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A National Survey of Implementation of Guidelines for Gestational Diabetes Mellitus

Abstract:
A O’Higgins, F Dunne, B Lee, D Smith, MJ Turner
UCD Centre for Human Reproduction, Coombe Women and Infants University Hospital, Cork St, Dublin 8

In 2010, national guidelines for the management of gestational diabetes mellitus (GDM) were published by the Health Service Executive (HSE). In 2012, a questionnaire was distributed to all maternity units to survey implementation of the guidelines. All units screened women for GDM, but used different screening tests with fifteen units (79%) using the recommended 75g GTT, three units (16%) using a 100g GTT and one unit (5%) using a 50g glucose challenge test. Optimal outcomes have not been achieved through multidisciplinary diabetes-obstetric care and this was available in five of the units (47%). The prevalence of GDM varied from 2.2 – 7.4%. Insulin usage varied from 15-56%. Six centres (31%) had not implemented the new guidelines in full because of lack of resources. Despite national endorsement of the guidelines, significant variations remain in implementation. This may lead to differences in clinical outcomes depending on where a woman attends for obstetric care.

Introduction

The World Health Organization defines gestational diabetes mellitus (GDM) as any degree of glucose intolerance with onset or first recognition during pregnancy, GDM results in increased maternal and neonatal morbidity. Adverse maternal outcomes include pre-eclampsia, pregnancy-induced hypertension and caesarean section. Women with GDM have an increased lifetime risk of developing type II diabetes mellitus (T2DM) and cardiovascular disease, independent of T2DM. GDM, in Ireland, complicates up to one in eight pregnancies. There is a lack of consensus about whether screening for GDM should be offered to all women (universal screening) or only to those with risk factors (selective screening). what screening tests should be used, at what gestation, what results should be considered abnormal and, how screening should be managed during and after pregnancy. The optimal screening regime remains controversial, with conflicting recommendations among various expert groups. Currently the American Diabetes Association (ADA), the United States Preventative Services Task Force (USPTF), the National Institute for Health and Clinical Excellence (NICE) and the 2010 Irish guidelines recommend selective screening based on risk factors.

Recent studies, including the landmark Hyperglycaemia and Adverse Pregnancy Outcome (HAPO) study, have highlighted the increased clinical risks associated even with mild maternal hyperglycaemia. The Australasian Carbohydrate Intolerance Study in Pregnant Women (ACHOIS) has shown that screening for and treating mild GDM leads to a reduction in perinatal morbidity. This led to revised international recommendations on screening for GDM including,now clinical recommendations by the International Association of Diabetes and Pregnancy Study Groups (IADPSG). These groups recommend screening with a 75g oral glucose tolerance test. Internationally, adoption of the IADPSG criteria has been considered controversial. A meta-analysis of 75g GTTs by the American College of Obstetricians and Gynecologists recommends a two-step screening process with a 50g glucose challenge test with abnormal results further investigated by a 100g glucose tolerance test. The Royal College of Obstetricians and Gynaecologists of Canada recommends that the OGTT is performed at 24-28 weeks’ gestation, with a GTT of 100g performed at the 32-34 weeks’ gestation. These groups contend that the 75g test is less sensitive than the 50g test, resulting in a larger number diagnoses will have significant impact on the provision and cost of healthcare services while the benefits of the 75g test over the two-step test have not been proven in a randomised control trial.

In Ireland the Health Services Executive (HSE) has established a number of Clinical Care Programmes to provide clinical leadership in the management of the health services. One of the responsibilities of the Programme in Obstetrics and Gynaecology is the development, dissemination and implementation of national guidelines to improve the quality of maternity care by standardising clinical practices. One of the first tasks of the Programme was to establish multidisciplinary Programme Implementation Boards in all the maternity hospitals with responsibility for the implementation of clinical guidelines. The programme, however, does not manage staffing levels or skill mix in the individual maternity units. In August 2010, the HSE published national guidelines for the management of diabetes in pregnancy which included guidelines on screening and management of GDM. In Ireland, revised guidelines on GDM are currently being developed by the national professional bodies, including the Institute of Obstetricians and Gynaecologists. The purpose of this national audit was to examine the current implementation of guidelines for GDM in all 19 maternity units funded by the HSE.

Methods

The maternity services in the Republic of Ireland are highly centralised. In 2011, 74373 women were delivered in 20 maternity units with the number of women delivered per unit ranging from 1242 to 9458. Four of the units delivered over 8000 women. Of the 20 units in the country, 19 are funded by the HSE. In July 2012 a standardised questionnaire was distributed to all 19 units by the Programme Manager (BL) of the Obstetrics and Gynaecology Clinical Care Programme to audit the implementation of the national guideline.

Results

All nineteen maternity units responded to the questionnaire within four months. All units offered selective screening for GDM with three units involving the general practitioner in performing the test. GTT was performed by a phlebotomist in eleven centres and by a midwife in eight centres. Although all units provided some form of screening, there were always carried out in line with the guideline recommendations. Fifteen units (79%) used a 75g GTT, three units (16%) used a 100g GTT and one unit (5%) used a 50g glucose challenge test. If this was abnormal, a 100g GTT. The OGTT was performed at routinely 24-26 weeks gestation in three units (16%), at 26-28 weeks in ten units (53%) and at 24-28 weeks in four units (21%). The prevalence of GDM was reported by sixteen units and varied from 2.2-7.4% of all pregnant women. Insulin usage was reported from five units and varied from 15-56% of GDM patients.

Only nine units (47%) had a multidisciplinary clinic providing a comprehensive service for women with GDM. One of the 19 units had a specialist diabetes on the hospital obstetric floor. One unit had a specialist on the hospital obstetric floor. One unit provided patient information leaflets. Two units (11%) did not have a policy for the treatment of diabetic ketoacidosis and three units (16%) did not have a policy for the management of maternal hypoglycaemia. Two units (11%) did not have a policy for insulin administration around delivery and five units (26%) did not have a policy for insulin administration to cover steroid administration. All units had policies for admission to the neonatal unit and recommended a postnatal OGTT for the mother. Seven of the units (37%) involved the general practitioner in performing the postnatal OGTT.

The number of ultrasound examinations performed routinely in GDM pregnancies varied from one to four. Twelve units (63%) had on site laboratory facilities for HbA1C measurements. Six of the units (32%) had not fully implemented the 2010 national guidelines and cited lack of resources as a barrier. None of the units have the resources to implement universal screening at present.

Discussion

Despite the endorsement of the new national guidelines on GDM by the country’s professional body, the Institute of Obstetricians and Gynaecologists, and by the HSE, there remains significant variation in implementation across the
References


11. The ACHOIS study also showed a reduction in perinatal morbidity in women with mild GDM who were screened and treated at the appropriate time. The publication of the HAPO study led to a lowering of the threshold of serum glucose levels required for a diagnosis of GDM and the development of the IADPSG criteria. These developments, along with improved adherence to criteria for selective screening, have led to an increase in the number of women diagnosed with GDM. 

12. The prevalence of GDM reported from Irish maternity units in this survey varies from 2.27% suggesting that 5-10% of pregnant women potentially remain undiagnosed. Moreover, women with no risk factors who were diagnosed with GDM through universal screening had more adverse pregnancy outcomes than those with a normal OGTT. Applying universal screening to the Irish population, using the IADPSG criteria estimates a prevalence of GDM of about 12%. The prevalence of GDM reported from Irish maternity units in this survey varies from 2.27%, suggesting that 5-10% of pregnant women potentially remain undiagnosed.

13. The ACHOIS randomized controlled trial. Of the 214 units responding, 54% reported a written policy on screening for GDM. 


15. The prevalence of GDM reported from Irish maternity units in this survey varies from 2.27%, suggesting that 5-10% of pregnant women potentially remain undiagnosed.

16. In summary, GDM is a common pregnancy complication in Ireland. Guidelines are in place for screening, and treatment is available at a low cost, requiring only advice about diet and exercise in approximately 70% of cases. There is evidence that treatment is effective in reducing perinatal morbidity. It has been argued that the current guidelines are too broad, and that they should be used in a selective manner, particularly in women over 40 years and BMI over 24.9 kg/m². "Cases of GDM are potentially being missed resulting in a lost opportunity to reduce adverse pregnancy outcomes. If such guidelines are also incompletely implemented then we may be increasing adverse clinical events and missing opportunities where the health of both the woman and her baby can be improved. Although lack of resources is a barrier to implementation, we may need to review our process of care and deliver revised guidelines within the current financial constraints in the health services.

Correspondence: A O'Higgins
ODC Centre for Human Reproduction, Connaught Women and Infants University Hospital, Cork St, Dublin 8.
Email: aohiggins@rcsi.ie

A National Survey of Implementation of Guidelines for Gestational Diabetes Mellitus 2


