

Nutrition and neurology

Four articles in this number of *Developmental Medicine & Child Neurology* relate to aspects of nutrition. Perhaps readers might be wondering if they have picked up a nutritional or gastroenterological journal rather than this (we hope) familiar red journal. These articles result from an increasing understanding of the importance of nutrition in all aspects of neurological function.

The introduction of the article by Samson-Fang and Stevenson¹ provides us with a useful summary of the documentation which discusses the effect of nutrition on the infant, reporting on respiratory, cardiac, and cerebral function, the immune system, and cerebral growth; all of which are affected in malnourished children. While only some of this research is directly related to the population with cerebral palsy (CP), with whom their study is involved, other studies look at issues which have been reported specifically in malnourished children with CP, such as decubitus ulcer healing, surgical morbidity, and death. These rather overwhelming data emphasise the importance of getting the nutrition right.

We are all too aware of the feeding difficulties of the child with a disability². Analysis of feeding problems is one thing but understanding the mechanisms and identifying children who are likely to have problems is another. Mechanisms have been developed to help the child with disabilities feed, leading eventually to the use of gastrostomy. The study by Suess and colleagues³ takes us forward with a non-invasive technique to assess when the preterm infant is ready to feed. Studies have focussed on the feeding mechanism as it is displayed. But identifying some of the controlling mechanisms and a non-invasive method for looking at them helps us distinguish those babies who are going to have feeding difficulties from those whose outlook is better.

The prime source of nutrient for the infant has been known for a long time: breast is best. But nowadays, with many mothers having to link childcare with other activities, numbers of babies in developed societies are going to be artificially fed. As Birch and her colleagues⁴ state, many publications indicate the advantages of breastfeeding, such as improved mental aptitudes and achievement scores. However, it is difficult to distinguish between the actual nutrient content and the environmental factors which may also play a part in the outcome. Birch et al. have assessed the effect on outcome of a very specific nutrient, docosahexaenoic acid*, added to formulas to see whether this nutrient endows the advantage reported in breastfeeding studies to bottlefed infants. The results of Birch et al.'s study must be stressed as preliminary. The

* This substance is already added to many formula milks.

sample size is small. The data to 18 months are significant but we cannot tell whether the effects reported will persist or not. Further research will naturally look at that. I doubt, however, if many parents would want us to ignore the present results. Knowing the later hazards for children with disabilities, we need to get the formula as right as possible.

Samson-Fang and Stevenson's paper reminds us what happens if we do not get things right. A very simple consequence they report on is the difficulty of identifying malnutrition in children with CP. Those of us who run feeding clinics perhaps are aware of the extent of malnutrition that we see in the population of children with disabilities who are sent to us. However, their data imply that more children may be malnourished than we know and the fact that they are not being identified is rather worrying.

The last paper, an annotation on nutritional supplementation in Down syndrome, deals with nutrition from a slightly different angle. But perhaps it reminds us that our clients – the families of children with disabilities – feel that nutrition may be a solution to some of their child's problems. Ani et al.⁵ review the theoretical basis for such a belief but conclude that there is no consistent or rigorous proof that any form of nutritional supplement improves the outcome in Down syndrome. However, they rightly urge the need for such a study to be undertaken.

These four studies indicate that feeding and nutrition are likely to be profitable areas in which to develop research expertise – young researchers may wisely elect to enter this field. Individuals with disabilities and their families would greatly benefit from such advances.

Martin Bax

References

1. Samson-Fang L, Stevenson R. (2000) Identification of malnutrition in children with cerebral palsy: poor performance of weight-for-height centiles. *Developmental Medicine & Child Neurology* **42**: 162–8.
2. Sullivan P, Rosenbloom L. (1996) *Feeding the Disabled Child. Clinics in Developmental Medicine No. 140*. London: Mac Keith Press.
3. Suess P, Alpan G, Dulkerian S, Doussard-Roosevelt J, Porges S, Gewolb I. (2000) Respiratory sinus arrhythmia during feeding: a measure of vagal regulation of metabolism, ingestion, and digestion in infants. *Developmental Medicine & Child Neurology* **42**: 169–73.
4. Birch E, Garfield S, Hoffman D, Uauy R, Birch D. (2000) A randomized controlled trial of early dietary supply of long-chain polyunsaturated fatty acids and mental development in term infants. *Developmental Medicine & Child Neurology* **42**: 174–81.
5. Ani C, Grantham-McGregor S, Muller D. (2000) Nutritional supplementation in Down syndrome: theoretical considerations and current status. *Developmental Medicine & Child Neurology* **42**: 207–13.