AOS increased total bacteria count at day 14 (p=0.02, 95%CI 1.18-13.04), but not at day 30 (p=0.31, 95%CI 0.60-5.03). Enteral supplementation of $_{SC}$GOS/$_{LC}$FOS/AOS decreased faecal pH (p=0.01, 95%CI 0.54-0.93) and increased acetic acid (p=0.03, 95%CI 1.01-1.21). There was no effect on sIgA (p=0.50, 95%CI 0.28-13.27). Antibiotics delay the intestinal colonisation (p< 0.001, 95%CI 0.08-0.22).

Conclusions: Enteral supplementation with a prebiotic mixture consisting of neutral and acidic oligosaccharides increases the postnatal intestinal colonisation. However, administration of broad spectrum antibiotics decreased the growth of all intestinal microbiota. We suggest that caution should be given when considering initiation with broad spectrum antibiotics in preterm infants.

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EFFECT OF DAILY INTAKE OF PREBIOTIC (FRUCTOOLIGOSACCHARIDE) ON WEIGHT GAIN AND REDUCTION DIARRHEA MORBIDITIES AMONG URBAN CHILDREN IN BANGLADESH

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Background and aims: Feeding prebiotic agents have been shown to be useful in preventing enteric diseases by selectively stimulating growth of bifidobacteria and lactobacilli in the gut. There is currently insufficient evidence to support their use to prevent diarrhea in children. We evaluated the effect of daily intake of fructooligosaccharide (FOS), a prebiotic agent on diarrhea morbidities and nutritional status in urban children in Bangladesh.

Methods: A double-blind randomized controlled clinical trial was conducted on 150 children aged 25-59 months to receive 50-ml of isotonic solution with 2-g of FOS or an identical solution without FOS (Placebo) once daily over six consecutive months. Children´s mothers were interviewed weekly to obtain history of diarrhea, stool consistency, and other morbidities. Anthropometry was also measured.

Results: The number of diarrhea episodes was less in FOS group compared to the placebo group. However, the difference was not statistically significant. The total mean days with diarrhea as well as each episodes of diarrhea were significantly shorter in the FOS group (3.3 vs. 6.3 d, *p*=0.039 and 2.5 vs. 3.2 d, *p*=0.008, respectively). The body weight gain during the six-month period in the FOS group (0.86±0.55 kg) and the placebo group (0.89±0.48 kg) was not significantly different, and so were the height and the mid-arm circumference.

Conclusions: Daily intake of FOS shortens duration of diarrhea episodes, but is not useful in promoting weight gain or in preventing diarrhea. Further studies with optimizing doses are needed to define better role of FOS in diarrhea in children.

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CAN POSTNATAL SUPPLEMENTATION WITH PROBIOTICS REDUCE THE RISK FOR ALLERGIC DISEASE IN INFANCY?

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Background and aims: The increasing allergy prevalence may depend on a reduced microbial exposure early in life. Probiotics may prevent eczema in infants. Prenatal maternal supplementation might be crucial for this effect. The mixture of probiotic strains used in the present study reduced eczema when previously supplemented both pre- and postnatally. The aim of this study was to evaluate the effect of only postnatal probiotic supplementation on allergic manifestations during the first two years of life and to explore the impact of environmental factors on allergy development.

Methods: In the double-blind placebo-controlled PRODIA study, infants with HLA risk genotype for type 1 diabetes were supplemented from two until

six months of age with placebo or the probiotic strains *Lactobacillus rhamnosus* GG, *Lactobacillus rhamnosus* LC705, *Bifidobacterium breve* Bbi99 and *Propionibacterium freudenreichii* ssp. *Shermani* JS. 177 of the families completed questionnaires addressing allergy development until two years of age.

Results: The cumulative incidence of eczema was not significantly different in the probiotic (21.7%) and the placebo group (14.1%). Children receiving probiotics, as compared with placebo, had a lower cumulative incidence of wheeze, 34.1% versus 49.4% (p=0.04). Children attending day-care had a lower cumulative incidence of eczema (p=0.03). Recurrent wheeze was associated with treatment with antibiotics (p=0.005) and care in the neonatal ward (p=0.02).

Conclusion: Postnatal probiotic supplementation did not affect the development of infant eczema in children with genetic risk for diabetes, but showed association with a lower incidence of wheeze. Allergy development was associated with environmental factors potentially modulating microbial load.

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IMPAIRED CEREBRAL AUTOREGULATION IS ASSOCIATED WITH INCREASED BLOOD PRESSURE VARIABILITY IN PRETERM INFANTS

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Background: Impaired cerebral autoregulation is a key pathogenic factor in preterm cerebral injury, but the association of blood pressure variability (BPV) with autoregulatory impairment is unknown. We hypothesized that increased BPV in sick preterm infants leads to cerebral autoregulatory impairment. Using spectral analysis, we aimed to determine autoregulatory capacity in the early postnatal period, assessed by the correlation between mean arterial blood pressure (MABP, mmHg) and cerebral oxygenation (tissue oxygenation index, TOI %), and its relation with BPV($mmHg^2$)

Method: Twenty-seven preterm infants of mean gestational age of 26.3 (± 1.3) weeks were studied on the first 3 postnatal days. TOI was continuously measured by Spatially Resolved Spectroscopy (Hamamatsu NIRO 200) together with MABP from an arterial catheter. Spectral coherence analysis was used to assess concordance between MABP and TOI, expressed as Coherence score (Coh) with a value of >0.5 suggesting impaired autoregulation. BPV was assessed using power spectral density of MABP.

Results: In the frequency range 0.003-0.02Hz, BPV and maximum Coh showed a significant correlation (p=0.03). The median (IQR) minimum BPV associated with Coh >0.5 was lower in the very sick infants with Clinical Risk Index for Babies (CRIB) score of >7, compared with infants with CRIB score < 7 [29.7 (24.7-76.9) vs 99.7 (79.6 - 208.4) $mmHg^2$, p=0.03]

Conclusions: Cerebral autoregulatory impairment is associated with increased BPV, though this occurs with a comparatively lower level of BPV in extremely sick preterm infants. Our findings suggest that the sickest preterm infants are more vulnerable to cerebral injury from BPV.

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CYTOKINES ASSOCIATE WITH TISSUE FACTOR BUT NOT WITH THROMBIN FORMATION IN PRETERM INFANTS

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Background: Tissue factor (TF), the in vivo initiator of coagulation cascade, is a central link between inflammatory and coagulation pathways.

Objective: To evaluate associations between cytokine concentrations, TF and thrombin formation in preterm infants.

Methods: We measured proinflammatory cytokines (IL-6, IL-8, TNF-alpha), anti-inflammatory cytokine IL-10, free TF and, as indicator of thrombin generation, prothrombin fragment 1+2 (F1+2) in 56 VLBW infants (GA 23+5-31+5 wks, BW 600-1500g). Cord blood and blood samples on day 1, 3, and 5-7 were collected. From plasma cytokines were analyzed with Luminex technique, free TF and F1+2 were analyzed with Elisa tests (American Diagnostica, Dade Behring).

Results: IL-6 correlated with free TF in cord samples and on days 1 and 3 (R=0.53, p=0.013, n=21; R=0.380, p=0.019, n=38; R=0.373, p=0.042, n=30). IL-8 correlated with free TF on days 1 and