

Management of the diabetic patient undergoing operation

Pre-Operative Assessment

A full history and examination should be taken from the patient pre-operatively with particular attention paid to cardiovascular, cerebrovascular, renal and neuropathic complications.

An assessment of diabetic control should be made. Poor control is suggested by at least one of the following:

- ◆ Recent admission to hospital with poor diabetic control.
- ◆ Recurrent hypoglycaemia.
- ◆ Persistently elevated home blood sugars greater than 10mmol/L, or recent HbA₁C greater than 10%.

Baseline investigations should usually include full blood count, urea and electrolytes, glucose and ECG (plus chest X-ray where appropriate).

Peri-Operative Management For all patients

Ensure for all patients

- ◆ They should not have eaten for 6 hours prior to surgery.
- ◆ On operative day they should receive clear fluids until 4 hours pre-op

Minor Surgery - for diabetic patients not taking insulin

Well controlled

Omit morning medication, otherwise treat as non-diabetic.

Poorly controlled

- ◆ Consider whether improvement in control is possible and whether surgery should be delayed.
- ◆ If surgery is required the patient should be admitted the day before the operation. The morning medication should be discontinued and an IV sliding scale set up as for an insulin-dependent diabetic.

Check blood glucose level. A pre-op capillary blood glucose is taken and if > 13 mmol/l, this should be reduced prior to operation

Recommence diet and oral fluids as soon as possible.

Minor Surgery - for patients taking insulin

This management will need to be assessed on an individual basis by surgeon and anaesthetist. In many cases, the patient's morning meal will be omitted and their morning dose of insulin will need to be halved

It is important to check BG hourly peri-operatively

Major Surgery - for diabetic patients not taking insulin

Operative day

Step 1 Omit morning medication.

Step 2 Commence intravenous soluble insulin infusion (eg Actrapid) at 7-9am. Prepare as a 1 unit per ml solution in 0.9% sodium chloride and adjust, via a separate pump, according to the sliding-scale below. This should be started at the same time as IV fluid (**Step 3**)

Serum Glucose (mmol/L)	Insulin units/hour	Additional Action
Less than 4	0.5	Alert doctor if unwell or drowsy.
4.0 - 9.9	1.5	
10.0 - 14.0	2.0	
14.1 - 22.0	4.0	
Greater than 22.0	6.0	Alert doctor

Step 3 Start infusion of 500ml 10% dextrose + 10mmol potassium at a rate of 100ml/hr (use the pre-mixed bag available). This should be started at same time as the insulin infusion (This rate can be reduced to 25ml/hour for patients with chronic renal failure)

Step 4 On induction: Check blood glucose level. A pre-op capillary blood glucose is taken and if > 13 mmol/l, this should be reduced prior to operation

Step 5 During peri-operative period check blood glucose hourly, and electrolytes 4-8 hourly.

Step 6 Post-operative: On return to ward, the patients IV fluid and insulin will need to be continued. Post-op additional saline may be required. Dextrose infusion rate can be halved and additional saline given. Anaesthetic advice on fluid replacement should be stated.

Step 7 Replace IV fluids according to clinical need / level of hydration and serum electrolytes. Replace Potassium according to serum potassium levels (continue to monitor electrolytes four-hourly. Be aware of hyponatraemia with excessive dextrose infusion.

When tolerating diet and fluid

All tablet controlled diabetic patients should restart oral agents with their first meal.

If patients are on a sliding scale, the insulin should continue for 30 minutes following ingestion of the first meal. IV fluids can be discontinued

Major Surgery - Diabetic patients taking insulin

Day Prior to Surgery

Step 1 Admit for assessment and control.

Step 2 Patient should be placed first on the theatre list.

Step 3 Reduce the night/evening dose of any intermediate-acting or twice-daily mixed insulin regimen by 50%.

Step 4 Keep other insulin regimens as normal on the day prior to surgery.

Operative day treatment

FOLLOW STEPS 1-7 FOR 'MAJOR SURGERY- DIABETIC PATIENTS NOT TAKING INSULIN- Operative day' (SEE ABOVE)

When tolerating diet and fluid

Step 1 Prior to the first meal, give the patients normal s/c insulin dose. If the patients regular dose is not yet due then give 4-6 units of soluble insulin e.g. Actrapid or Humulin S subcutaneously and normal insulin doses thereafter

Step 2 Ensure the IV insulin infusion continues until 30 minutes after the first meal.

Step 3 Check blood glucose 1 hour after food and four-hourly thereafter