pneumonia and 10 no lung disease. Gestational age and birth weights were similar (38.3 ± 2.0 wks and 2782 ± 724 g). All newborns received intra-tracheally 2 mg kg^{-1} U^{13}C -DPPC mixed with 2 to 5 mg kg^{-1} of exogenous surfactant. We collected sequential tracheal aspirates from the start of the study (before the tracer administration) and isotopic enrichments of DPPC palmitate moieties were measured from serial tracheal aspirates by gas chromatography mass spectrometry. Data are expressed as median (interquartile range) and comparisons are performed by Mann-Whitney test. $p < 0.05$ was regarded as statistically significant.

Results: Median and interquartile range of DPPC pool size in newborns with pneumonia was 3 mg kg^{-1} (1.5-14.0) and 26.7 mg kg^{-1} (18.3-44.0) in control group. The difference was statistically significant ($p=0.041$). Median DPPC half life was 10.1 h (7.6-13.9) in pneumonia and 22.5 h (18.2-36.1) in controls. The difference was highly significant ($p=0.004$).

Conclusions: Term newborns with pneumonia exhibited a smaller pool size and shorter DPPC half life than controls suggesting a markedly faster surfactant turnover presumably triggered by neonatal pneumonia.

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NEW ANTI-INFLAMMATORY THERAPY FOR NEONATAL ACUTE LUNG INJURY: VARESPLADIB (A-001) INHIBITS EX-VIVO SECRETORY PHOSPHOLIPASE

D. De Luca^{1,2}, V.P. Carnielli¹, J. Trias³, A. Minucci², E.D. Capoluongo², The Study Group on Phospholipase A2 and Neonatal Critical Care: Ilaria Burattini, Paola Cogo, Giorgio Conti, Adele Fabiano, Piermichele Paolillo, Marco Piastra, Simonetta Picone, Domenico Pietrini, Clementina Rondina, Monica Santoni

¹NICU, Wone's and Children Hospital 'G. Salesi', Ancona, ²Lab. of Clinical Molecular Biology, Catholic University of the Sacred Heart, Roma, Italy, ³Anthera Pharmaceuticals Ltd., Hayward, CA, USA

Background: Secretory phospholipase A2(sPLA2) is crucial for surfactant catabolism and inflammation. We demonstrated high sPLA2 activity during infection related respiratory failure (IRRF), hyaline membrane disease (iRDS), RSV-triggered ARDS. sPLA2 is also responsible for lung damage during

meconium aspiration syndrome (MAS). Varespladib is the first new anti-inflammatory drug able to directly inhibit sPLA2 and it resulted efficacious in animals and promising in adults.

Aim: To test varespladib efficacy in an ex-vivo model of direct endotracheal administration in various types of neonatal acute lung injury.

Methods: 24 neonates affected by iRDS, 12 with IRRF, 5 with MAS have been subjected to non-bronchoscopic broncho-alveolar lavage according to European Respiratory Society advices. Supernatant has been subdivided in aliquots which have been added with various concentrations of varespladib or equivalent volumes of saline. Real time sPLA2 activity and total protein content have been measured. Enzyme activity has been corrected for dilutional factors and varespladib absorbance. Clinical data were registered up to the intensive care unit discharge.

Results: Varespladib reduces sPLA2 during iRDS(-20%; $p < 0.0001$), MAS(-23%; $p=0.04$), IRRF(-15%; $p=0.003$). Varespladib efficacy is higher when a lower capillary extravasation is present (ratio sPLA2 activity reduction/total proteins = 2.17 in iRDS; 0.59 in IRRF, 0.53 in MAS). IC50 has been calculated and varespladib efficacy correlates with the basal enzyme activity ($\rho = 0.375$; $p=0.017$). No correlations with gestational age, birth weight, surfactant cumulative need, mechanical ventilation and oxygen therapy duration were found.

Conclusions: Varespladib efficaciously inhibits sPLA2 in an ex-vivo model of direct administration. This might have important anti-inflammatory effects and spare surfactant from its catabolism.

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REGULATION OF AGE-DEPENDENT TYPE II CELL EPITHELIAL MESENCHYMAL TRANSITION BEHAVIOR

O. Guengoeze^{1,2}, C. Scapin¹, K. Zscheppang², H.C. Nielsen¹, C.E. Dammann^{1,2}

¹Pediatrics, Floating Hospital for Children, Boston, MA, USA, ²Pediatrics, Hannover Medical School, Hannover, Germany

Background and aims: Epithelial- Mesenchymal Transition (EMT) is a process where epithelial cells acquire a mesenchymal cell phenotype. EMT is activated in association with tissue repair and remodeling after injury in multiple organs including