Gestational Diabetes Guidelines

SUMMARY

Guidelines for testing and diagnosis of hyperglycaemia in pregnancy were released by the Australasian Diabetes in Pregnancy Society in 2014[1]. The guidelines incorporate findings from the Hyperglycemia and Adverse Pregnancy Outcome (HAPO) study, which evaluated glucose levels and pregnancy outcomes in more than 23,000 women.

The guidelines recommend the routine use of the 75g oral glucose tolerance test (OGTT) and distinguish between the categories of diabetes mellitus in pregnancy and gestational diabetes mellitus. The recommendations of the guidelines are summarised below.

It is essential that the pregnancy status item on the request form is completed to ensure the patient's results are compared against the appropriate diagnostic criteria.

INTRODUCTION

Hyperglycaemia in pregnancy is associated with adverse outcomes for mother and baby. Untreated, it is associated with increased perinatal mortality as well as foetal macrosomia, neonatal hypoglycaemia, hyperbilirubinaemia and respiratory distress syndrome[2]. There is also evidence that maternal hyperglycaemia increases the long-term risk of the baby developing obesity and/or diabetes during its lifetime[3].

For the mother, the risk of developing diabetes in the future is increased, with up to 50% developing type 2 diabetes within 20 years. Therefore, the accurate detection and management of hyperglycaemia in pregnancy is important and universal screening for the condition is recommended. ADIPS now classifies hyperglycaemia in pregnancy into 2 groups depending on the degree of glucose elevation. If the hyperglycaemia is more severe, patients are labelled as having diabetes mellitus in pregnancy, while those with lesser elevations of glucose attract the label **gestational diabetes mellitus** (GDM).

Women with **diabetes mellitus in pregnancy** are at higher risk of major pregnancy complications and require urgent attention, including evaluation for other complications of undiagnosed diabetes.

TESTING FOR HYPERGLYCAEMIA IN PREGNANCY

Women with risk factors for hyperglycaemia in pregnancy (Table 1) should undergo testing for hyperglycaemia early in pregnancy. There are no formal recommendations about the test to use in these individuals. The choice will be guided by clinical judgement and local health care policy: Those at higher risk should have an oral glucose tolerance test or HbA1c, while a fasting or random glucose level may be deemed appropriate for those at lesser risk (with further testing if clinically indicated).

It is recommended that **all women** (who are not known to have diabetes) undergo a 75 g oral glucose tolerance test at 24 – 28 weeks gestation.

The 50 g glucose challenge test is no longer recommended because of concerns about the test's sensitivity and specificity.

Table 1: Risk factors for hyperglycaemia in pregnancy

Risk factors for hyperglycaemia in pregnancy
• Previous hyperglycaemia in pregnancy
• Previously elevated blood glucose level
• Age ≥ 40 years
• Ethnicity: Asian, Indian subcontinent, Aboriginal, Torres Strait Islander, Pacific Islander, Maori, Middle Eastern, non-white African
• Family history of DM (1st degree relative with diabetes or a sister with hyperglycaemia in pregnancy)
• Pre-pregnancy BMI > 35 kg/m2
• Previous macrosomia (baby with birth weight > 4500 or > 90th centile)
• Polycystic ovarian syndrome
• Medications: corticosteroids, antipsychotics

DIAGNOSING HYPERGLYCAEMIA IN PREGNANCY

The cut-off concentrations for diagnosing hyperglycaemia in pregnancy have been altered from previous recommendations and now include a cut-off for the 1 hour glucose result (Table 2). There is a continuous relationship between glucose levels and adverse pregnancy outcomes and there are no cut-offs that will perfectly separate 'normal' from 'abnormal'. However, the new cut-offs represent a step forward by being based on risk of pregnancy complications. The new cut-offs for GDM are derived from the HAPO data and represent the glucose levels associated with an odds ratio of 1.75 for adverse outcomes (birth weight > 90th percentile, caesarean section delivery, neonatal hypoglycaemia and cord C-peptide > 90th percentile), compared with median glucose levels. The new cut-offs are recommended by multiple international bodies, including the World Health Organization and have been endorsed locally by the Royal Australian and New Zealand College of Obstetricians and Gynaecologists and the Royal College of Pathologists of Australasia. The Royal Australian College of General Practitioners has not endorsed the new cut-off limits.

Table 2:
Diagnostic criteria for hyperglycaemia in pregnancy

Diabetes mellitus in pregnancy	Gestational diabetes mellitus
1 or more of:	***1 or more of :***
• Fasting plasma glucose >6.9 mmol/L	• Fasting plasma glucose 5.1 – 5.9 mmol/L
• 2 hour plasma glucose >11.0 mmol/L following a 75 g glucose load	• 1 hour post 75 g glucose load >9.9 mmol/L
• A random plasma glucose >11.0 mmol/L in the presence of diabetes symptoms	• 2 hour post 75 g glucose load 8.5 – 11.0 mmol/L

POST-PARTUM FOLLOW-UP

All women with GDM, and some women with diabetes mellitus in pregnancy, should have a 75 g OGTT at 6-12 weeks post-partum. The classification of glycaemic status on these results is based on the standard non-pregnant cutoffs. Women who do not have diabetes diagnosed on this test require ongoing follow-up:

- Women contemplating another pregnancy – annual OGTT
- Women being tested for the possible development of type 2 diabetes – OGTT or HbA1c every 3 years, or more frequently based on clinical circumstances
- Women deemed at low risk – fasting plasma glucose or HbA1c every 1-2 years

IMPACT OF THE NEW GUIDELINES

It is expected that the new criteria will modestly increase the prevalence of GDM. A report from Wollongong found an increase from 9.6 to 13.0% prevalence4; however, not all studies have found an increased prevalence with the new criteria5. A significant advantage of the new criteria is that they appear better able to identify women who will have poor obstetric outcomes[5].

Dorevitch Pathology is supporting the use of the new guidelines and has updated glucose cut-offs to reflect the current best practice for hyperglycaemia in pregnancy. *It is important that pregnant patients have their pregnancy status recorded on request forms for OGTTs to allow the use of GDM decision limits.*

References

1. Nankervis A, McIntyre HD, Moses R, et al. ADIPS consensus guidelines for the testing and diagnosis of gestational diabetes mellitus in Australia. 2013 [updated 2014 Nov; cited 2014 Jun23]. Available from: http://adips.org/downloads/2014ADIPSGDMGuidelinesV18.11.2014_000.pdf
2. Oats JN, Beischer NA. Gestational diabetes. Aust N Z J Obstet Gynaecol 1986; 26: 2-10
3. Silverman BL, Metzger BE, Cho NH, Loeb CA. Impaired glucose tolerance in adolescent offspring of diabetic mothers: relationship to fetal hyperinsulinism. Diabetes Care 1995; 18: 611-617
4. Moses RG, Morris GJ, Petocz P, San Gil F, Garg D. The impact of potential new diagnostic criteria on the prevalence of gestational diabetes mellitus in Australia. Med J Aust 2011; 194: 338-40.
5. McLean M, Moaven LD, Moin N, Bradford JA. Controversy grows over redefinition of gestational diabetes. Med J Aust 2013; 198: 596-7.

FURTHER INFORMATION:

Please feel free to contact one of our Chemical Pathologists if you have any queries.

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