Interstitial lung diseases

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Elevated levels of Clusterin and VAP-1 in bronchoalveolar lavage fluid from sarcoidosis patients

Wojciech Naumnik[1], M. Kornulik[1], M. Ossolińska [1], J. Nikliński[2], B. Naumnik[3]
[1]Medical University of Bialystok, First Department of Lung Diseases and Chemotherapy of Respiratory Neoplasms , Bialystok, Poland
[2]Medical University of Bialystok, Department of Clinical Molecular Biology , Bialystok, Poland
[3]Medical University of Bialystok, Department of Nephrology and Transplantation with Dialysis Unit , Bialystok, Poland

Most of the biomarkers examined in sarcoidosis are not adequately specific or sensitive to be used as a single marker to make clinical decisions. It is necessary to search for new markers of pulmonary sarcoidosis. Clusterin (CLU) is a multifunctional, stress-induced, ATP-independent molecular chaperone, expressed in most tissues and human fluids. This glycoprotein has been implicated in many processes, including apoptosis, cell cycle regulation, and DNA repair. Vascular Adhesion Protein-1 (VAP-1) is continuously expressed as a transmembrane glycoprotein in the vascular wall during development and facilitates the accumulation of inflammatory cells into the inflamed environment in concert with other leukocyte adhesion molecules. The soluble form of VAP-1 is released into the circulation mainly from vascular endothelial cells. Clusterin and VAP-1 have not been investigated in sarcoidosis patients yet.

The aim of the study was to evaluate the concentration (Elisa) of Clusterin and VAP-1 in BALF (BronchoAlveolar Lavage Fluid) in 23 sarcoidosis (BBS) patients (second stage) and 15 healthy volunteers as control group. We also measured concentrations of IL-18 and IL-33, well known interleukins taking part in granulomatous formation. The BALF levels of Clusterin and VAP-1 were higher in sarcoidosis group than in control [Clusterin: 12.41 (0.49-162.76) vs 4.32 (1.18-40.58) ng/ml, p=0.02; VAP-1: 4.44 (0.45-36.38) vs 1.38 (0.27-2.92) ng/ml, p=0.002]. We found correlation between BALF levels of Clusterin and VAP-1 in sarcoidosis group (r=0.712, p=0.0021). In BALF of sarcoidosis patients there were correlations: between the levels of IL-18 and Clusterin (r=0.505, p=0.003), IL-18 and VAP-1 (r=0.494, p=0.023), IL-33 and VAP-1 (R=0.432, p=0.004), Clusterin and lymphocytes% (r=0.453, p=0.023), VAP-1 and Lymphocytes% (r=0.564, p=0.0012), VAP-1 and CD4/CD8 (r=0.84, p=0.002). The levels of VAP-1 negatively correlated with DLCO (r=-0.554, p=0.044) as wall as TLC (r=-0.582, p=0.023). Receiver-operating characteristic (ROC) curve was applied to find the cut-off the BALF levels of Clusterin and VAP-1 (BBS vs Healthy, Clusterin: 4.32 ng/ml; VAP-1: 1.38 ng/ml). We conclude that measurements of Clusterin and VAP-1 in BALF may have usefulness in clinical evaluation of lung sarcoidosis patients.