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EFFECT OF PARTIALLY HYDROLYZED AND EXTENSIVELY HYDROLYZED MILK FORMULAS ON THE ORAL TOLERANCE DEVELOPMENT IN INFANTS AT RISK OF ALLERGY

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Objective: A randomized, double-blind controlled study compared breastfeeding, partially- and extensively-hydrolyzed protein formulas (pHF and eHF) in their effect on cow' milk allergy (CMA) and atopic symptoms in infants at risk of allergy.

Methods: Healthy, full-term infants were randomized to receive a whey pHF or a whey eHF, either exclusively from birth to 4 months of age or at weaning when mothers were willing to breastfeed child. The population consisted of 141 (ITT) and 104 (PP) children in the pHF group and 138 (ITT) and 90 (PP) in the eHF group, of whom respectively 40 (ITT) and 32 (PP) and 38 (ITT) and 31 (PP) were partially breastfed. At 4 months, a milk oral food challenge was performed and at 4 and 12 months, skin prick tests with various food antigens and plasma immunoglobulin concentrations were measured. Standard growth parameters were followed.

Results: The incidences of CMA and of reactions to other food antigens were similarly low in all groups. Total IgE plasma concentrations increased between 4 and 12 months in all groups but increased significantly (p=0.048) less with pHF (16.92±47.11 kU/L) than with eHF (23.68±41.29 kU/L). There was an unexpectedly higher hemoglobin level in infants fed a pHF or an eHF compared to breastfeeding. Infants in all groups grew normally according to WHO standards.

Conclusion: The whey pHF and the eHF reduced the risk of CMA and of atopic symptoms similarly. The pHF was superior in reducing IgE levels during the first year of life.

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STUDY TO INVESTIGATE POTENTIAL BENEFITS OF PROBIOTICS IN YOGURT IN CHILDREN ATTENDING SCHOOL, A PATIENT-ORIENTED, DOUBLE-BLIND, CLUSTER-RANDOMIZED, PLACEBO-CONTROLLED, CLINICAL TRIAL

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Background and aims: Functional foods, especially yogurt, are attractive delivery agents for probiotics due to their popularity with parents and children; however, few commercially available products have strong clinical-based evidence. Our primary objective was to determine if consumption of a probiotic-supplemented yogurt-based beverage containing Bifidobacterium animalis ssp. Lactis (B. lactis) BB-12, at a high dose, reduces daycare absences in children ages 2-4.

Methods: We conducted a double-blinded, randomized, placebo-controlled, allocation concealment clinical trial with 188 healthy children ages 2-4 years attending daycare at least 3 days per week. Participants consumed 4 ounces of active or control drink for 90 consecutive days. Active intervention was a yogurt-based drink supplemented with BB-12. Placebo contained the two cultures commonly found in all yogurts without BB-12 and was indistinguishable from the active beverage.

Results: There were no significant differences in days of missed daycare due to illness between the groups, active (2.54 days absent/100 school days) and control (2.42 days absent/100 school days). A subset of less healthy children at baseline (N=59) showed a significant difference in rates of constipation between the groups, active (2.76 days affected/100 days) and control (0.68 days affected/100 days).

Conclusions: Consumption of a BB-12 drink did not reduce daycare absences due to illness in healthy children; however, the yogurt was found to be safe and well-tolerated. As there are many probiotic

products on the market, we believe it is important that other products be tested independently and in patient-oriented settings.

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EXACT ENTERAL AND PARENTERAL INTAKE OF CHOLINE IN EXTREMELY PRETERM INFANTS

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Background: Choline is an essential nutrient for direct synthesis of phosphatidylcholine (PC), the major membrane and secretory phospholipid. It also provides methyl groups for indirect hepatic PC synthesis via methylation of phosphatidylethanolamine, to provide the central nervous system with polyunsaturated fatty acids (PUFA-PC). It is unknown whether current nutritional strategies will supply sufficient amounts of this substrate. A deficient supply could contribute to impaired neurodevelopment observed in preterm infants.

Aim: To determine the exact supply with choline in a cohort of preterm infants and to compare the supply with actual requirements.

Methods: Retrospective analysis of the nutritional intake in all inborn infants with < 1000g birth weight or < 28weeks gestational age during 2006 and 2007 (n=96).

Results: Based on the daily increase in choline pools observed in human fetuses we assumed that preterm infants required an intake of choline of 20mg/kg/d. Based on this assumption 0%, 2%, 45%, 35%, 65%, and 80% of the infants achieved sufficient choline intake on day of life 1, 3, 5, 7, 14, and 28, respectively. The median (min.-max.) intake on days 1, 3, and 7 were 9%(0%-21%), 62%(0%-72%), and 90%(0%-151%) of required intakes.

Conclusion: More than 1/3 of these preterm infants did not achieve adequate choline intakes during the first 14days of life. Changes of current nutritional strategies are required to continuously ensure sufficient nutritional supplies with essential substrates. Whether improvement of the nutritional supply of choline may improve neurodevelopment requires further evaluation.

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SAFE USE OF ENTERAL FORMULA CONTAINING PRO-AND PREBIOTICS IN PEDIATRIC INTENSIVE CARE UNIT (PICU): EFFECT ON GUT ECOLOGY

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Malnutrition in hospitalized children together with disturbances of the intestinal microbiota favour infectious diarrhoea and nosocomial infections.

Objectives: to demonstrate tolerance of an enteral formula containing pro-and prebiotics assessed by progression to caloric target, its safety in the PICU, and impact on intestinal microbiota.

Design/Methods: 88 PICU patients between 1-3 years under mechanical ventilation and enteral feeding were randomized to receive a test formula containing probiotics, prebiotics or an isocaloric/isoprotein control. Patients remained 7 days in the PICU and were further examined at day 14.

Results: the caloric intake was similar in both groups. The time to caloric goal was 5.1 and 5.03 for test and control groups respectively. Abdominal distension, vomiting and diarrhoea were not affected by pre-and probiotics.

Assessment of antibiotic resistant bacteria showed a trend for lower vancomycin resistant enterococci (16.4% less in the test group), whereas % of ATB^r *Enterobacteriaceae* and *Pseudomonas aeruginosa* were similar between groups. Bifidobacteria counts were higher in the test group at day 14 (P=0.046). A similar trend was observed for Lactobacilli (P=0.08). The probiotic *Lactobacillus paracasei* NCC2461 was detected in 80 % of fecal samples in the test group; while the probiotic *Bifidobacterium*