European Respiratory Society
Annual Congress 2013

Abstract Number: 4905

Publication Number: P3383

Abstract Group: 1.5. Diffuse Parenchymal Lung Disease

Keyword 1: Idiopathic pulmonary fibrosis **Keyword 2:** Lung injury **Keyword 3:** Bronchoalveolar lavage

Title: Increased apoptosis of alveolar lymphocytes (AL) in idiopathic pulmonary fibrosis (IPF). Potential mechanisms and practical considerations

Dr. Piotr 26535 Kopinski mpkopins@hotmail.com MD [1], Dr. Grzegorz 26536 Przybylski gprzybylski@cm.umk.pl MD [2], Prof. Dr Joanna 26541 Chorostowska-Wynimko j.chorostowska@igichp.edu.pl MD [3], Dr. Andrzej 26542 Dyczek a_dyczek@interia.pl MD [4], Mrs. Karina 32503 Szablowska kia7@poczta.onet.pl [1], Ms. Ewelina 32504 Pólgesek ewli@poczta.fm [1] and Mrs. Joanna 32512 Golinska joanna.golińska@gmail.com [1]. [1] Dept of Gene Therapy, Collegium Medicum, Nicolaus Copernicus University, Bydgoszcz, Poland, 85-094 ; [2] Dept of Lung Diseases, Tomors & Tuberculosis, Collegium Medicum, Nicolaus Copernicus University, Bydgoszcz, Poland, 85-326 ; [3] Dept. of Molecular Biology and Immunology, Inst. of Tuberculosis and Lung Diseases, Warszawa, Poland, 01-138 and [4] II Dept of Internal Medicine, Centre of Immunological Diseases, Collegium Medicum, Jagiellonian University, Krakow, Poland, 31-066 .

Body: Background: The implication of T cells in IPF pathogenesis is controversial. The views vary from direct lymphocytes participation in lung fibrosis to their protective role against the process. Aim: Examination of AL apoptosis frequency in IPF. Results were related to clinical data and BAL cytoimmunological pattern, in order to evaluate the physiopathological role of AL and T cell apoptosis mechanisms in IPF. Methods. BAL of 27 IPF patients and 17 controls was examined for: a) cytoimmunology, b) supernatant levels of cytokines taking part in cell apoptosis/survival (ELISA), c) AL apoptosis with flow cytometry (sub-G1 peak of cell cycle); d) TUNEL assay; e) AL staining for BCL-2, BCL-xL, BAK, caspase-3, and death receptors (DRs). Results. In all methods AL apoptosis was higher in IPF than in controls (sub-G1 peak: 2.8±2.2 vs 1.0±0,2%, $p<0.05$). IPF was characterized by remarkably lower AL BCL-2+ percentage, higher caspase-3 and death receptor TNFR1 expression. TNFα and soluble FAS levels were increased in supernatants; there was no difference in IL-7 and TRAIL expression. AL apoptosis rate in IPF was correlated negatively with BAL lymphocytosis ($Rs=-0.35$, $p<0.02$) and positively with BAL neutrophile percentage ($Rs=-0.51$, $p<0.001$), as well as both DLCO ($Rs=-0.77$, $p<0.01$) and VC pred. values ($Rs=-0.88$, $p<0.001$). Conclusions. AL protect lung tissue from fibrosis; AL apoptosis is an unfavourable process and its inhibition should be considered as important therapeutic option in IPF. Its mechanisms may include BCL-2 family proteins interaction, and TNFα:TNFR1 ligation. The way that neutrophiles impact AL apoptosis needs further explanation.