DKA Ongoing management in children – Flowchart

Seek Paediatric Endocrine/Critical Care advice (onsite or via Retrieval Services Queensland (RSQ)) if electrolyte abnormalities are identified.

### Ongoing management of child with moderate to severe DKA

<table>
<thead>
<tr>
<th>BGL</th>
<th>Fluids IV</th>
<th>Insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls at rate of greater than 5 mmol/L/hr</td>
<td>Only add glucose if BGL is less than or equal to 15 mmol/L (see below)</td>
<td>DO NOT reduce rate</td>
</tr>
<tr>
<td>Falls to less than or equal to 15 mmol/L</td>
<td>Prepare an IV fluid bag of Sodium Chloride 0.9% with Glucose 5% and Potassium Chloride 40mmol/L (See Appendix 2 of CHD Intravenous Fluid Guidelines: Paediatric and Neonates® (CHD only) to prevent hypoglycaemia.</td>
<td>DO NOT reduce rate</td>
</tr>
<tr>
<td>Issues maintaining 5-10 mmol/L despite running a solution containing Glucose 5%</td>
<td>Prepare an IV fluid bag of Sodium Chloride 0.9% with Glucose 5% and Potassium Chloride 40mmol/L (See Appendix 2 of CHD Intravenous Fluid Guidelines: Paediatric and Neonates® (CHD only) to prevent hypoglycaemia.</td>
<td>Only reduce the rate if BGL remains below the target range despite this glucose supplementation.</td>
</tr>
<tr>
<td>Falls below 4 mmol/L</td>
<td>Administer a bolus of 2 mL/kg of Glucose 10% over 3 minutes. Ensure fluid running has Glucose 5% and consider Glucose 10%</td>
<td>Temporarily reduce by 50% and seek urgent specialist advice.</td>
</tr>
</tbody>
</table>

### Management of possible clinical scenarios

- **Resolution of acidosis (pH>7.3, HCO3>15 mmol/L)**
- **Acidosis not improving after 2 hours or BGL rises**
- **Suspected cerebral oedema**

#### Clinical improvement and no vomiting
- Offer oral fluids
- Continue insulin infusion

#### Tolerating oral fluids
- Commence SC insulin on specialist advice
- Continue insulin infusion for 1 hour after administration of SC insulin
- Cease insulin infusion on specialist advice

#### Re-evaluate
- IV fluid calculations
- Insulin delivery system and dose
- Need for additional fluid resuscitation
- Consider:
  - sepsis
  - hyperkalaemic acidosis
  - drug overdose (such as salicylate or recreational drugs)

### Biochemical red flags:
- Rapid fall in the calculated osmolality with treatment (usually serum sodium rises as the glucose falls resulting in a relatively stable calculated osmolality)
- Development of hypernatraemia during therapy or rapidly falling sodium
- Initial sodium in the hypernatraemic range

#### BOX A: When to suspect cerebral oedema

- Signs and symptoms:
  - headache
  - inappropriate slowing of heart rate
  - recurrence of vomiting
  - change in neurological status (restlessness, irritability, increased drowsiness, incontinence)
  - specific neurological signs
  - rising ICP
  - decreased oxygen saturation

- Consider seeking senior paediatric/endocrine advice as per local practice.

- Seek senior paediatric/endocrine advice as per local practice.

- Seek urgent paediatric/critical care/endocrine advice as per local practice.

#### Refer to Paediatric Critical Care (onsite or via RSQ)

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