Concluding Remarks

I will briefly summarize the part on allergy and gastrointestinal disease before we go on with the last three talks on nutrition in the preterm baby. The first part of the meeting focused on allergy and Dr. Wahn gave us an introductory lecture showing the complex interaction between the genetic background and the environmental determinants leading to allergic manifestations and to the allergic phenotype, and several times he certainly stressed the importance of cats.

After that Dr. Nowak-Wegrzyn showed us very nicely how fundamental research opens new perspectives for patients. She focused on the characterization of many allergenic food proteins that are under investigation for allergy therapy, and she also said that differences in allergenic epitope recognition patterns may be associated with resistance and the severity of food allergy.

Dr. Beyer taught us how different methods have now been developed to determine the allergenicity of different HA formulas, and that new approaches are being developed to generate immunotherapy for allergy as we also mutate proteins.

Then we went back to daily clinical practice with Dr. von Berg who showed us the concept of hypoallergenicity for atopy prevention. Again the fact was stressed that only those products should be used which have been clinically tested. She showed that both those testing partial and extensive hydrolysates can be effective. Usually 3 years after the intervention there is a reduction in atopic dermatitis as well as the partial and extensive hydrolysates. She said that perhaps partial hydrolysates reduce atopic dermatitis via the induction of tolerance.

This brings us to the last talk on allergy which was by Dr. Lack who focused on the oral tolerance concept. He showed us that he wanted to induce tolerance for inhalants and food allergens rather with high than low dose antigen. In fact he further developed the window principle to give the right antigen at the right dose at the right moment, and with that strategy he would in fact induce tolerance and prevent allergenization.

If you want to reduce allergenicity, you have to give something with the best tolerance. The problem is that with amino acids you are at the lowest allergenicity and also the lowest tolerance induction, and a balance in-between needs to be found.

Ulrich Wahn
Concluding Remarks

So this moves us to the second part of the symposium which focused on gastrointestinal disorders. Dr. Ruemmele told us about chronic enteropathy and looked at it from a molecular basis. He developed the concept of several congenital enteropathies, microvillous atrophy, and showed the very interesting relation between these enteropathies and cow’s milk protein enteropathy; he in fact broadened the topic to the first part of the symposium.

Dr. Fuchs talked about the clinical aspect of chronic enteropathy and he showed that there are many causes of chronic enteropathy, but they differ between the developed and the developing world. Chronic enteropathy in developing countries is still a major cause of death in children, more than 1 million per year, and there is a direct interaction between intestinal mucosal injury, malnutrition and impaired immunity. Recovery is dependent on the proper nutritional management and the rehabilitation of that nutrition.

Dr. Milla then had a talk on the transition from parenteral to enteral nutrition. He stated that in intestinal failure parenteral nutrition is lifesaving but also potentially dangerous. Enteral nutrition needs to be introduced at the earliest opportunity, stressing the old knowledge again that if the gut works it must be used but also not too optimistically because minimal enteral feeding must also be used to increase the volumes fairly gradually and total parenteral nutrition must be minimized to the lowest level possible. By introducing enteral feeding intestinal adaptation is optimized, but of course remaining aware of the underlying gastrointestinal disease and not forgetting to treat that. He also showed us new data on experience gained in his hospital with the newly developed elements of diet which directly influence inflammation and food tolerance, offering additional tools.

What I tried to do was to speak about the relation between feeding and gastrointestinal enteropathy and introduce the concept of functional food, stressing that food is more than calories and simple nutrients, that those nutrients can also have a function, and we discussed this in relation to lipids and nucleotides. There was a lot of discussion about probiotics in different indications, and strain specificity of probiotics was certainly stressed. In Brussels we have also had some experience with the new semi-elemental diet in children with less severe conditions than in London. We have shown the efficacy and also that the formula was well tolerated and accepted.

Then before lunch Dr. Davidson gave his talk on stressed mucosa. He showed that many diseases very frequently affect gastrointestinal function by altering barrier function. Especially with the breath test he showed that non-invasive techniques may provide a better way to assess the effects of stress and also a simple way to assess interventions.

Dr. Rings said that cholestasis is important and causes growth failure, and therefore it is a challenge for survival. Because of the increasing waiting time for liver transplant there is a need to improve the nutrition of these children because it is clear that they have a better outcome when their nutritional
condition is improved. He showed us very nice models of how this optimal nutrition in cholestatic infants can be reached.

Finally all the speakers and chairpersons of both parts of the symposium thank the organizers for the beautiful meeting.

Yvan Vandenplas

First of all let me say how very grateful I am to Doctors Ekhard Ziegler, Ian Griffin, Patti Thureen and Guy Putet for coming and giving their presentations here. Collectively, we tried to cover the important aspects of the nutritional support of preterm infants with minimal overlap.

Dr. Ziegler discussed the determination of nutrient requirements in preterm infants and, in so doing, made several key points. The first was that protein requirements are substantially greater than we previously thought. The second was that the ratio of protein:energy requirements are not consistent throughout gestation and are greater in the smaller more immature (closer to 3.6–3.8 g/100 kcal) than the more mature (3.0–3.3 g/100 kcal) infant.

Dr. Griffin discussed the assessment of nutritional outcome in the preterm infant and made the following points. Although growth assessment is crucial, reference cohorts for postnatal growth, in absolute or compositional terms, are not widely accepted for preterm infants. He also noted that outside the research setting there are no reliable measures of body composition. Finally, he noted that biochemical assessments of nutritional adequacy are rarely of use in guiding nutritional interventions in most preterm babies.

Dr. Thureen addressed the issue of aggressive nutrition in preterm infants. Contrary to popular opinion she demonstrated that early parenteral nutrition with a protein intake of 2–3 g/kg/day is well tolerated by preterm infants in the first 24–36 h of life and is associated with better glucose tolerance. She also indicated that increased blood urea nitrogen of itself is not a good measure of protein tolerance but more a measure of adequacy of renal function and/or energy intake during early life.

Dr. Guy Putet discussed human milk fortification. What he highlighted was the uncertainty in this area for preterm infants. Most fundamentally he pointed out that not all fortifiers are the same and that supplementation with different fortifiers may produce different results in terms of growth. He highlighted the need for further studies in this area.

My talk focused on the post-discharge nutritional support of preterm infants. It is clear that preterm infants are growth retarded at initial hospital discharge and benefit when fed a nutrient-enriched formula during the first 6–12 months of life. What remains unclear are the optimum composition and duration of feeding of post-discharge nutrient-enriched formulas. What also remains unclear is whether breastfed infants would also benefit from nutrient supplementation, particularly those who are not thriving during the first year of life.

Richard J. Cooke