Nutritional Solutions to modulate Gut Microbiota in Early Life

Date : 7 July 2018 (Saturday)
Time: 11:45 – 12:15 Registration
12:15 – 13:00 Lecture & Lunch
13:00 – 13:15 Q&A
Venue: 13/F, Jockey Club Innovation Tower (V Core), Poly U

Dr. Jacques Bindels, PhD

Nutricia Research, Utrecht, The Netherlands

Dr. Jacques Bindels obtained his PhD in 1982 in the Netherlands in Structural Protein Biochemistry. He then worked for 6 years on Human Milk proteins and lipid components in Germany. Subsequently he moved back to the Netherlands to Nutricia Research and became responsible for research into Infant and Enteral Clinical Nutrition. From 2000 till 2005, he was a Professor on "Nutrition during Growth and Development" at Wageningen University. In 2006, he was appointed Scientific Director for R&D in Asia and in 2011 he was physically relocated to the Danone-Nutricia R&D hub in Singapore to further initiate and support regional nutritional research collaborations. In April 2018 he returned to Nutricia Research in the Netherlands and now guides the global Nutrition and Behavior Sciences roadmap for Danone Nutricia Early Life Nutrition.

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The microbial colonization of the infant gut plays a key role in orchestrating the maturation of the immune, metabolic and brain systems, and alterations of this process have been associated with an increased susceptibility to diseases later in life. It is therefore critical to gain in-depth insights on how the early colonization process occurs and determine the key factors that shape this process and can be of long term importance. Besides mode of delivery (vaginal birth vs cesarean section) and type of feeding (human milk vs formula feeding), other factors such as gestational age, introduction of solid foods, environmental factors (urban vs rural; presence of pets or siblings) and antibiotic treatment are known to influence this process. The compromised gut microbiota that results from antibiotics exposure or C-section birth has been incriminated as a risk factor for the development of NCD.

Several studies have demonstrated that nutritional intervention could be harnessed to reduce the disease risk associated with a compromised microbiota by modulating the gut microbiota. Breast milk is the best and most complete nutrition for infants. Whenever breastfeeding is not possible, one can consider prebiotics and probiotics as a nutritional solution to nurture our microbial legacy for our long-life health because the first 1,000 days of life is recognized as an important window to nurture child health and development. Infants born prematurely deal with an even greater challenge as gut microbiota development starts earlier and may be differently synchronized with immune system development. Driven by the continuous and rapidly increasing analytical possibilities and statistical data processing techniques, many associations between gut microbiota characteristics in preterms and infants and young children with functional gastrointestinal disorders have now been identified. Several dietary intervention studies with specific prebiotics, probiotics and synbiotics have been used as a mean to reduce the disease risk associated with a compromised microbiota. A positive modulation of the gut microbiota was observed in some studies even accompanied by an alleviation of clinical symptoms. However, for deciding on cause or effect relationships on short term clinical or long term NCD outcomes, more longitudinal studies are needed to transform the current partially successful but opportunistic approach to modulate gut microbiota, into a science led and outcome oriented approach.

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