

Press Information

Individualised infant nutrition is key to improving healthy growth and development

- ***Need to seek to follow the dynamic composition of breast milk***
- ***Use of partially hydrolysed proteins to induce oral tolerance***
- ***Utilise specific probiotics to manage and prevent infections***

Vevey, Switzerland – 1 July 2011. At a Nestlé Nutrition Institute Satellite Symposium held on Friday, 27 May 2011 at the European Society of Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN), in Sorrento, Italy, leading experts highlighted the need to ensure that formula fed infants receive individualised nutrition. The requirement to try to follow the performance of breast-fed infants in order to optimise growth and development is key. In addition, the use of specific probiotics and hydrolysed proteins to reduce infections and improve oral tolerance are all of fundamental importance for optimal growth and development.

Human milk as a model for evolving infant nutrition

Professor Dr. Bo Lönnerdal, Professor of Nutrition and Internal Medicine at the University of California, Davis, USA, advocated the need for the nutrition industry to develop an infant formula, the composition of which, changes over time in a manner similar to the changing pattern of breast milk. He said, “The ‘staging’ of infant formula is physiologically sound, as the composition of the formula should follow the changing nutritional requirements of the growing infant”.

Professor Lönnerdal explained that the nutrient composition of breast milk changes during lactation, most dramatically during early lactation, but with pronounced differences throughout for many nutrients. In particular, the protein concentration of breast milk is high during early lactation and then declines, which also reflects the decreasing requirements for protein during infancy.^{1,2,3} Similarly, early breast milk is higher in concentrations of many bioactive components, which may be of less physiological relevance during later infancy.

There are differences in nutritional status between breast-fed and formula-fed infants, and breast-fed infants are less likely to get infections than formula-fed infants. Infant formula is in many countries used more or less exclusively up to 6 months of age and as part of the diet up to 12 months of age. During this period its composition remains the same.

Professor Lönnerdal concluded by saying, “The composition of breast milk is often considered as a ‘gold standard’ for the composition of infant formula. However, to date there has been no systematic attempt to gradually change the composition of infant formula in a manner similar to the changing pattern of breast milk. This represents a technical and nutritional challenge, but is possible”.

Allergy vs Oral Tolerance Induction

In his opening remarks, Professor Ricardo Sorensen, Department of Paediatrics, Louisiana State University Health Science Center, New Orleans, USA highlighted the long-term health problems that are often associated with the increasingly prevalent infant atopic dermatitis. This is caused by food allergy due to a failure to develop oral tolerance. Whilst highlighting the multi-factorial causes of allergy he focused upon two key factors: exposure to large unprocessed food proteins, plus the decrease in breast-feeding and introduction of whole cow milk formulas.

Commenting upon the developing body of knowledge in inducing oral tolerance, he said, "Multiple studies have shown that feeding hydrolysed cow milk formulas decreases allergic sensitisation in comparison to feeding of whole cow milk formulas.^{4,5} There may be a particular size range of peptides most effective in inducing oral tolerance". Referring to a recent, but as yet unpublished study, he explained that it has been shown that, at 1 year of age, the concept of breast fed infants at risk for developing allergy, when given partially hydrolysed proteins, may be most effective in inducing oral tolerance when given to infants that are not sensitised at the time of weaning.

Safety of Probiotics for Pre-term and Term Neonates

Reinforcing the growing role of probiotics in infant nutrition, Dr Jean-Pierre Chouraqui, Gastroentérologie, Hépatologie et Nutrition Pédiatriques Clinique Universitaire de Pédiatrie Grenoble, France, pointed out the clinical benefits of probiotics in the paediatric population. These are in the management and prevention of acute diarrhoea, antibiotic associated diarrhoea, infant colic, and evidence is mounting on their potential benefits in atopic disease, inflammatory bowel conditions, and necrotizing enterocolitis.

Two of the most widely used probiotics, Lactobacillus and Bifidobacterium have not shown any pathogenicity traits in healthy or mildly ill infants. Several double-blind placebo-controlled studies that addressed this question have demonstrated that infant formulas containing different strains had no negative effect on stool habit, tolerance and infant growth.

Professor Chouraqui made the point that considering the level of evidence regarding their benefits in newborn and infants, specific probiotics could be offered as a routine supplementation in infant formula. He said, "In pre-term neonates the benefits of specific strains outweigh the potential adverse effect. But according to available data it makes sense to be cautious in very low birth weight (VLBW) infants and in those who are critically ill or with indwelling catheters. In these populations, further studies, selecting specific strains to assess clinically relevant outcomes are needed.

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Notes to editors:

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- contribute to proper nutrition information and education of healthcare providers
- partner with the medical and scientific community by providing enhanced access to the latest knowledge in nutritional sciences to enable continual improvement to healthcare of people of all ages
- foster the communication of sound nutrition research by helping to connect the Scientific Community with Nestlé Research.

For more information, please consult www.nestlenutrition-institute.org.

The webinars of this Satellite Symposium are now available on the NNI website: please visit <http://www.nestlenutrition-institute.org/resources/online-conferences/Pages/OnlineConferences.aspx?a=2>

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