 100% sensitivity for DM, and 44.7% sensitivity for IGT.

The Swedish Medical Birth Register was used to evaluate GDM as risk factor for preeclampsia. GDM occurred in 0.8% and preeclampsia in 2.9% of 430,852 singleton pregnancies. There is an independent and significant association between GDM and preeclampsia. Obesity is a major confounding factor, but cannot explain the total excess risk.

In a prospective population-based case-control study 213 women with untreated IGT during pregnancy were identified. For each case, four controls were recruited from the same delivery department. The analyses confirmed that maternal and fetal morbidity were increased in the cases in terms of cesarean section rate, pre-term delivery, Erb's palsy and admission to NICU. There was a marked, independent increase in the proportion of LGA infants (OR 7.3; 95% CI 4.1-12.7). To determine whether treatment has an effect when IGT is diagnosed during pregnancy, a randomized study is required.

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