

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*

longum NCC3001 was detected in 17 % of cases. Enterobacteria diminished 1 log in the test group ($P= 0.08$) whereas it did not change in the control group.

Conclusion: The use of pro-and prebiotic did not alter the tolerance of enteral feeding in the PICU, it is safe, and promotes a positive balance of the intestinal microbiota.

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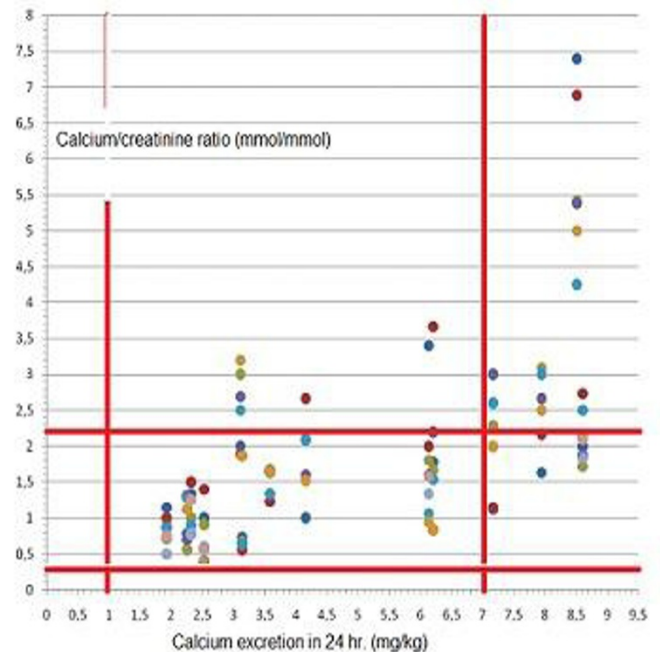
CALCIUM/CREATININE RATIO IN ONE URINE SAMPLE INADEQUATELY REFLECTS NORMO- AND HYPERCALCIURIA IN PRETERM BORN INFANTS

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Background and aims: Preterm born infants can develop nephrocalcinosis or osteopenia. The urinary calcium/creatinine ratio is frequently used to screen for these conditions. In this pilot study we investigated variations of calcium/creatinine ratios in spot urine samples and the relation to total calcium excretion in 24 hour to detect hypo, normo or hypercalciuria.

Methods: Six to eight urine portions were collected from one feeding to the next, which combined, resulted in a 24hr urine collection. Calcium excretion was measured in mmol/l and calculated into mg/kg.day (Reference 1-7 mg/kg.day). Calcium/creatinine ratios were estimated in mmol/mmol (Reference 0,3-2,2 mmol/mmol). Fourteen preterm born infants (gestational age < 34 weeks) were more than two weeks old at the time of urine collection.

Results: Mean gestational age was 28.9 weeks with a mean age of 55 days at the time of urine collection. No patient was hypocalciuric. In 4 hypercalciuric infants 26 urine samples were collected. The calcium/creatinine ratio of 11 samples (42%) was in the normal range, thus appeared to be false negative for the detection of hypercalciuria. In 10 normocalciuric infants 68 urine samples were collected of which 7 (10%) showed elevated calcium/creatinine ratios, so 10 % of the samples did not match the diagnosis normocalciuria.



[Calcium/creatinine ratio versus calcium excretion]

Conclusion: Calcium/creatinine ratios estimated in one urine sample inadequately reflect normo or hypercalciuria in preterm infants and should not be used for this purpose.

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ASSOCIATIONS BETWEEN POLYUNSATURATED FATTY ACIDS IN PLASMA AT DELIVERY AND IN HUMAN MILK AT THE 6TH WEEK OF LACTATION

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Background and aims: It is generally accepted that considerable of polyunsaturated fatty acid (PUFA) supply with human milk (HM) originates from maternal stores, however, the exact relationship is not fully understood.

Method: We investigated with gas chromatography fatty acid composition of maternal and cord plasma phospholipids at delivery and of human milk at the 6th week of lactation (n=61).