



Aneurin Bevan University Health Board

Guideline for the prevention and management of Hypoglycaemia in well high risk infants on the postnatal ward

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Contents:

Introduction Error! Bookmark not defined.
Policy Statement..... **38**
Aims **38**
Objectives..... **38**
Scope..... **38**
Roles and Responsibilities **38**
Training **3**
Appendices Error! Bookmark not defined.

Policy Statement

This guideline is designed to support safe and effective care

Aims

To provide support for decision making in the well high risk infant on the postnatal ward.

Objectives

To support identification of at risk infants, and the prevention and management of hypoglycaemia of infants on the postnatal ward.

Scope

This guideline relates to maternity and neonatal staff.

Roles and Responsibilities

Neonatal and maternity management team

Training

Staff are expected to access training where provided. Training needs will be identified through appraisal and clinical supervision.

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Guideline for the prevention and management of Hypoglycaemia in well high risk infants on the postnatal ward

Neonatal Hypoglycaemia is defined as blood glucose of less than 2.6mmol/L

High Risk Infants have an impaired counter-regulatory response. Therefore the usual ways in which newborn infants mobilise glycogen and fat stores and synthesise glucose are compromised, making them more susceptible to hypoglycaemia.

Once identified, these infants need care and monitoring as per the High Risk Flow Chart. These infants may be cared for on the postnatal ward or transitional care ward in liaison with the neonatal team.

Whilst large babies >4kg are not classified as 'high risk'; it is important to consider that macrosomic appearances may be due to hyperinsulinism. Therefore the neonatal team may request that these babies be treated as 'high risk'.

Babies without risk factors do not require blood glucose monitoring. However, any baby showing symptoms of hypoglycaemia needs urgent review by the neonatal team.

High Risk Infants

Symptomatic infants (see below)
 IUGR <2nd centile
 Pre-term infants (<37 weeks gestation)
 Hypothermic infants - <36°C axillary.
 Normal core temperature 36.5-37.5°C
 Perinatal asphyxia (Apgar <6 at 5mins)
 Respiratory distress
 Rhesus incompatibility
 I.U.G.R.
 Infection/other illness in the baby
 Severe maternal pregnancy induced hypertension
 Maternal diabetes (gestational or IDDM)
 Maternal use of beta-blockers e.g. Labetelol
 Family History MCADD - Specialist plan and r/v

Symptomatic Infants

Irritability, tremors (jitteriness*)
 Hypothermia
 Feeding poorly, particularly after feeding well
 Apnoea; tachypnoea, 'grunting'
 Sudden pallor / cyanosis
 Abnormal cry (weak or high pitched)
 Apathy, lethargy, limpness
 Seizures

*"Jitteriness" is a rapid generalised symmetrical tremor of the limbs. It can be stopped by holding the baby and flexing the limbs. It is never accompanied by physiological changes e.g. raised heart rate or apnoea. In a term baby jitteriness is often a benign finding. In an 'at risk' baby, remember to consider hypoglycaemia.

Prevention of Hypoglycaemia:

- Clear identification of 'at risk' infant; follow flow chart, documenting all feeds, blood glucose results and treatment on feed chart.

- Assessments of temperature, colour, breathing pattern and muscle tone is required at each feed, to check for symptoms of hypoglycaemia.
- Begin feeding as soon as possible following birth; **within one hour**, and continue at least 3 hourly until feeding established and the baby is normoglycaemic. Aim to feed the baby at least eight times in 24hrs, including at night.
- Skin-to-skin contact should be encouraged at birth, and subsequent **frequent skin to skin contact** will aid thermo-regulation and encourage breastfeeding.
- 'At risk' infants who are not able to suckle adequately may be fed either expressed breast milk (EBM) or an appropriate breast milk substitute. Preferentially use EBM if available. Administer milk via syringes in small volumes (<5mls), by cup, spoon or bottle. Feeds to be given by trained personnel according to clinical indication and fully informed parental choice. The NNU team may decide following assessment that a nasogastric tube is required.
- Teach mothers to recognise and respond to early feeding cues and support mothers with breastfeeding at each feed. **Encourage mothers of babies who need EBM to express at least 8 times in 24hrs including at least once during the night.**
- Calculate the feed requirements for breast milk substitutes using 10mls/kg/feed initially. In some circumstances it may be necessary to increase this according to the guidance of the NNU team.
- Check the first blood glucose measurement at 4 hours of age. However, if the infant is symptomatic perform an immediate blood glucose. (NOTE: In small babies, whose mothers have been prescribed Labetolol, consider earlier blood glucose).
- When 3 consecutive pre-feed glucose measurements are 2.6mmols/L and above, and the baby is frequently feeding (8-12 feeds/24 hours), discontinue further blood glucose measurements. All aspects of care need to be discussed with parents and explanations documented.
- At all times breastfeeding, skin to skin and breast milk expression should be encouraged as the primary source of nutrition. Breastfeeding is known to improve health outcomes; additionally breast milk is less insulinogenic than formula thus enhances the baby's ability to counter-regulate in the face of hypoglycaemia.

Please ensure documentation of any reason for deviation from the guideline

Refer to the NNU urgently if infant is: Unwell

Symptomatic

Blood glucose <1.4 mmol/l at any time

Blood glucose <2.6mmol/l on 2 consecutive occasions despite use of dextrose gel

Management of Hypoglycaemia:

1. If pre-feed blood glucose is less than 2.6mmols/L but above 1.4mmol/L and the baby is asymptomatic, first consider use of 40% buccal dextrose gel at 0.5ml/kg (200mg/kg) (see Appendix 1 for administration). Then, breastfeed or give EBM or an appropriate breast milk substitute. If the infant is symptomatic, or the blood glucose is <1.4mmol/l or if there are concerns about the infant that are not categorised in the 'symptomatic' list, inform the neonatal SHO.
2. Check blood glucose 1 hour later. If still less than 2.6mmols/L and above 1.4mmol/L in an asymptomatic infant, consider repeating the above step once only and inform the neonatal SHO.
Check blood glucose 1 hour later. If glucose remains <2.6mmol/L call neonatal SHO for review and consider sending lab glucose.
3. Review by neonatal SHO who will assess and decide whether to repeat the dextrose gel and/or if the feed requirement needs to be increased, (if using breast milk substitute this may need to be increased up to 120mls/kg/day).
4. If the baby is unable to cup or bottle-feed, it is possible that the neonatal SHO may decide that a nasogastric tube is required.
5. Recheck a blood glucose 1 hour following the intervention. If this is 2.6mmol/L and above, then subsequently check a further 2 pre-feed blood glucose samples ensuring they are 2.6mmols/L and above.
6. If despite the intervention the pre-feed blood glucose remains <2.6mmols/L, inform the NNU SHO as the baby requires urgent assessment and possible admission to the NNU.
7. Whilst obtaining venous access, a further dose of dextrose gel may be considered.

NOTE: This is a guideline, which is applicable to all maternity and neonatal staff caring for high risk neonates on the postnatal ward. Occasionally, in individual clinical circumstances the neonatal staff may deviate from the above management if considered in the best interests of the baby. Reasons for deviation from the guideline must be clearly documented in the notes by the doctor.

Aneurin Bevan University Health Board

Approved by Maternity Clinical Effectiveness Forum/ neonatal management team

Owner Neonatal Services

Policy Number: ABHB/F&T/0228

References

1. UNICEF Baby Friendly Initiative Hypoglycaemia Policy Guidance 2011
2. Hawdon JM, Ward Platt MP, Aynsley-Green A. Patterns of metabolic adaptation for preterm and term infants in the first neonatal week. Arch Dis Child 1992; 67:357-65.
3. Cornblath M, Hawdon JM, Williams AF, Aynsley-Green A, Ward-Platt MP, Schwartz R, Kalhan SC. Controversies regarding definition of neonatal hypoglycemia: suggested operational thresholds. Pediatrics. 2000 May;105(5):1141-5.
4. CEMACH:Diabetes in pregnancy: caring for the baby after birth September 2007
5. BAPM: Identification and Management of Neonatal Hypoglycaemia in the Full Term Infant - A Framework for Practice. April 2017

*Guideline adapted from Wales Neonatal Network Guideline, 2015.
A Allman, Jan 2018*

Appendix 1 Use of Dextrose Gel

Indications

Blood glucose less than 2.6mmol/l and greater than 1.4mmol/l in asymptomatic high risk infant

For babies with blood glucose less than 1.4mmol/l, use buccal dextrose gel as an interim measure while arranging further treatment.

Notes

Dextrose gel must be used in conjunction with a feeding plan

Dose

Use 0.5ml/kg 40% buccal dextrose gel (200mg/kg), up to 2 doses given 1 hour apart per episode of hypoglycaemia.

Weight of baby (kg)	Volume of gel (ml)
1.5-1.99	1.0
2.0-2.99	1.5
3.0-3.99	2.0
4.0-4.99	2.5
5.0-5.99	3.0
6.0-6.99	3.5

Method of Administration

Draw up correct volume of 40% dextrose gel using a 2.5 or 5ml oral syringe

Dry oral mucosa with gauze, gently squirt gel with syringe (no needle) on to the inner cheek and massage gel into mucosa using latex free gloves

Offer a feed, preferably breast milk, immediately after administering gel

Repeat blood sugar measurement according to flow sheet

Repeat oral dextrose gel if baby remains hypoglycaemic according to flow chart

Up to 6 doses of buccal dextrose gel can be given over a 48 hour period but any more than 1 dose should be discussed with the neonatal team and the baby needs to be assessed before the 3rd dose is administered.

Management of well infants at risk of hypoglycaemia on the postnatal ward

- At birth:
- Dry, put on hat, keep temp >36.5C, place skin-skin
- Assess HR/RR/level of consciousness/tone/perfusion
- First feed within 1 hour of birth. Was breast feeding effective?
- If not give EBM
- Consider top up of 10ml/kg if no EBM available particularly in babies with multiple risk factors

Refer urgently to neonatal team if symptoms present at any time, if BG <1.4mmol/l at any time, or if infant unwell

