

## Nutrition

---

With the increasing survival rate of smaller, more critically ill neonates, efforts to improve their long-term outcome needs optimising their nutritional management.

Current research suggests that initiation of earlier, more aggressive nutrition management prevent the catabolism previously observed in the immediate postnatal period. Additionally, the use of early enteral feeding has been shown to enhance the functional maturation of the gut and improve feeding tolerance.<sup>(1,2)</sup>

Nutritional intake in sick very low birth weight infants can be improved without increasing the risk of adverse clinical or metabolic sequelae. Improved nutritional intake is likely to result in better growth, both in the early neonatal period and at hospital discharge<sup>(3)</sup>.

At the moment there is no evidence that a bolus feeding has an advantage on the continuous naso-gastric feeding. In general practice, both methods are used, and one may be substituted for the other in cases of difficulty with feeding tolerance.<sup>(4,5)</sup>

Infants exposed to trophic feeding have significantly greater energy intake, greater weight gain and head growth, improved milk tolerance, fewer requirements for parental nutrition, less sepsis, fewer days of supplemental oxygen and early hospital discharge.<sup>(6,7,8,9,10)</sup>

Consumption of human milk has been shown to have many benefits for infants, term and pre-term, including a reduced risk of necrotizing, enterocolitis, atopy and infection and improved later cognitive development<sup>(11,12)</sup> with probably lowers risk hypertension, coronary heart disease.<sup>(13,14,15,16,17)</sup> Raw maternal breast milk is therefore the best choice for enteral feeding & should be encouraged.

There is no evidence that uncomplicated umbilical arterial catheterisation increases the risk of necrotising enterocolitis.

## References

- 1 Ellard-D optimising nutritional management for the very low-birth-weight infant; Nutrition in Clinical Practice, 2001 Aug, 16:240-5
- 2 Berseth CL. Effect of early feeding on maturation of the pre-term infant's small intestine. *J Pediatr* 1992;120:947-53
- 3 Wilson-David, Cairns-Pamela, Halliday-Henry, Reid-Mark, McClure-Garth, Dodge-John Randomised Controlled Trial of an Aggressive Nutritional Regimen in Sick Very Low Birth Weight Infants., *Arch Dis Child*, 1997;77:F4-F11
- 4 Baker-JH, Berseth-CL. Duodenal motor responses in preterm infants fed formula with varying concentration and rates of infusion. *Pediatr Res*.1997; 42:618-622
- 5 De Ville-K, Knapp-E, Al-Tawil-Y, et al. Slow infusion feedings enhance duodenal motor responses and gastric emptying in preterm infants. *Am J Clin Nutr* 1998;68:103-108
- 6 McClure-R, Newell-S Randomised controlled study of clinical outcome following trophic feeding., *Arch Disease in Childhood Fetal Neonatal ed* 2000;82:F29-F33
- 7 Brandt, I, Sticker EJ et al: Catch-up growth of head circumference of very low birth weight, small for gestational age preterm infants & mental development to adulthood. *J paediatric*, May 2003; 142:463-468
- 8 Hayakawa, M et al.: Nutritional state and growth and functional maturation of the brain in extremely low birth weight infants. . *Pediatrics* May 2003; 111(5): 991 -95.

- 9 Troche-B, Harvey-Wilkes-K et al. Early minimal feedings promote growth in critically ill premature infants. *Biology of the neonate* 1995;67:172-81
- 10 McClure-RJ, Newell-SJ, Randomised controlled trial of trophic feeding and gut mortality, *Arch Dis Child. Fetal and Neonatal Ed*, 1999; 80:F54-8
- 11 Lucas-A, Morley-R, Cole-TJ Randomised trial of early diet in preterm babies and later intelligence quotient *BMJ* 1998; 317:1481-1487
- 12 Wilson-AC, Forsyth-JS, Greene-SA, Irvine-L, Hau-C, Howie-PW Relation of infant diet to childhood health, seven year follow up of cohort in Dundee infant feeding study. *BMJ* 1998; 316: 21-25.
- 13 Taittonen-L, Nutinen-M Turtinen-J Uhari-M Prenatal and postnatal factors in predicting later blood pressure among children: cardiovascular risk in young Finns. *Pediatr Res* 1996; 40: 627-32
- 14 Singhal-Atul, Cole, -Tim, Lucas-Alan Early nutrition in preterm infants and later blood pressure: two cohorts after randomised trials; *Lancet*; vol 357:2001, Feb.
- 15 Martin-Ron, McCarthy-A, Smith-GD, Davies-DP, Shalmo-Ben Infant nutrition and blood pressure in early adulthood: The Barry Caerphill Growth Study; *Am j clin nutr* 2003;77:1487-79
- 16 Law-CM, Sheill-AW, Newsome-CA et al. Fetal, infant and childhood growth and adult blood pressure. A longitudinal study from birth to 22 years of age. *Circulation* 2002;105:1088-1092
- 17 Eriksson-JG, Forsen-T, Tuomilehto-J et al Catch-up growth in childhood and death from coronary heart disease: longitudinal study. *BMJ* 1999; 318:427-31