Insulin

Deliberate self-poisoning can cause profound, prolonged and life-threatening hypoglycaemia.

Toxicity / Risk Assessment

- There is no established toxic dose in diabetic patients
- Any exposure is potentially toxic in non-diabetic patients
- Duration of hypoglycaemia is difficult to predict; varies with type of insulin, dose and manner of administration
- Hypoglycaemia can potentially last for days
- Ingestion of insulin does not cause hypoglycaemia

Clinical features:

- *Clinical response may be blunted in patients with long-standing diabetes*
- CNS: headache, anxiety, confusion, agitation, coma, seizures, death if untreated
- Autonomic: diaphoresis, tachycardia (palpitations), nausea, tremor
- Insulin excess can also lead to hypokalaemia

Investigations:

- If euglycaemic: BSL hourly for 4 hours then q2-4 hourly
- If hypoglycaemic: BSL every 30 minutes until normal for 4 hours then hourly for 4 hours, then every 4 hours
- Monitor for hypo K^+, hypo Mg^{2+} and hypophosphatemia

Management

Hypoglycaemia: IV dextrose should only be administered if symptomatic or confirmed hypoglycaemia

Glucagon is not indicated for the hospital management of hypoglycaemia.

Asymptomatic and BSL > 4.0 mmol/L - Feed complex carbohydrates

Symptomatic or BSL < 4.0 mmol/L

- Adult - 50 mL bolus of 50% dextrose IV. Repeat if no improvement.
- Child – 2 mL/kg bolus of 10% dextrose IV. Repeat if no improvement.

Maintaining euglycaemia after initial control:

- ***Feed complex carbohydrates***.
- The concentration of dextrose (5%, 10% or 50%) for IV infusion and the rate depends on the glucose requirements to maintain serum glucose between 5.5 – 11.0 mmol/L.
- Adult – Commence a 10% dextrose infusion at 100 mL/hour
- Child – Commence a 10% dextrose infusion at 5mL/kg/hour

If hypoglycaemia recurs despite above infusion, will need higher dextrose concentrations via a central line.

Do NOT cease dextrose infusion at night.

Hypokalaemia is due to redistribution: maintain [K+] 3.0-4.0 mmol/L to avoid rebound hyperkalemia

Disposition:

- Observe euglycaemic patients for at least 6 hours for short acting, 12 hours for longer acting insulins
- Any patients requiring IV dextrose needs observation for at least 4 hours post IV dextrose administration
- Do NOT discharge any patient at night