Title: LSC 2013 abstract - Early indicators of oxidative stress in patients with COPD

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Body: Oxidative stress is one of the major pathogenetic mechanisms of COPD. As one of the earliest and most reliable indicators of oxidative stress and destruction of tissues is the oxidative modification of proteins (OMP) we studied indicators of OMP and the number of recovered thiols in comparison with the data of spirometry, oxygen saturation and quality of life in 49 patients with I-IV stages of COPD at the remission of the disease. A control group consisted of healthy non-smokers 23 persons. For the quantitative determination of products of OMP in the blood the reaction of carbonyl derivatives of oxidized amino acid residues of proteins with 2,4-dinitrofenilgidrazin was applied. As a result of this reaction 2,4-dinitrofenilgidrazons were formed, which were registered by the spectrophotometer. The results of the study have revealed the increased amount of spontaneous oxidative modification of proteins at the initiation stage in patients with COPD (0.027±0.003 E/mg) compared with the healthy people (0.011±0.002 E/mg, p<0.01). The low level of recovered thiols in patients with COPD (0.401±0.011 mkM/l) in comparison with control subjects (0.524±0.012 mkM/l ) (p<0.0001) showed the depletion of the antioxidant system in COPD patients. The increased spontaneous OMP at the initiation stage correlates with the severity of COPD (R= 0.40, p<0.05), the parameters of lung function (R= - 0.40, p<0.05) and SaO2. Thus, the oxidative modification of proteins is the early origin of COPD and reflects the intensity of oxidative stress and the severity of this disease.