

**Comments** Procedures for donors attention, registration, storage, transportation and milk collection from attention points to the Milk Bank should preserve the security and quality.

The comparison of average acidity according to the origin of milk, could be an adequate advisor in order to promote better strategies to minimise the percentage of rejected milk.

#### PO-0607a THE BENEFIT OF COMPUTER ASSISTED PRESCRIPTION OF PARENTERAL NUTRITION IN ELGANS

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**Background** To minimise extrauterine growth restriction in ELGANS computer assisted prescription of parenteral nutrition (CAPPN) was introduced.

**Aim** To evaluate the effectiveness of CAPPN in growth improvement of ELGANS.

**Patients and methods** In this retrospective, observational designed study with a nonprobability, convenience sampling to obtain medical records, we compared 20 ELGANS in the study group after CAPPN to 20 ELGANS in the control group before CAPPN. Daily parenteral and enteral intake of macronutrients, calcium and phosphate in five sequential time intervals of the first 28 days of life was calculated (day 1–3, 4–7, 2nd, 3rd, 4th week). Outcome measures were the length of PN, days to regain birth weight (BW), growth velocity, and weight and head circumference (HC) <10th percentile on day 28. Numerical data were analysed by independent-samples t-test or by Mann-Whitney U test, categorical data were analysed by chi-square.

**Results** The combined enteral and parenteral intake of the study group in all five sequential intervals after birth exceeded the intake of the control group. The length of PN and days to regain BW did not differ, however growth velocity (14,5 [3,7] vs 11.6 [0,4] g/day ( $p = 0.03$ )) and HG velocity (0.9 [0.3] vs 0.7 [0.4] cm/day ( $p = 0.03$ )) were higher in the study group. Less growth retardation on day 28 was obtained (weight 2/20 vs 9/20 ( $p < 0.001$ ); HC 3/20 vs 13/20 ( $p < 0.001$ )).

**Conclusion** In ELGANS delivery of nutrients and growth during the first month of life were significantly improved with CAPPN.

#### PO-0607b METABOLIC DETERMINANTS OF NECROTIZING ENTEROCOLITIS IN PRETERM PIGLETS

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**Background and aim** Studies in premature infants and animals show that carbohydrate malabsorption and gut microbiota colonisation are key elements for triggering necrotizing enterocolitis (NEC). Our aim was to determine how dietary carbohydrate composition affects the metabolomic profile and whether unique metabolite signatures correlate with NEC incidence.

**Methods** Cecal contents and plasma were collected from a group of preterm pigs at birth and from three groups fed

formula containing either lactose, corn syrup solids (CSS) or a 1:1 mixture of lactose:CSS (MIX) as the sole carbohydrate. We performed metabolomic analysis by LC/GC mass spectroscopy, clinical and histological NEC scoring, and distal ileum tissue expression of inflammatory markers.

**Results** Based on clinical and histological scores NEC incidence rates were 12%, 35%, and 40% in the lactose, CSS and MIX groups, respectively. Ileum inflammatory markers (IL-8, IL-6, and IL1b) were highest in CSS vs. MIX and lactose groups and also correlated with NEC. Metabolomic analysis showed that lactose vs. CSS formula increased abundance of several cecal endocannabinoids. CSS and MIX formula increased plasma histamine, cecal and plasma lactate, beta-hydroxybutyrate, and butanediol, and decreased the abundance of several primary and secondary bile acids vs. lactose fed pigs.

**Conclusions** We conclude that lactose-based formula protects against inflammation and NEC and that this correlates with increased cecal levels of anti-inflammatory neurotransmitters and reduced levels of carbohydrate fermentation products and bile acids. This novel finding suggests that endocannabinoids, normally found in breast milk, may be produced endogenously and modulate inflammation in preterm neonates fed a lactose-based formula.

#### PO-0607c ADMINISTRATION OF BIFIDOBACTERIUM BREVE AND LACTOBACILLUS SALIVARIUS, TWO STRAINS ISOLATED FROM HUMAN MILK, TO VERY LOW AND EXTREMELY LOW BIRTH WEIGHT PRETERM INFANTS: A PILOT STUDY

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Preterm infant gut has been described as immature and colonised by an aberrant microbiota.

**Objectives** Elucidate if administration of two probiotic strains isolated from human milk to preterm infants led to their presence in faeces. Secondly, evolution of immunological compounds in blood and faecal samples was also assessed.

**Materials and methods** Inclusion criteria: Birth weight <1,300 g, gestational age <29 weeks. Preterms received two daily doses (~10<sup>9</sup>CFU) of a mixture of *B. breve* PS12929 and *L. salivarius* PS12934 after meconiorrhesis. Meconium samples were collected prior to and faecal and blood samples were collected weekly for up to 28 days. Faecal bacterial growth was detected by culture-dependent techniques. Cytokines, chemokines, growth factors and immunoglobulins were determined by multiplex technologies. The statistical analysis was performed using R2.15.3.

**Result and discussion** Supplementation of five with this probiotics was effective in enhancing the levels of *L. salivarius* PS12934 that could be isolated from day 7 of intervention and its presence remained constant throughout the study; *B. breve* PS12929 was detected later, after day 14, but had an increasing presence in the faecal samples. IL-4, IL-10 and IL-13 concentrations, related to anti-inflammatory processes, and IL-8 and MCP-1 were similar to those values previously reported for 'late-preterms' at 7 days of life, this may reflect the immunomodulatory activity of the probiotic strains on this population. It demonstrated an increase in IgA since day 7. A reduction of