THE DIABETES ISSUE

GESTATIONAL DIABETES

Practice points

- Hyperglycaemia is a continuous variable much like weight or blood pressure. It should be considered in all pregnant women rather than as a distinct diagnosis based on arbitrary definitions.
- Treatment of even 'mild' GDM can reduce maternal weight gain, infant adiposity, caesarean section rates, pregnancy-induced high blood pressure and pre-eclampsia.
- First-line treatment for GDM is lifestyle modification.
- Reducing high blood sugars (regardless of treatment modality – i.e. diet, metformin or insulin) is important to reduce maternal and fetal risk.
- Both lifestyle modification and metformin halve the risk of progression to type 2 diabetes in women with GD.

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Gestational diabetes carries risks for both the mother and infant.

GESTATIONAL diabetes mellitus (GDM) is the most common medical condition in pregnancy, affecting about one in 12 mothers and babies in Australia.

While some degree of insulin resistance results from normal pregnancy-related hormonal changes, resistance that causes hyperglycaemia during pregnancy can lead to a range of complications, including pre-eclampsia, premature delivery, caesarean section delivery, macrosomia (birthweight >4kg), shoulder dystocia, stillbirth and neonatal death.

Women with GDM have a high risk of developing type 2 diabetes, and their infants also go on to have higher rates of obesity, insulin resistance and diabetes.

RISK FACTORS

Risk factors for GDM include:

- Body mass index >30kg/m^2
- Previous infant >4.5kg
- GDM in a previous pregnancy
- First-degree relative with diabetes
- Ethnic origin with high prevalence of type 2 diabetes (e.g. Aboriginal, Torres Strait Islander, Melanesian, South Asian, Middle Eastern)
- Advanced maternal age
- History of infertility or using assisted reproductive technologies
- Polycystic ovary syndrome

However, up to 50% of women with GDM have no known risk factors.

SCREENING AND DIAGNOSIS

Screening protocols and diagnostic criteria for GDM are controversial, and different practices are employed globally.

Epidemiological data suggest that the relationship between glycaemia and outcomes for mother and child is a linear continuum, and so diagnostic thresholds are, in some respects, arbitrary.

The Australasian Diabetes in Pregnancy Society (ADIPS) recommend universal screening of pregnant women at 24–28 weeks' gestation, with earlier screening in women with high risk of GDM, and endorse the WHO-recommended diagnostic thresholds (see Table 1).

IS TREATMENT NECESSARY?

Although specific treatment thresholds and targets remain controversial, the widely accepted GDM treatment aim is to maintain sugars as near as possible to normal.

Based largely on epidemiological data, ADIPS have recommended the treatment targets listed in Table 1.

Treatment of moderate GDM is associated with lower rates of serious adverse perinatal outcomes and pre-eclampsia as well as lower maternal weight gain, infant birth weight and improved quality of life.

While treatment of milder GDM does not see the same reductions in serious but rare complications like stillbirth and neonatal death, lifestyle modification is beneficial.

These benefits include lowering maternal weight gain, infant birth weight and fat mass, and lower rates of shoulder dystocia, caesarean section, pre-eclampsia and preterm delivery.

METFORMIN vs INSULIN

First-line treatment of GDM comprises self-monitoring of blood glucose and structured diet and lifestyle education.

If blood glucose control remains inadequate, medication is initiated.

Metformin is potentially an attractive treatment option because it is taken orally and increases insulin sensitivity without causing hypoglycaemia or weight gain. However, it crosses the placenta and so traditionally insulin has been the main medication option in the treatment of diabetes in pregnancy.

Recent large-scale studies demonstrate no adverse outcomes in the two-year-old offspring of mothers treated with metformin in pregnancy. While metformin and insulin appear similarly effective, metformin may be associated with less maternal weight gain and lower rates of preterm delivery, caesarean section and neonatal hypoglycaemia.

PREVENTION OF TYPE 2 DIABETES

GDM can be viewed as a warning sign for women at high risk of developing type 2 diabetes (T2D).

Annual glucose screening should form part of routine follow-up for women who have had GDM. More than half of these women will develop T2D in the 5–10 years following their pregnancy. Interventions to delay or prevent onset of T2D should be prioritised.

Both lifestyle interventions and metformin have been shown to halve the rate of progression to type 2 diabetes in women who have had GDM.

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TABLE 1. WHO DIAGNOSTIC CRITERIA & ADIPS SUGGESTED TREATMENT TARGETS FOR GDM

	Diagnostic criteria using a 75g oral glucose tolerance test		Treatment targets as suggested by ADIPS
	GDM	Overt diabetes in pregnancy	
Fasting plasma glucose	5.1–6.9mmol/L	>6.9mmol/L	≤5.0mmol/L
1-hour plasma glucose	≥10.0mmol/L	-	≤7.4mmol/L
2-hour plasma glucose	8.5–11.0mmol/L	>11.0mmol/L	≤6.7mmol/L

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