Intestinal microbiota diversity in premature neonates after supplementation with probiotic lactobacillus and bifidobacterium

Purpose Routine probiotic supplementation with Bifiborn® (Lactobacillus rhamnosus and Bifidobacterium lactis) in infants with gestational age below 30 weeks was introduced in April 2010 at the Department of Neonatology, Rigshospitalet to reduce the risk of NEC. We aimed to investigate the presence of the probiotic agents as well as potential changes in the total microbiota in the stools collected in two cohorts of infants, before and after the introduction of routine probiotics.

Methods The first cohort (“control cohort”) was recruited from September 2006 to January 2009; the second cohort (“probiotic cohort”) was recruited from May 2010 to October 2011. Stool samples were collected by nurses as part of routine care at postnatal day 0–5 (sample 1), day 10 (sample 2) and day 30 (sample 3). The total number of samples was 446 in the control cohort and 225 in the probiotic cohort. All the stool samples were examined by conventional culture, tested by PCR for the 16S DNA of the two probiotic agents, as well as denaturing gel gradient electrophoresis (DGGE). The band patterns from DGGE were subjected to principal component analysis (PCA).

Results In the probiotic cohort 82% was PCR positive for L. rhamnosus, 34% was positive for B. lactis in contrast to 6% and 3% in the control cohort. The PCA from the DGGE results did discriminate the two groups with a p < 10⁻¹⁵. This was dominantly caused by a strong first component representing mainly the total number of bands, with no dominant pattern. Culture showed also a higher number of organisms (pp < 10⁻¹³) with no specific bacteria.

Conclusion L. rhamnosus and B. lactis are not naturally present in the stool of neonates. Administration of probiotics resulted in the presence of the probiotic organisms in the stools and more importantly a profound increase in diversity of the intestinal microbiota. No specific bacteria were seen to be favoured by the probiotic supplementation.

Gastroenterology

Helping babies breathe (HBB) training in remote areas of China: educational impact of a pilot training workshop

Background and aims Helping Babies Breathe (HBB) is an evidence-based educational program which teaches the simple and essential steps that effectively resuscitate the majority of infants not breathing at birth. This study aims to evaluate the training effectiveness of HBB program in remote areas of China.

Methods Based on the HBB educational materials of American Academy of Paediatrics (APP), a two-day intensive training workshop was carried out by sufficient master trainers among 73 healthcare providers from countylevel hospitals of Tibet and Sichuan province in 2013. The neonatalresuscitation (NR) knowledge of trainees and their self-confidence to complete NR were evaluated and compared before and after training. Bag and maskventilation skills (BMVS) and objective structured clinical...