

The aim of this study was to evaluate the relationship of oxidative stress (OS) markers in exhaled breath condensate (EBC) in adult patients with cystic fibrosis (CF) to the severity of lung disease, nutritional status and systemic antioxidants and inflammatory markers, as well as to short - and medium - term development of pulmonary function and nutritional status, and finally to assess the response to treatment with inhaled corticosteroids (ICS). Methods: CF patients were examined in a stable phase of the disease during routine outpatient controls. EBC was collected using E CoScreen device (Jaeger) in CF patients and in control group members. Nitrites and nitrates and 8 - isoprostane were examined using liquid chromatography and competitive enzyme immunoanalysis, respectively, in EBC as OS markers. Demographic data including the dominant pathogen of airway colonization and ICS treatment were recorded in CF patients. Lung function tests, chest X-rays, nutritional statuses and systemic antioxidants and inflammatory markers were also examined using standard methods. The values of OS markers in EBC in patients with CF were compared with the control group and correlated to clinical parameters. Lung function tests and nutritional statuses in CF patients were examined in one, three and five years intervals to determine the relationship of OS markers in EBC to the changes of these parameters. Differential values of forced expiratory volume in the first second (FEV₁) and body mass index (BMI) were correlated to OS markers in EBC and other clinical parameters. In the second year of the project, the effect of treatment with ICS (budesonide 800 µg twice daily for three months) on the pH and the concentration of nitrite and nitrate in EBC and the values of FEV₁, BMI and systemic inflammatory parameters in patients with CF was studied. EBC pH was examined using the pH meter Titan (Sentron).