Management of neonatal hypoglycaemia (baby symptomatic or BGL < 1.5 mmol/L)

Initial management of hypoglycaemia in newborn baby–symptomatic or BGL < 1.5 mmol/L (first 48 hours of life)

- Do not delay treatment
- Urgent medical review/consider neonatologist consultation
- Confirm BGL in blood gas machine, PoC analyser or laboratory
- Admit to neonatal unit–contact RSQ as required
- If indicated collect diagnostic samples for hypoglycaemia screen

Urgent treatment

- Give glucagon–200 microgram/kg IV
  - If IV access delayed (>10 minutes) give IM or subcut
- Give glucose 10%–1–2 mL/kg bolus IV, then repeat BGL after 30 minutes and if required, further 1 mL/kg bolus IV and monitor for rebound hypoglycaemia
- Commence glucose 10% at 60 mL/kg/day via IV infusion to give glucose at 4.2 mg/kg/min

As required

- Increase IV glucose rate in 20 mL/kg/day increments (e.g. 60 to 80 mL/kg/day)
  - Risk of fluid overload—100 mL/kg/day maximum on day 1 of life (monitor serum sodium levels)
- Increase IV glucose concentration to 12% or step-wise to higher concentration
  - If > 12% glucose administer by UVC/CVL
- If GIR > 8 mg/kg/min in 1st 24 hours or baby hyponatraemic consider glucagon infusion

- BGL
  - Repeat 30 minutes after:
    - Commencing or any changes to glucose concentration
    - Medication administration (for hypoglycaemia)
  - Repeat hourly until ≥ 3 mmol/L then, 4–6 hourly
- Feeds—continue if not contraindicated

Glucose mg/kg/minute

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<thead>
<tr>
<th>%</th>
<th>mL/kg/day</th>
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<tbody>
<tr>
<td>10%</td>
<td>4.2</td>
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<tr>
<td>12%</td>
<td>5.6</td>
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<tr>
<td>14%</td>
<td>7.8</td>
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<tr>
<td>16%</td>
<td>8.9</td>
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<td>18%</td>
<td>12.5</td>
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<td>20%</td>
<td>13.9</td>
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Diagnostic samples

Blood–during hypoglycaemic episode

- Blood gas–including electrolytes, glucose, haemoglobin, haematocrit and lactate

Priority 1: Insulin, Cortisol, Acyl-carnitine profile

Priority 2: Growth hormone

Priority 3: Plasma amino acids, Ammonium, Pyruvate, Beta hydroxybutyrate

Urine–post-hypoglycaemic episode

Metabolic screen

Gradually reduce IV therapy while full enteral feeds being established
- When baby is on full oral feeds wean glucagon (if used) and then hydrocortisone (if used)
- Check BGL before feeds
- Discontinue monitoring:
  - When IV glucose and glucagon, and hydrocortisone (if used) ceased and
  - Prior to 3 consecutive feeds

BGL ≥ 2.6 mmol/L for > 12 hours?

Yes

No

BGL blood glucose level, CVL central venous line, GIR glucose infusion rate, IM intramuscular, IV intravenous, NNP neonatal nurse practitioner, PoC point of care, RSQ Retrieval Services Queensland, subcut subcutaneous, UVC umbilical venous catheter, > greater than, < less than, ≥ greater than or equal to