INSULIN (ACTRAPID) HYPERKALAEMIA TERM INFANTS

≥ 35 weeks gestation

DEFINITION
Serum Potassium (K⁺) ≥ 7 mmol/l obtained from venous or arterial line.

The management of hyperkalaemia in term infants is different from preterm infants (see Hyperkalaemia protocol for PRETERM INFANTS < 35 weeks gestation). Term infants are more prone to hypoglycaemia when using insulin + dextrose infusions, but tolerate Polystyrene Sulphonate Resins (Calcium Resonium, Sodium Resonium A).

ECG changes, such as peaked T waves and arrhythmias indicate severe hyperkalaemia and require urgent treatment. The most common complications are bradycardia and ventricular tachycardia which can be life-threatening.

RISK FACTORS FOR TERM INFANTS

1. Perinatal asphyxia
2. Hypotension
3. Oliguria - urine output <0.5-1ml/kg/hr
4. Rising creatinine levels - > 40mcg/l/24hrs
5. Sepsis
6. Severe bilateral congenital renal anomalies, such as posterior urethral valves, bilateral dysplastic kidneys, severe bilateral hydronephrosis

PREVENTION

1. Avoid potassium in all infusions in the first day of life, except for babies on TPN! Potassium can be given only if hypokalaemia confirmed and adequate renal function with good urine output present.

2. If serum potassium level is > 6 mmol/l without ECG changes, monitor serum potassium 2 hourly using blood gas analyser. Babies in whom regular blood samples are being taken should have an arterial line.

MONITORING

1. Blood glucose level for hyperglycaemia and hypoglycaemia.
2. Blood sugar estimation initially ½ -1 hourly until stable and when weaning.
3. Cardio-respiratory monitoring.
INSULIN HYPERKALAEMIA ≥35 WEEKS GESTATION INFANT cont

TREATMENT

1. **Abnormal ECG Should be Treated Immediately** with 10% calcium gluconate 0.5ml/kg IV infusion

2. **12.5% dextrose IV infusion + Insulin continuous infusion**
   - 12.5%dextrose 4ml/kg/hr (0.4g/kg/hr) plus
   - Start Insulin >12 mmol/l serum glucose level at 0.1 unit/kg/hr
   
   *Insulin + Dextrose infusion can be ordered at higher strength by consultants only as the insulin effect is dose related.*

3. Remove potassium from IV infusion.

4. Consider exchange transfusion or peritoneal dialysis as a last resort.

5. **Polystyrene Sulphonate Resins (Calcium Resonium, Sodium Resonium A)**
   - 0.5g/kg 6hourly as a retention enema.
   - Refer to Polystyrene Sulphonate Resins protocol!

6. **Sodium Bicarbonate**
   - NOT recommended - underlying causes of acidosis should be treated.

7. **Salbutamol**
   - NOT recommended as there is a lack of data on safety and efficacy.

REFERENCES