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Title: Signs of oxidative stress in bronchial asthma

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Body: Oxidative modification of proteins (OMP) is the early and most reliable sign of oxidative stress which plays an important role in pathogenesis of many lung diseases. We studied the oxidative modification of proteins in 14 patients with bronchial asthma (BA) at the exacerbation of the disease and 30 healthy subjects. For the quantitative determination of products of OMP in the blood the method based on 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 at 270 nm (initiation stage) and 363nm (stage of elongation). The number of recovered thiols was determined by the V.V. Sokolovsky method. It was shown that BA patients at the exacerbation phase had an increased amount of carbonyl derivatives originating at the initiation of oxidation amino acid rests of proteins (0.04 ± 0.01 U/mg) than in control subjects (0.02 ± 0.001 U/mg) ($p=0.01$). BA patients had a decreased amount of induced by Fenton's stimulating system carbonyl derivatives (0.11 ± 0.02 U/mg as compared with 0.16 ± 0.01 U/mg in healthy subjects, $p < 0.05$). This may be due to the considerable protein destruction. We have shown low level of recovered thiols in patients with BA (0.40 ± 0.04 mM/L) in comparison with control subjects (0.52 ± 0.01 Mm/L) ($p < 0.05$) which points out to the exhaustion of antioxidant system. The data received correlate with patient's age ($R = -0.56$), the level of glycemia ($R = -0.92$), disease duration ($R = -0.53$) and co-morbidity of bronchial asthma ($R = -0.54$). Thus, the oxidative modification of proteins reflects the intensity of oxidative stress and the severity of bronchial asthma.