72-HOUR FAST FOR HYPOGLYCAEMIA

General notes

- Sample labelling is critical. Please label bottles carefully, fully and accurately, date and time etc.
- A careful record should be kept <u>in the notes</u> of what symptoms occurred, their timing, and exactly what was done.
- Allow the patient to drink water and calorie-free beverages.
- Patients should remain active around the ward but under nursing observation, and should not be in a single room.
- Intravenous glucose should be available should fits/unconsciousness occur.

Day	Time	Action	
0	evening	Admit to ward Clerk by doctor	
1	08:00	Breakfast	
1	09:00	Check BMI (<u>measure</u> weight and height) Insertion of IV cannula Start fast Water/non-caloric beverages only Take venous blood	

DETAILS OF BLOOD SAMPLING

Day	Time	Action	
1 2 3	09:00	Take venous blood on days 1,2 & 3	
1 2 3	15:00	Take venous blood on days 1,2 & 3	
1 2 3	21:00	Take venous blood on days 1,2 & 3	
1 2 3	03:00	Take venous blood on days 1,2 & 3	
4	09:00	End of fast Take venous blood	beta- hydroxybutyrate
4	09:00	If no symptoms during fasting: 15 min <i>supervised</i> exercise such as climbing stairs. At the end of exercise, take venous blood	

- Basally, venous blood is to be taken for glucose, insulin, C-peptide and a sulphonylurea level and sent to Chemical Pathology.
- Thereafter, collect venous blood for glucose, insulin, and C-peptide; blood to be sent for immediate analysis for glucose, other samples stored by Chemical Pathology.
- Check for beta-hydroxybutyrate at the end of the fast (before feeding) or if the test is terminated.
- If at any time the patient has symptoms suggesting hypoglycaemia, check venous blood glucose. Please make sure this is transferred to the lab and analysed urgently. If <2.2 mmol/L, send second sample to confirm and then stop fast. Please make sure this is transferred to the lab and analysed urgently. During this period, the patient should be supervised for symptoms/signs of severe hypoglycaemia. If not confirmed, continue fast.
- If the clinical state of the patient ever causes concern, such as stupor or coma, or seriously abnormal behaviour, check capillary sample: if <2.2 mmol/L, take a venous blood sample and reverse with i.v. glucose.
- At end of test re-feed patient and take venous blood sample 2 hrs later for glucose.

INTERPRETATION

- True hypoglycaemia must be demonstrated (venous blood glucose below 2.2 mmol/l), in order to interpret insulin results or consider insulinoma.
- If hypoglycaemia with raised insulin but low C-peptide, consider self administration of insulin.
- If hypoglycaemia with raised insulin, and raised C-peptide, ensure sulphonylurea screen is negative.
- In the presence of hypoglycaemia:
- Insulin >3 mU/l (20.8 pmol/l) and C-peptide >200 pmol/l consistent with

insulinoma (also review ratio of C-peptide to insulin).

- Insulin 3-6 mU/l (20.8-41.7 pmol/l); C-peptide 100-300 pmol/l equivocal result.
- Insulin <3 mU/l (<20.8 pmol/l); C-peptide <75 pmol/l is appropriate; seek alternative cause of hypoglycaemia.

• Ketones should be suppressed with insulinoma even though patient is fasting because of the excess insulin (measure urinary ketones or plasma beta-hydroxybutyrate).

SENSITIVITY AND SPECIFICITY

By 24 hrs, 66% insulinomas develop hypoglycaemia and by 48 hrs, >95% insulinomas can be diagnosed. After 72 hrs fast plus exercise, if no hypoglycaemia, insulinoma is very unlikely. In 5% of patients with proven insulinoma, hypoglycaemia is only seen post-prandially.