

GLUCOSE TOLERANCE TEST – PAEDIATRIC PROTOCOL

INTRODUCTION

This test is used for the diagnosis of suspected diabetes mellitus (type 1 and type 2). Plasma glucose levels are measured in response to a standard glucose load. Fasting samples are also collected for insulin, lipids, HbA1c and islet cell & GAD antibodies to be measured if indicated by glucose results.

CONTRAINDICATIONS AND SIDE EFFECTS

This test should not be performed if the child's glucose is: fasting ≥ 7 mmol/L, random > 11 mmol/L. Nausea may be a side-effect following ingestion of glucose solution and, rarely, patients may vomit.

PATIENT PREPARATION

The child should have fasted overnight (from 10.00pm) with only water to drink. The test is performed in the morning. Prior to the test the child should have been on at least three days of unrestricted diet with an adequate carbohydrate intake. Various drugs (e.g. corticosteroids) and recent infection can influence glucose tolerance. The presence of factors that may influence interpretation of the results of the test must be recorded (e.g. medications, inactivity, infection, etc.).

PRECAUTIONS AND PATIENT CARE DURING TEST

The test should not be performed on seriously ill children. Polycal is contra-indicated in children under 3 years of age and should not be used. Reactive hypoglycaemia is a possibility and patients should be carefully supervised throughout the test.

PROTOCOL

Please use separate pro-forma to record samples taken and timing.

1. Apply analgesic spray or cream to a suitable cannulation site and wait at least 45 minutes before cannulation.
2. Cannulate the child and wait 30 minutes before taking baseline (time 0) samples.
3. Take baseline (time 0) blood samples as per pro-forma. These samples **must** be taken to Clinical Biochemistry immediately.
4. Administer the glucose as indicated below

Glucose – given as Polycal solution (DO NOT GIVE MORE THAN 113mL / 140g)

If child is over 42.8 kg then give adult dose = 113mL of Polycal

Otherwise:

Polycal by volume (mL) = child's weight (kg) x 2.64 (up to 113mL)

Polycal by weight (g) = child's weight (kg) x 3.27 (up to 140g)

Make the total volume fluid up to 200 mL with water and give a further 113mL* water to be drunk within a 5 minute period. *adjust volumes of water down depending on amount polycal given.*

5. Continue to take samples as per pro-forma (30, 60, 90 and 120 minutes).

INTERPRETATION

<i>Applies to venous plasma only</i>	Fasting value	2hr after glucose load
Diabetes mellitus:	≥ 7.0 mmol/l	≥ 11.1 mmol/l
Impaired glucose tolerance:	< 7.0 mmol/l	7.8 – 11.1 mmol/l

REFERENCES

1. Maidstone District General Hospital Protocol

CONTACTS

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