Diabetic Ketoacidosis (DKA) and Hyperosmolar Hyperglycaemic State (HHS) – Emergency Flowchart

Child with DKA diagnosis
(BGL >11 mmol/L, pH <7.3 +/- HCO3 <15 mmol/L & moderate or large ketonuria/ketonaemia)

- Seek urgent specialist advice for child with pump, stop pump.

Assessment
Including signs of dehydration (see Box A) and circulatory or neurological compromise.
Additional investigations: USE, HbA1C, if a new diagnosis – TFT, coeliac screen

Mild
pH 7.2-7.3 or HCO3>15 mmol/L
No/mild dehydration

- Oral fluids
- Insulin: SC insulin on Paediatric/Endocrine advice
- Monitor:
  - Hourly: HR, RR, street fluid balance, and neuro obs
  - 4-hourly: temperature & BP
  - standard BGL

Moderate to severe
pH <7.2 +/- HCO3 <10 mmol/L

- Seek paediatric endocrine/critical care advice:
  • age < 5 years
  • electrolyte abnormalities
  • IV Rehydration:
    • Calculate IV fluid requirements
    • Aim to correct over 48-72 hours
    • Use 1 L Sodium Chloride 0.9% + 40 mmol Potassium Chloride (pre-mixed)
    • Ice to suck otherwise nil by mouth
    • Consider NG tube (if gastric paraisis)

- Insulin:
  • After 1 hour of IV fluids commence low-dose continuous insulin infusion at 0.1 units/kg/hr

- Monitor:
  • Continuous: ECG (assess 3 waves)
  • Hourly: vital signs, BGL, blood ketones, street fluid balance and neuro obs
  • 2-4-hourly: temperature, VBG, FBC, formal glucose and USE

Clinical & biochemical improvement?

Responding to treatment?

- Yes
- No

- Refer to appropriate inpatient service
- Refer to Ongoing Management DKA Flowchart
- Refer to Paediatric Critical Care (onsite or via RSQ)

Box A: Hydration assessment in DKA
Volume deficit is often overestimated in DKA which can result in over resuscitation with IV fluids.
Specific considerations in DKA include:
  • Lactic acidosis secondary to acidosis can exacerbate dryness of oral mucosa
  • Vasovagal collapse from acidosis may contribute to the appearance of cool extremities
  • Catabolism due to insulin deficiency may result in weight loss

Box B: Signs and symptoms of cerebral oedema
  • headache
  • inappropriate slowing of heart rate
  • recurrence of vomiting
  • change in neurological status (restlessness, irritability, increased drowsiness, incontinence)
  • specific neurological signs
  • rising BP
  • decreased oxygen saturation

- Seek senior Paediatric/Endocrine advice as per local practice.
- Seek urgent Paediatric Endocrine/Critical Care advice (onsite or via Retrieval Services Queensland (RSQ) on 1300 799 527)

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