immunostained, were assigned a relative value from 0 (minimal staining) to 4 (most intense immunostaining). Quantitative morphometric assessment was done on coded slides with 400x magnification and a eye piece with a sample square grid pattern (model CPLW 1018, Zeiss Optical, Hannover Md) and was done following the mathematical model of Weibel. Differences between the groups were determined by one way ANOVA ($p < 0.01$).

Results: The VEGF was significantly decreased in the lungs of rats recovered in hyperoxia, it was correlated with a lower degree of alveolarization. Inhaled NO treatment after hyperoxia neither increase lung VEGF expression nor alveolarization.

Conclusion: The inhaled NO did not improve the changes observed in rat lungs after hyperoxia exposure.

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MATRIX METALLOPROTEINASE 2, TIMP-1 AND TIMP-2 CONCENTRATIONS IN TRACHEAL ASPIRATE FLUID AND PLASMA OF PRETERM INFANTS DEVELOPING BRONCHOPULMONARY DYSPLASIA

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Background and aims: Bronchopulmonary Dysplasia (BPD) is one of the most important complications of prematurity. MMPs are a group of proteolytic enzymes involved in lung development. Imbalance between MMPs and their inhibitors has been implicated in increased inflammation and impaired alveolar differentiation and maturation. MMP-2 is known to play a crucial role in this process. The aim of this study was to investigate the potential association between levels of MMP-2, TIMP-1, TIMP-2 and the development of BPD in preterm infants.

Methods: 27 preterm neonates with a gestational age of ≤ 32 weeks and birth weight ≤ 1500 g were included in this prospective study. 14 neonates developed BPD according to NIH criteria. TAF

aspirates were collected on day 1-2 and 5 after birth. Plasma concentrations were measured in umbilical cord blood samples. MMP-2, TIMP-1 and TIMP-2 concentrations were assayed by ELISA.

Results: In the group of neonates with BPD or death initial levels of examined proteins were significantly higher compared to non-BPD preterms. Additionally, in preterm infants TAF levels of MMP-2, TIMP-1 and TIMP-2 undergo dynamic changes in the first 5 days of live. Significantly lower levels of MMP-2 and TIMP-2 on day 5 compared to day 1-2 were associated with development of BPD or death. Umbilical cord blood plasma concentrations of MMP-2, TIMP-1 and TIMP-2 did not differ between groups.

Conclusions: Determination of TAF concentrations of MMP-2 and TIMP-2 and observation of their changes in the first days of life in preterm neonates is of prognostic value for development of BPD.

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RECOMBINANT HUMAN KGF/PALIFERMIN® AS AN ALTERNATIVE TO GLUCOCORTICOIDS-EFFECTS ON PNEUMOCYTE PROLIFERATION AND GENE EXPRESSION IN NEONATAL RATS

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Background: Surfactant decreases surface tension of pulmonary air:liquid interfaces. It mainly comprises characteristic phosphatidylcholine (PC) species and proteins SP-A to -D. Betamethasone used to accelerate „lung maturation“ is catabolic, while keratinocyte growth factor (KGF), expressed by fibroblasts, is non-catabolic, acts specifically on type-II-pneumocytes and correlates inversely with bronchopulmonary dysplasia incidence.

Aims: To explore the potential of recombinant human KGF (rhKGF, Palifermin®) on neonatal lung development and surfactant metabolism. To contrast rhKGF with betamethasone effects *in vivo*.

Methods: Postnatal rats (d1, d5, d19) were injected with rhKGF (2x5mg/kg), betamethasone (2x1mg/kg) or rhKGF+betamethasone over 48h. Pneumocyte