

Hypoglycaemia of the Newborn

Review of the Literature

**Division of Child Health and Development
and
Maternal and Newborn Health/Safe Motherhood**



**World Health Organization
Geneva**

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Contents

RECOMMENDATIONS FOR PREVENTION AND MANAGEMENT	1
EXECUTIVE SUMMARY	4
1. Historical background	6
1.1 Patterns of hypoglycaemia.....	6
1.2 "Symptomatic" and "asymptomatic" hypoglycaemia.....	7
1.3 Neonatal hypoglycaemia: current problems.....	8
2. Glucose homeostasis and metabolic adaptation at birth	9
2.1 The fetal nutritional and metabolic environment	9
2.2 The regulation of blood glucose concentration after birth.....	10
2.3 Metabolic events at birth: the role of insulin and substrates other than glucose	12
2.4 Abnormal glucose homeostasis	14
3. Effects of hypoglycaemia on the central nervous system	20
3.1 Pathology of brain damage associated with hypoglycaemia	20
3.2 Cerebral defences in hypoglycaemia.....	20
3.3 Summary.....	21
4. Definition of hypoglycaemia	22
4.1 Statistical definition	22
4.2 Metabolic definition.....	24
4.3 Neurophysiological definition.....	24
4.4 Neurodevelopmental definition	25
4.5 Summary.....	26
5. Screening	27
5.1 Methods for measuring blood/plasma glucose concentration.....	27
5.2 Effectiveness of screening based on reagent strip methods	30
5.3 Incidence of hypoglycaemia	31
5.4 Summary: is screening for hypoglycaemia necessary?.....	32
6. Prevention	34
6.1 Peripartum factors.....	34
6.2 Feeding regimens	34
6.3 Additives for milk feeds.....	38
6.4 Infants who cannot be fed	39

7. Treatment	40
7.1 Enteral feeding.....	40
7.2 Intravenous treatment.....	41
7.3 Drugs.....	42
8. Research	43
REFERENCES	45

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Recommendations for Prevention and Management

1. Early and exclusive breastfeeding is safe to meet the nutritional needs of healthy term newborns worldwide.
2. Healthy term newborns who are breastfeeding on demand need not have their blood glucose routinely checked and need no supplementary foods or fluids.
3. Healthy term newborns do not develop "symptomatic" hypoglycaemia as a result of simple underfeeding. If an infant develops signs suggesting hypoglycaemia (see point 17), look for an underlying condition. Detection and treatment of the cause is as important as correction of the blood glucose level.
4. Thermal protection (the maintenance of normal body temperature) in addition to breastfeeding is necessary to prevent hypoglycaemia.
5. Breastfeeding should be initiated as soon as an infant is ready, preferably within 1 hour of birth. Immediately after birth the baby should be dried and held against the mother's chest with skin-to-skin contact to provide warmth and to facilitate the initiation of breastfeeding.
6. Breastfeeding should continue on demand. Healthy term newborns show signs of readiness to feed when they are hungry, but the interval between feeds varies considerably, particularly in the first few days of life. There is no evidence that long interfeed intervals adversely affect healthy newborns who are kept warm and who are breastfed when they show signs of hunger. An infant who shows no signs of hunger or is unwilling to feed should be examined to exclude underlying illness.
7. Newborns at risk of hypoglycaemia include those who are preterm and/or small for gestational age (SGA), those who suffered intrapartum asphyxia or who are sick, and those born to diabetic mothers.
8. In newborns at risk, hypoglycaemia is most likely to occur in the first 24 hours of life, as the infant adapts to extrauterine life. Hypoglycaemia which presents after the first day of life, or which persists or recurs, does not necessarily indicate inadequate feeding. It may indicate underlying disease such as infection, or a wide range of other conditions (see Table 3 of main document). Reference should be made to standard texts.
9. For newborns at risk, breastmilk is the safest and nutritionally most appropriate food. However it may need to be supplemented with specific nutrients for some very low birth weight infants.

10. At-risk newborns who have a gestational age of 32 weeks or more or who weigh more than 1500 g at birth, may be able to breastfeed sufficiently to satisfy their nutritional needs (but see also point 12). If healthy, they should be given the opportunity to breastfeed within 1 hour of birth like term babies.
11. At-risk newborns able to suckle sufficiently should continue to breastfeed when they show signs of hunger. However, they should not be allowed to wait more than 3 hours between feeds. Normal body temperature should be carefully maintained.
12. At-risk newborns **not** able to suckle adequately and obtain all the milk that they need from the breast, but well enough for oral feeds, can be fed expressed breastmilk (EBM), or if necessary an appropriate breastmilk substitute, by cup or by gavage (orogastric or nasogastric tube feeding). Feeds should commence within 3 hours of birth, and should continue at least 3 hourly thereafter.

[Reference should be made to “standard texts” for details of the feeding of newborns who are less than 32 weeks gestational age, or who are very low birth weight, who are sick or born to diabetic mothers, or who are unable to feed enterally]

13. For newborns at risk, the blood glucose concentration should be measured at around 4-6 hours after birth, before a feed, if reliable laboratory measurements are available. Measurements using glucose-oxidase based reagent paper strips have poor sensitivity and specificity in newborns, and should not be relied upon as an alternative.
14. For newborns at risk **who do not show abnormal clinical signs** ("asymptomatic"), the blood glucose concentration should preferably be maintained at or above 2.6 mmol l⁻¹ (47 mg /100 ml).

If the blood glucose concentration is below 2.6 mmol l⁻¹:

- The infant should be fed. This can be a breastfeed if the infant can suckle adequately. If not, EBM or an appropriate breastmilk substitute can be given by cup or gavage.
- The blood glucose measurement should be repeated preferably after 1 hour and certainly before the next feed 3 hours later. If it is still below 2.6 mmol l⁻¹, treatment with intravenous glucose should be considered.
- If facilities for administering intravenous glucose are not readily available, a

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