

Paediatric Diabetic Ketoacidosis

PATIENT NAME

DATE

British Society for Paediatric Endocrinology and Diabetes

Diagnosis of DKA = blood glucose >11mmol/L and pH<7.3 bicarb <15 mEq/L
Finger prick blood ketone > 3 mmol/L
Use guideline if >5% dehydrated, vomiting, drowsy or clinically acidotic

MAJOR RISK = CEREBRAL OEDEMA
Aim for slow metabolic correction over 48 hrs

Emergency Management

- 1) Airway: if coma, insert airway. NGT if coma of vomiting
- 2) Breathing: give 100% oxygen by face mask
- 3) Circulation: Insert IV cannula, take blood samples
- 4) If shocked, 10ml/kg 0.9% saline bolus, up to 30ml/kg
- 5) Confirm diagnosis of DKA
- 6) Investigations: blood glucose, plasma Na, Cl, Ur, Cr

MONITORING:

- 1) Strict fluid balance (input / output)
- 2) Hourly BP and vital signs
- 3) Hourly blood glucose
- 4) Blood ketones (1-2 hrly if available)
- 5) Acid base, plasma Na, K, Cl (4 hrly)
- 6) 12 hrly weight
- 7) HDU /PICU if coma, pH<7.1, <1 yr

FLUID THERAPY

| Weight | Fluid Maintenance |
|-------------|-------------------|
| 0 - 12.9 kg | 80 ml/kg/24 hrs |
| 13 -19.9 kg | 65 ml/kg/24 hrs |
| 20 -34.9 kg | 55 ml/kg/24 hrs |
| 35 -59.9 kg | 45 ml/kg/24 hrs |
| > 60 kg | 35 ml/kg/24 hrs |

Neonates may need 100ml/kg/day

Enter patient weight (kg)

Degree dehydration (%)

Total resus volume (ml)

Use 0.9% saline for 1st 12 hrs

| | |
|---|--------------------|
| Maintenance rate (ml/kg/day) | TOTAL ML PER DAY * |
| Maintenance volume over 48hrs (ml) | TOTAL (ML/KG/DAY) |
| Rehydration volume over 48hrs (ml) | TOTAL (ML/HOUR) |
| Total fluid /48hrs (ml) minus resus fluid | TOTAL (ML/KG/HR) |

*includes subtracting resus fluid given from total fluid requirement over 48 hrs

INSULIN (Only start infusion after 1st hr of resus fluid)

Add 50 units insulin to 50ml solution of 0.9% saline (concentration 1 unit/ml, 0.1u/kg/hr = 0.1ml/kg/hr)

Required insulin infusion rate (units/kg/hr)

DO NOT REDUCE insulin rate until ketoacidosis improves
If glucose falls (<14 mmol/L) add Glucose to IVI fluids.

Corrected Na (failure to increase = risk cerebral oedema)

Sample1 Sample2

Glucose (mmol/L)

Plasma Na (mmol/L)

Corrected Na

Simplified Corrected Na formula
= plasma Na (0.3x (Glu - 5.5))

Corrected Na should rise with therapy (0.5-1mmol/hr)

If associated with falling GCS: consider osmotherapy

- 1) 5ml/kg of 2.7% saline or
- 2) 0.5-1 gramm/kg mannitol
- 3) Consider CT head
- 4) 2.7% saline can be repeated (even if Na is high)

See www.strs.nhs.uk for information

GLUCOSE CALCULATOR

Size Infusion bag(ml) % Glucose at Start % Glucose needed

