

Clinical Biochemistry Department
Endocrinology Department

**ORAL GLUCOSE TOLERANCE TEST
(OBSTETRIC PATIENTS)**

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INTRODUCTION

Following a standard dose of glucose, plasma glucose is monitored at regular intervals in order to measure glucose tolerance under defined conditions. The results may be influenced by a number of factors and it is important that patient preparation instructions are carefully followed.

INDICATIONS

Testing for gestational diabetes is usually done between 24 and 28 weeks of gestation.

Pregnant women who are low risk do not usually require screening by GTT for Gestational Diabetes. Low risk patients are <25 years of age, normal body weight, have no family history of diabetes, have no history of abnormal glucose and no history of poor obstetric outcome.

Individuals at high risk for gestational diabetes include older women, those with previous history of glucose intolerance, those with a history of large for gestational age babies, women from certain high-risk ethnic groups, and any pregnant woman who has elevated fasting, or casual, blood glucose levels. It may be appropriate to screen pregnant women belonging to high-risk populations during the first trimester of pregnancy in order to detect previously undiagnosed diabetes mellitus.

PATIENT PREPARATION

Various drugs can influence glucose tolerance and should be stopped for a period (ideally about 5 times the half-life of the drug) before glucose tolerance testing. Drugs which decrease glucose tolerance include corticosteroids, oral contraceptives, thiazides and sympathomimetic agents. Recent infection may also impair glucose tolerance. The presence of factors that influence interpretation of the results must be recorded (e.g. medications, inactivity, infection, etc.).

This test should be performed in the morning after at least three days of unrestricted diet (greater than 150 g of carbohydrate daily i.e. normal diet) and usual physical activity. Recent evidence suggests that a reasonable (30–50g) carbohydrate containing meal should be consumed on the evening before the test. The test should be preceded by an overnight fast of **10–16 hours**, during which water may be drunk. Smoking is not permitted during the test.

PROTOCOL

1. Take fasting blood sample for glucose (minimum 1ml into fluoride tube – grey top).
2. Give the glucose load orally (see box below) over a period of 5 minutes. Care should be taken to avoid vomiting – this will invalidate the test. Timing of the test is from the beginning of the drink.

Glucose Load – given as Polycal solution

Adult dose is 113mL (140g) of Polycal = 75g glucose

Measure 113 mL Polycal into paper measuring cup and make up to 200mL with water, mix well and give to patient. Once drunk (over 5 min), refill the measuring cup to the 113 mL line and give to the patient to drink.

3. Take a further blood sample for glucose (minimum 1ml into fluoride tube – grey top) at 60 minutes and 120 minutes after glucose ingestion.

Label the samples with patient details and actual time taken. When test is complete, send request form and samples to the Clinical Biochemistry Department as soon as possible. Results will be available the same day.

ABANDONED TESTS

When the procedure cannot be completed due to nausea etc. efforts will be made to take an additional sample for HbA1c which can help guide the diagnosis of Gestational Diabetes Mellitus (GDM). A single sample can be used for FBC and HbA1c.

INTERPRETATION – IADPSG DIAGNOSTIC VALUES

[International association of diabetes in pregnancy study group www.iadpsg.org]

Pregnant women who meet the IADPSG criteria are classified as having GDM, whilst those who meet the WHO criteria for diabetes mellitus are classified as having overt diabetes in pregnancy.

WHO criteria - apply to **venous, plasma** only.

Overt diabetes mellitus:	Fasting value	≥7.0 mmol/L
	2hr after glucose load	≥11.1 mmol/L

Local management guidelines now classify patients as having gestational diabetes based on IADPSG criteria:

IADPSG criteria - apply to **venous, plasma** only.

Gestational Diabetes mellitus:	Fasting value	≥5.1 mmol/L
	1hr after glucose load	≥10 mmol/L
	2hr after glucose load	≥8.5

After the pregnancy ends, the woman should be re-classified as having either diabetes mellitus, or IGT, or normal glucose tolerance based on the results of a GTT six weeks or more after delivery. It should be emphasized that such women, regardless of the 6-week post-pregnancy result, are at increased risk of subsequently developing diabetes.

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