index (IO), arterial-alveolar oxygen ratio (a/APO₂), alveolar-arterial oxygen gradient (A-a)DO₂ and pulmonary function (compliance C_{dyn} and tidal volumen V_T) were measured each 30 min during the experiment. Mean±SD, ANOVA, p< 0.05.

Results: After 90min of treatment, animals in PFC-aerosol group, significantly improved gas exchange in comparison to Control group, being the improvement persistent until the end of the experiment: P_{aCO₂} (37±6 vs. 93±12 mmHg), pH (7.41±0.11 vs. 7.15±0.09), IO (9±3 vs. 77±44), a/APO₂ (0.29±0.11 vs. 0.04±0.02), (A-a)DO₂ (294±133 vs. 572±20). Moreover, the pulmonary function significantly improved after 60 min of treatment in PFC-aerosol group compared to Control group, the improvement was sustained during the experimental period: C_{dyn} (0.53±0.05 vs. 0.27±0.04 ml/cmH₂O/kg), V_T (12.5±2.4 vs. 5.2±1.8 ml/kg). During all the experimental period there were not changes on cardiovascular parameters.

Conclusion: Our results show that administration of aerosolized PFC improves pulmonary function and gas exchange. FIS07/0733-GV2007111046

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EXPRESSION OF AENAC IN AIRWAYS CORRELATES WITH ENDOGENOUS CORTISOL IN NEWBORN TERM INFANTS

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Objective: Reabsorption of lung fluid is critical for the adaptation of the newborn infant. Defective reabsorption may result in transient tachypnea of the newborn or contribute to respiratory distress syndrome. Perinatally, epithelial sodium channel (ENaC) is crucial for lung fluid reabsorption. ENaC is composed of 3 homologous subunits, the α-subunit being indispensable to ENaC function. Exogenous glucocorticoids (GC) regulate ENaC gene expression, but little is known whether an association exists between endogenous cortisol and ENaC.

Subjects and methods: 69 term infants delivered vaginally (n=22) or by elective cesarean section (CS) (n=47) were included. We collected cord blood and saliva for cortisol analyzes with ELISA. Airway epithelium ENaC mRNA was quantified with real-time RT-PCR and normalized to cytokeratin 18 (CK18). Saliva and airway epithelial sampling was

performed < 3h, 24 ± 5 and 48 ± 8 h postnatally. In a subset of infants delivered by elective CS (n = 26) first airway samples were obtained < 30 min postnatally.

Results: αENaC mRNA < 30 min postnatally correlated with cord cortisol; r = 0.64, p = 0.001 (n=22). Adjusted for GA the correlation remained significant; r = 0.59, p = 0.005. At < 3h postnatally αENaC correlated with salivary cortisol; r = 0.52, p = 0.004 (n=29).

Conclusion: Cortisol seems to be an important physiologic regulator of ENaC expression at birth. Our finding suggests that lung fluid transport may respond to GC even in the term infant. This underlines the potentials of regulation of perinatal lung fluid reabsorption by GC.

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THE EFFECT OF ENTERAL SUPPLEMENTATION OF NEUTRAL AND ACIDIC OLIGOSACCHARIDES ON INTESTINAL MICROBIOTA, PH, SCFAS AND SIGA IN PRETERM INFANTS

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Introduction: We aimed to determine the effects of enteral supplementation of a prebiotic mixture consisting of neutral and acidic oligosaccharides (GOS/LC-FOS/AOS) on faecal microbiota, SCFAs, pH and slgA in preterm infants. Furthermore, we determined perinatal factors associated with faecal microbiota.

Methods: In a RCT, preterm infants with a gestational age < 32weeks and/or birth weight < 1500g received enteral supplementation of GOS/LC-FOS/AOS or placebo (maltodextrin) between days 3-30 of life. Faecal microbiota, as measured with FISH, and SCFAs, pH and slgA was assessed at 4 time points: before start of the study, at day 7, 14 and 30 of life. Data were analysed by generalised estimating equations.

Results: In total, 55 preterm infants in the GOS/LC-FOS/AOS and 58 preterm in the placebo group were included. Baseline patient and nutritional characteristics were not different between both groups. Enteral supplementation of GOS/LC-FOS/AOS