POSTNATAL WARD MANAGEMENT OF TERM INFANTS AT RISK OF HYPOGLYCAEMIA

Educational Notes
• It is normal for blood glucose levels to fall within the first 2 to 3 hours of life.
• There is no universally agreed definition of hypoglycaemia in the newborn.
• Management guidelines are based on the premise in the prevention or alleviation of severe and prolonged low blood glucose.
• Many of hypoglycaemic infants are asymptomatic.

Glucose is an essential nutrient for the brain. Abnormally low levels can cause an encephalopathy. This has the potential to produce long term neurological injury but the level at which this occurs is controversial.

Risk factors for hypoglycaemia in a full term infant include
Infants of Diabetic Mothers (gestational or insulin dependent)
Small for gestational age infants <2.5kg
Macrosomic infants with birth weight >4.5 kg

Symptoms of hypoglycaemia may include:
Tremors, Jitteriness and irritability
Apnoea or cyanosis
Hypotonia and poor feeding
Convulsions

Principles of management
• All infants of well-controlled gestational diabetes mothers (insulin dependent or not), who are otherwise well are initially transferred to Postnatal Ward.
• Infants born to mothers who have pre-pregnancy (ie pre-existing) Type I diabetes (ie insulin dependent) will be admitted to NCC.
• Infants with a formal BSL less than 2mmol/L will be admitted to NCC for management
• Avoidance of cold stress and early feeding should be encouraged

Screening and prevention of hypoglycaemia
All ‘At risk’ term or near term infants require observation/monitoring for early establishment of breastfeeding and screening blood glucose level with a cotside (portable) device.

Screening BSL with a cotside device is not always accurate, especially the lower end of the range. It may tend to under-read the blood glucose. It is therefore vital that active intervention does not start until confirmed with a formal BSL. This may be performed by accredited staff in the NCC using the blood gas machine or send blood to SEALS biochemistry.

What are the acceptable blood glucose ranges?
“At risk “asymptomatic term or near term babies (>35 weeks)
• Blood glucose levels (BSL) should be maintained above 2.0mmol/l on day 1.
• Blood glucose levels above 2.5mmol/l are optimal.

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Management of At Risk infant

a) Initial Management of Asymptomatic At Risk infants
   Facilitate uninterrupted skin-to-skin contact for at least 30-60 minutes
   - Initiate the first breastfeeding within this time period if mother chooses to breastfeed
   - The infant's first Screening BSL should be performed half an hour after the finish/completion of the first feed.
   - If Screening BSL is ≥2.5 mmol/L, continue 2-3 hourly breastfeeding or expressed colostrum feeds. Continue monitoring BSL half an hour post-feed for 24 hours.

b) Postnatal Ward Management of Screening BSL <2.5mmol/L
   Screening BSL is 2 to 2.4 mmol/L and the infant remains otherwise well and asymptomatic
   - Continue 2-3 hourly breastfeeding or expressed colostrum feeds and continue with half an hour post feed screening BSL for 24 hours
   - If a second repeat screening BSL remains low (ie 2 – 2.4 mmol/L), inform neonatal medical team and send formal BSL. If indicated, a complementary feed of expressed breast milk or infant formula (see Note 1) may be considered. If Infant formula is required the mother will need to sign a ‘Complementary Feed Consent Form’.

c) If Screening BSL is 1.5 to 2 mmol/L
   - If asymptomatic, inform neonatal medical team and send Formal BSL, continue offering 3 hourly breastfeeding. If indicated, give complementary feed (expressed breastmilk/infant formula) at as above. Repeat Screening BSL half an hour post feed while waiting for formal BSL result.
   - If post feed Formal BSL continues to remain low (≤ 2 mmol/L) after complementary feed, admit to NCC for further management.

d) Screening BSL is less than 1.5mmol/L OR Symptomatic due to hypoglycaemia
   - Admit to NCC for further management. Formal BSL will be performed and intravenous glucose may be required

Important Reminder
   - Ward staff to notify NCC prior to bringing infant for formal BSL or further management.
NOTE – The RHW does not advocate the use of any specific brand of formula, but recommends a cow’s milk based formula unless there is a specific medical indication for a soy based formula. Infant formula is given as 30 ml/kg/day.

“Initiation and establishment of breastfeeding is facilitated by skin-to-skin contact of mother and infants. Such practices will maintain normal infant body temperature and reduce energy expenditure while stimulating suckling and milk production.” [1] and thus maintaining infants' blood glucose level.

Reference
# GUIDELINE FOR MANAGEMENT OF COTSIDE LOW BLOOD GLUCOSE LEVEL

## INITIAL MANAGEMENT DELIVERY SUITE AND POSTNATAL WARD

| Asymptomatic At Risk Infants | - Avoid cold stress, facilitate 30-60 minutes skin-to-skin contact  
|                            | - Initiate 1<sup>st</sup> breastfeed during skin contact in mothers who wish to breastfeed  
|                            | - BSL half hour after 1<sup>st</sup> feed in Del. Suite or Postnatal Ward  
| Cotside glucose meter ≥2.5mmol/L | - Continue 2-3 hourly feeding  
|                                | - BSL half hour post-feed for 24 hours  

## POSTNATAL WARD MANAGEMENT

| Infant well and asymptomatic + 2-2.4 mmol/L | - Continue 3 hourly feeding  
|                                             | - BSL half hour post-feed for 24 hours  
| Repeat cotside BGL remains low (2-2.4mmol/L) | - Inform Neonatal RMO  
|                                               | - Formal BSL  
|                                               | - Consider Supplemental formula feed in breastfeeding infants (*need Parental consent*)  
| 1.5 to 2 mmol /L + Asymptomatic | - Inform Neonatal RMO  
|                                 | - Send formal BSL to pathology  
|                                 | - 2-3 hourly breastfeeding  
|                                 | - Consider supplemental formula feed @ 30mls/kg/day (*need Parental consent*)  
|                                 | - BSL half hour post-feed  
| ≤1.5mmol/L or Symptomatic | - To NCC for further management  

**NOTIFY NCC STAFF PRIOR TO TRANSFER OF INFANT**