A national survey of implementation of guidelines for gestational diabetes mellitus

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A National Survey of Implementation of Guidelines for Gestational Diabetes Mellitus

Abstract:
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Abstract
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 (75%) using the recommended 75g OGGT, three units (16%) using a 100g OGGT and one unit (5%) using a 50g glucose challenge test. Optimal outcome was not achieved through multidisciplinary diabetes-obstetric care and this was available in only 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 national 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 neonatal 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). 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 controversial. At present the ADA recommends a 100g glucose challenge test and the American Congress 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 Academy of Obstetricians and Gynaecologists of Canada recommends the same two-step screening process. These groups contemplate a change to the 75g oral glucose tolerance 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 controlled 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 and efficiency of healthcare 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 the management and screening for GDM. These guidelines were endorsed 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, 74,373 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. It 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 variations in line with the guideline recommendations. Fifteen units (78%) used a 75g OGGT, three units (16%) used a 100g OGGT and one unit (5%) used a 50g glucose challenge test and if this was abnormal, a 100g OGGT. The OGGT 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 an endocrine nurse attached to their hospital once GDM was diagnosed. All units weighed women at their first antenatal visit. Ten units (53%) provided a dietetic service, but only five units (26%) had a dedicated midwife as part of the GDM clinic. Fourteen units (74%) 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 OGGT for the mother. Seven of the units (37%) involved the general practitioner in performing the postnatal OGGT.

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%) have 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 countrys professional body, the Institute of Obstetricians and Gynaecologists, and by the HSE, there remains significant variation in implementation across the
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In a review study of 822 women reported 31% of women fulfilled at least one criterion for selective screening according to local guidelines, however, only 9.6% of women were screened in practice. In a sample of 9,842 women in the west of Ireland a selective screening for GDM, only 55% accepted and attended for screening. Distance from the maternity hospital had a negative impact on screening uptake as did socio-economic status. Thus, variations in patient population further compound variations in hospital practice. The usefulness of selective screening has also been examined through the ATLANTIC DIP (Diabetes In Pregnancy) collaboration by comparing the sensitivity and specificity of known selective screening strategies on a population previously screened by universal screening. When distance from the maternity hospital had a negative impact on screening uptake as did socio-economic status. Thus, variations in patient population further compound variations in hospital practice. The usefulness of selective screening has also been examined through the ATLANTIC DIP (Diabetes In Pregnancy) collaboration by comparing the sensitivity and specificity of known selective screening strategies on a population previously screened by universal screening. When distance from the maternity hospital had a negative impact on screening uptake as did socio-economic status. Thus, variations in patient population further compound variations in hospital practice.

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, requiring the inclusion of women with a BMI > 24.9 kg/m² as a criterion for screening has a specificity of 84% with a sensitivity of only 48% for the diagnosis of GDM. Reducing screening criteria to include those with a BMI > 29.9 kg/m² increases the sensitivity to 80% but reduces the specificity to 44%. 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 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.

Using BMI > 29.9 kg/m² as a criterion for screening has a specificity of 81% with a sensitivity of only 48% for the diagnosis of GDM. Reducing screening criteria to include those with a BMI > 29.9 kg/m² increases the sensitivity to 80% but reduces the specificity to 44%. 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 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.

References


