MINIMAL ENTERIC FEEDING (MEF)

The goal of nutrition is to achieve as near to normal weight gain and growth as possible. It is difficult to deliver adequate calories with parenteral nutrition so the aim should be to introduce enteral milk feeds as early as a baby can safely tolerate them – please see feeding protocol http://www.cs.nsw.gov.au/rpa/neonatal/

Background – minimal enteric feeding

The main discussion around the time to commence enteral feeding is centred on the potential increase risk of necrotising enterocolitis (NEC). There have been several randomised control trials which have shown benefits from hypo caloric early enteric feeds known as minimal enteric (MEF) or trophic feeding. The introduction of early small volume enteric feeding is not intended to provide nutrition but rather facilitate the maturity of the gut in both structure and function (Tyson & Kennedy, 2006). This initiation of early feeding even in the extremely preterm infant, appears to have a role in “priming” the infant’s intestine for subsequent maintenance feeding.

In support of this approach, a systematic review (Tyson & Kennedy, 2006) suggests that MEF allows earlier establishment of full enteral feeds and shorter hospital stays, without any concomitant increase in NEC. Shandler et al (1999) also demonstrated improved short term nutritional outcomes in babies randomised to MEF especially if they received expressed breast milk (EBM).

Smith (2005) describes MEF as those small feeds administered shortly after birth in an attempt to avoid or reduce parenteral nutrition. Smith further describes MEF as small milk volumes (less than 24mls/kg/day) that are given in addition to parenteral nutrition to stimulate the gut. These small volumes assist to develop or mature the function and structure of the preterm gastrointestinal tract but are not of sufficient quantity to provide adequate nutrition.

Proposed advantages of MEF (Smith 2005)

- Augment gastrointestinal maturation and function
- Improve feed tolerance
- Increase early weight gain
- Decrease days on total parenteral nutrition (TPN)
- Reduce direct bilirubin levels
- Reduce cholestasis
- Reduce length of hospitalisation

Contraindications to MEF

- Signs of NEC, gastro intestinal bleeding, presence of a congenital anomaly such as imperforate anus or other abdominal pathology such as perforation (Kennedy & Tyson, 2006).
- Persistently high volumes / bilious gastric residuals
- Abdominal distension

MEF

- Commence very low volume enteral feeds on day 1 to 3 of life
- MEF is commenced following discussion with attending neonatologist / fellow

- The timing of the introduction and the rate at which to commence enteral feed volumes may be modifyable risk factors for the development of NEC (Bombell, 2008).
• Babies born less than 29 weeks (28 weeks and less) should have minimal enteric feeds commenced at 1ml every 4 hours on day 2 or 3 of life. Some extremely preterm infants may be commenced at 0.5ml every 4 hours.

• Expressed breast milk or human donor milk (parental consent needed) is preferable

**Grading up of feeds**

• The rate of increase can range from 1ml/hr every 4hrs to 1ml/hr every 24 hours or even longer in some babies. When increasing volume of milk feeds consideration should be given to the following:
  - gestation and weight of the baby
  - general condition of the infant
  - whether the milk is tolerated (vomiting / volume of gastric residual)
  - any abdominal signs eg: distension / bile stained residuals
  - special considerations such as extreme prematurity or intrauterine growth restriction < 3rd percentile and / or documented reversed end-diastolic flows on antenatal Doppler

**Cessation of Minimal Enteric Feeds**

• The goal is to maintain the infant on MEF regardless of the amount of milk absorbed. However, some infants will not tolerate even the small amount of feed offered and cessation of MEF may be considered for several hours to days.

• All infants must be treated individually, as there may be many reasons why one infant may not reach full enteral feeds as quickly as other infants eg: abdominal distension, bilious aspirates.

• Enteral feeds will be graded up according to each infant’s ability to tolerate and absorb increasing milk volumes. The opportunity to routine grade up the volume of feed will also be dependent on the supply of expressed breast milk especially in those infants at significant risk for NEC.

**References**


