

Bronchitis and COPD

0052

Damage - associated molecular patterns (DAMPs) in bronchoalveolar lavage fluid (BALF) and serum and their relationship with clinical parameters in patients with chronic obstructive pulmonary disease (COPD).

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COPD is characterized by chronic persistent inflammation. Inflammatory process and exposure to various environmental factors remain crucial in the pathogenesis of this disease. This chronic exposure may induce immunogenic cell death of structural airway cells, inducing the release of DAMPs. They can also activate and mature cells of the innate as well as the adaptive immune system directly upon binding of pattern recognition receptors (PRRs) on these cells. The occurrence of DAMPs in BALF and serum and their relationship with clinical parameters in COPD is being considered.

Aim: 1. Assessment of DAMPs (HSP27, SP-A, DEF, HA, HMGB1, Gal-1, Gal-3, Gal-9) in BALF and sera. 2. Analysis of the relationship between DAMPs concentration and PFT results and other clinical parameters.

Methods: 30 stable COPD patients were included into the study. PFT included: spirometry, body plethysmography, diffusion capacity of carbon dioxide (DLCO), arterial blood gas analysis, 6-minute Walk Test (6MWT) was performed and BODE (B-BMI, O-obstruction, D-dyspnea, E-exercise) index was calculated. Protein concentration in tested sera and BALF were evaluated with use Bradford method. Absorbance of samples was assessed by spectrophotometer at wavelength 595 nm. Concentration of all studied proteins was estimated by use sandwich-ELISA method (BioVendor, Brno, Czech Republic; TECOmedical, Sissach, Switzerland, USCN, Wuhan, China) performed according to the attached instructions of manufacturers. Colorimetric readings were performed at wavelength 450 nm with an ELISA reader (Multiscan Bichromatic, Labsystems, Midland, ON, Canada)

Results: 1. In BALF DAMPs concentration positively correlated with 6MWT (HSP27), BODE index (Gal-1), FEV1 [%] (HSP27), and negatively with BODE index (HSP27), PaO2 [mmHg] (Gal-1), RV/TLC (HSP27). 2. In serum positive correlation between DAMPs and No of pack years (SP-A), TLC [%] (Gal-9) and negative correlation between DAMPs and age [yr] (HSP27), PaO2 [mmHg] (Gal-1), SaO2 [%] (Gal-1, HMGB1), TLC [%] (SP-A) was observed

Conclusion: DAMPs are occurred in human lung microenvironment and they are involved in local and systemic inflammatory process in COPD. The further studies should concern on a trial of detailed explanation of their connection with other inflammatory cells and mediators in context of COPD.