GUIDELINE FOR THE USE OF BREAST MILK FORTIFIER

Aims of guideline:

- To identify:
  a) when to consider using breast milk fortifier
  b) caution about use of fortifier
  c) other considerations
  d) how to use breast milk fortifier
  e) when to stop using breastmilk fortifier

Background

The Department of Health and the World Health Organisation identify that breast milk is the optimal form of nutrition for babies and infants, and that all infants should be exclusively breastfed for at least the first six months of life (Department of Health 2003, WHO 2003).

Whilst breastmilk is the recommended form of enteral nutrition for preterm infants, preterm breastmilk may not consistently provide all of the nutrient requirements of preterm infants, eg, protein, calcium, sodium and phosphate. Very low birth weight and extremely preterm infants have low mineral reserves and may have deficiencies in the postnatal period if they do not receive parenteral or enteral supplementation (DeCurtis et al 1999, Trindade 2005).

Multi-nutrient, fortifiers are available to add to breastmilk, and fortification with calcium and phosphate may increase nitrogen retention and improve bone mineral content, whilst protein and energy supplementation increases short-term weight gain, linear and head growth (Groh-Wargo et al 2000, McGuire et al 2004, Tsang et al 2005).

It is important that healthcare professionals provide all mothers with relevant information to allow them to make an informed choice about how they feed their baby. Parents/carers should be involved in the discussion about the use of fortifier and made aware of what the product is. In addition supporting written information should also be available.

All of the neonatal units within the North Trent Neonatal Network use Nutriprem breastmilk fortifier (Cow & Gate), as this most closely follows the nutritional guidelines recommended by Tsang et al (2005).

a) When to consider using breast milk fortifier

Consider fortification of breastmilk for babies:

1. <1500g (birth weight) or below 34 weeks gestation who are receiving breastmilk (Cow & Gate Technical Handbook for Healthcare Professional Use 2007).
2. >1500g (birth weight) when weight gain is less than 15g/kg/day and if weight is falling off centile chart after day 14 (agreed within Network).
3. With consistent serum urea levels <2mmol/l and >2 weeks old (Tsang et al 2005).
4. Only when baby has had breast milk for two weeks and is receiving full enteral feeds, i.e. the maximum tolerated – aim for minimum of 180ml/kg/day. (Jones & King 2005).

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b) Caution about use of fortifier

1. Family history of cow’s milk protein allergy – use hypoallergenic formula powder instead. Discuss with local dietitian (Jones & King 2005).

2. When using Potassium Acid Phosphate supplements – discuss with dietitian.

3. Babies with Necrotising Enterocolitis - if NEC suspected do not use fortifier due to fortifier increasing osmolarity of breastmilk. If baby is recovering from NEC use fortifier with great caution for same reason (Tsang et al 2005).

4. Fortifier may not be suitable for vegetarians due to the processing of some ingredients (Cow & Gate Technical Handbook for Healthcare Professional Use 2007).

5. Babies receiving Dexamethasone therapy – unless plasma urea and amino acid levels are within acceptable range (Jones & King 2005, Cow & Gate Technical Handbook for Healthcare Professional Use 2007).

c) Other considerations

1. Obtain weekly serum alkaline phosphatase and serum sodium in addition to routine biochemistry (Jones & King 2005).

2. Due to higher levels of protein often present in expressed breastmilk produced in the first few weeks by mothers delivering prematurely, infants receiving fortified breastmilk in the first month should be monitored for the effects of protein excess (Klein 2002).

3. Supplemental iron will be necessary when the baby is 28 days old.


5. When fortifier is discontinued, a slower rate of weight gain can be expected.

6. Ensure mothers are aware of the need to express fat-rich hindmilk to provide for their babies in order to encourage weight gain (Jones & King 2005).

7. Addition of other supplements to human milk is not recommended (Jones & King 2005).

d) How to use breastmilk fortifier

1. Use freshly expressed breastmilk whenever possible and fortify minimum amount of breastmilk as close as possible to baby's feed time as the fortifier may alter the composition of the breastmilk (Jones & King 2005).

2. Do not make up more fortified milk than is required as storage reduces the effectiveness of some anti-infective components of expressed breastmilk and may lead to increased osmolality (Jones & King 2005).

3. Check the expiry date of the fortifier before use (Cow & Gate Technical Handbook for Healthcare Professional Use 2007).

4. Fortify at half-strength for first 24 hours (i.e., half a sachet of fortifier to 50ml breastmilk); increase to full-strength as tolerated (Jones & King 2005). One sachet provides 2.1g of fortifier. Smaller volumes of fortifier must be weighed on medical weighing scales.


**e) When to stop using breastmilk fortifier**

1. In order to discontinue breastmilk fortification a breastfeeding infant must demonstrate the ability to sustain adequate growth, adequate breastmilk intake and must have blood values within normal limits (Schanler 2005).

2. If baby receiving >50% of feed requirement as formula milk, fortifier is not necessary (Jones & King 2005).

References


This guideline has been adapted from the breastmilk fortifier guideline used on the neonatal unit at the Jessop Wing. The following staff have assisted with the development of this updated version:

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