

384

EVIDENCE THAT INTRAUTERINE GROWTH RESTRICTION MAY ENHANCE TYPE III COLLAGEN SYNTHESIS IN FULL-TERM PREGNANCIES

D.D. Briana, D. Gourgiotis, M. Boutsikou, A. Kakaroukas, L. Stamati, A. Georgiadis, S. Baka, D. Hassiakos, A. Malamitsi-Puchner

Athens University Medical School, Athens, Greece

Background and aims: N-terminal propeptide of type-III procollagen (PIIINP) is a marker of type III collagen synthesis, reflecting overall growth and tissue maturity. We aimed to prospectively investigate circulating PIIINP concentrations in intrauterine- growth-restricted (IUGR) and appropriate-for-gestational-age (AGA) mother/infant pairs at term.

Methods: Serum concentrations of PIIINP (a circulating marker of type III collagen synthesis) were measured by RIA in 40 mothers and their 20 asymmetric IUGR (adjusted birthweight \leq 5th customized centile) and 20 AGA singleton full-term fetuses and neonates on postnatal day 1 (N1) and 4 (N4). **Results:** Fetal, N1 and N4 concentrations were significantly higher in the IUGR group ($p=0.015$, $p=0.017$ and $p=0.003$, respectively). In both groups, maternal PIIINP concentrations were lower than fetal, N1 and N4 ones ($p < 0.001$ in each case). In a combined group, maternal PIIINP concentrations positively correlated with N1 and N4 ones ($r=0.321$, $p=0.043$ and $r=0.412$, $p=0.008$, respectively). The effect of gender, delivery mode and parity on PIIINP concentrations was not significant.

Conclusions: Contrary to our expectations fetal/neonatal circulating PIIINP concentrations were increased in IUGR cases as compared to AGA controls. We speculate that this fact should be attributed to the stress-related IUGR state, responsible for induction of tissue maturation. Higher fetal/neonatal PIIINP concentrations as compared to maternal ones should be related to higher collagen turnover in the former. Lastly, positive correlations of PIIINP between mother and offspring could imply a transplacental passage of the protein.

385

EFFECT OF ENTERAL SUPPLEMENTATION OF NEUTRAL AND ACIDIC OLIGOSACCHARIDES ON SERUM CYTOKINE LEVELS IN PRETERM INFANTS

E. Westerbeek, N. van Zwieteren, H. Lafeber, R. van Elburg

Neonatology, VU University Medical Center, Amsterdam, The Netherlands

Introduction: Preterm have an immature immune system. Aim of this study was to determine the effect of a prebiotic mixture consisting of neutral and acidic oligosaccharides (_{SC}GOS/_{LC}FOS/AOS) on cytokine levels in the blood of preterm infants.

Methods: In a RCT, preterm infants (gestational age < 32 weeks and/or birth weight < 1500 g) received _{SC}GOS/_{LC}FOS/AOS or maltodextrin (placebo) between days 3 and 30 of life. Cytokine levels (IL-1 β , IL-2, IL-4, IL-6, IL-8, IL-10, IL-17, IFN- γ , TNF- α) were analysed by a fluorescent bead-based multiplex immuno assay at 3 time points: before the start of the study, day 7 and day 14.

Results: In total, 113 infants were included. Baseline patient and nutritional characteristics were not different in the _{SC}GOS/_{LC}FOS/AOS ($n=55$) and the placebo group ($n=58$). Enteral supplementation of _{SC}GOS/_{LC}FOS/AOS did not change cytokine levels. There was a trend toward lower levels of IL-1 β ($P=0.05$, 95% CI 0.15-1.01) and TNF- α ($P=0.14$, 95% CI 0.18-1.26) in _{SC}GOS/_{LC}FOS/AOS group compared with the placebo group. Adjustment for serious infectious morbidity did not change the results of the primary analysis.

Conclusions: There is a trend toward decreased levels of the pro-inflammatory cytokines IL-1 β and TNF- α after enteral supplementation with a prebiotic mixture consisting of neutral and acidic oligosaccharides. Increased pro-inflammatory cytokines are associated with multi-organ failure, chronic lung disease and white matter damage and therefore we speculate that a prebiotic mixture consisting of neutral and acidic oligosaccharides may improve clinical outcome in preterm infants.