ADS Position Statements

1991

The Diagnosis of Gestational Diabetes

F. Ian R. Martin, Alan Vogue, Richard Dargaville, Christopher Ericksen, Jeremy Oats, Christine Tippett
Royal Melbourne Hospital, and Mercy Hospital for Women and Monash Medical Centre, Victoria.

This position paper has been published: Med J Aust 1991; 155:112.

THE DIAGNOSIS OF GESTATIONAL DIABETES

The term gestational diabetes (GD) is used to define the development of abnormal glucose tolerance during pregnancy in women who did not have diabetes before they became pregnant. In women with unrecognised or untreated GD there is a higher risk of macrosomia and perinatal foetal death. In addition, women who develop GD have a high risk of permanent diabetes which increases with time of follow-up. Thus, there is a need to recognise and manage women with GD both for their baby's health and their own in later life.

Unfortunately the criteria for the diagnosis of GD have not been uniform either in Australia or elsewhere. A recent survey showed that in Australia glucose loads of 50g, 75g and 100g were being used for oral glucose tolerance tests (OGTT) with various criteria to diagnose GD.[1] In 1989 the Australasian Diabetes in Pregnancy Study Group initiated an ad hoc working party in an attempt to establish an agreed definition of GD and to recommend a standard screening procedure for Australia. Opinions and representation were sought widely over 12 months and a detailed report was completed in November 1990.[2]

DIAGNOSTIC CRITERIA FOR GD

The working party recognised that any definition of GD with our present state of knowledge would be both arbitrary and based on OGTTs. The 50g OGTT has been used for over 20 years at the Mercy Hospital in Melbourne and an enormous amount of information has been collected, but this is not in general use either in Australia or elsewhere. A 75g OGTT is most commonly used in Australia and is recommended by the World Health Organisation (WHO),[3] whereas the 100g OGTT is widely used in North America but in relatively few centres in this country. From a review of the extensive literature it was apparent that the different criteria currently used could lead to a diagnosis of GD in from 1% to more than 10% of pregnant women at 26 weeks[1] or more gestation. Results of the 75g OGTT from a European multicentre study and from three clinics in Melbourne show that between 4% and 9% of pregnant women have a plasma glucose level of 8.0 mmol/L or more at two hours. In addition, from larges series reported in the literature the 95th centile of true fasting plasma glucose at this stage of pregnancy is 5.5mmol/L or less. The working party thus combined these criteria realising that the value of 8.0 mmol/L represents a rounding off of the WHO criteria.

SCREENING

The accepted clinical risk factors for GD (family history of diabetes, age over 30 years, obesity, history of foetal death and so on), are not reliable, and universal screening for GD is recommended. As hormonally produced insulin resistance in pregnancy is apparent by the end of the second trimester, testing is best performed between 26 and 30 weeks[1] gestation. It is also relevant that, if any treatment is to modify foetal outcome, early diagnosis of GD is important. Renal glycosuria is common in pregnancy and is hard to evaluate, so the aim is cost-effective plasma glucose screening of all pregnant women. This could be done by an OGTT between 26 and 30 weeks[1] gestation, but a more usual approach is to give a glucose load to all pregnant women at between 26 and 28 weeks in the non-fasting state. The

plasma glucose level is then measured one hour later and women who "screen positive" should have a 75g OGTT before 30 weeks' gestation. Either a 50g or 75g glucose load may be used - the 50g is more widely accepted with a positive cut-off value of 7.8 mmol/L plasma glucose; for the 75g load the cut-of value is 8.0 mmol/L.

These recommendations must not prevent the recognition and testing for diabetes at any stage of pregnancy if suggestive clinical features are present. In particular, women with unrecognised pre-existing diabetes may become pregnant and the presence of glycosuria on routine testing in the first 12 weeks of pregnancy may then be significant. Such women would be regarded as having pre-existing diabetes, not gestational diabetes.

FOLLOW-UP

Long term follow-up of women who have had GD has shown that although nearly all have a normal glucose tolerance soon after delivery, at least 10% have diabetes mellitus five years later and this number continues to increase with longer follow-up. Thus, women with GD are at high risk of developing diabetes mellitus in later life. Advice to maintain normal weight by attention to diet and regular exercise would seem most appropriate in our present state of knowledge; regular glucose tolerance testing should also be considered. The management of GD was not considered by the working party.

The Table summarises the procedure for diagnosis of GD.

Table 1. **Procedure for Diagnosis of Gestational Diabetes (GD)**

Indication	Optimal Gestation Weeks	Test Performed	Diagnostic Criteria - Venous Plasma Glucose Level (mmol/L)
Clinical suspicion of GD	Any time	75 g OGTT (fasting)	0 hours $\geq$5.5 2 hours $\geq$8.0
Screening	26-28	50 g glucose load (non-fasting)	1 hour $\geq$7.8
Confirmation of diagnosis after positive screening test	26-30	75 g glucose load (non-fasting)	1 hour $\geq$8.0
		75 g OGTT (fasting)	0 hours $\geq$5.5 2 hours $\geq$8.0

OGTT = Oral Glucose Tolerance Test

These recommendations imply that the OGTT and plasma glucose estimations are performed according to WHO criteria,[4] and that if there are clinical indications the tests may be repeated later in the pregnancy. The working party recognises the need for further evaluation of glucose tolerance in pregnancy and it is urged that this should be carried out prospectively by larger clinics.

REFERENCES

1. Hunter A. Doer JCG, Miranda V. Diagnosis of gestational diabetes in Australia: a national survey of current practice. Med J. Aust 1990; 153: 290-292.

2. Report of the Ad Hoc Committee to Consider the Criteria for the Diagnosis of Gestational Diabetes in Australia. (The Secretary, Australasian Diabetes in Pregnancy Study Group. 8 Latrobe Street, Melbourne. VIC 3000).

3. World Health Organisation. Diabetes mellitus. Report of WHO study group. Geneva: WHO. 1985. (Technical report series 727).

4. Report of a working party. Diagnosis of abnormal glucose tolerance. With special reference to impaired glucose tolerance and diabetes mellitus. Med J Aust 1982: 2: 284-285.