

SULFUR-CONTAINING AMINO ACIDS IN THE DIFFERENTIAL DIAGNOSIS OF NONSPECIFIC PNEUMONIA AND INFILTRATIVE TUBERCULOSIS

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Sulfur-containing amino acids play an important role in vital functions of animals and humans. However, homocysteine and cysteinylglycine are prooxidants. Cysteinylglycine, has been shown to cause lipid peroxidation in human plasma LDL lipoproteins, as well as oxidative damage on DNA bases. It is known about significant positive correlation between serum cysteinylglycine levels and the risk for ischemic heart disease and invasive breast cancer risk. But there are no reports about sulfur-containing amino acids in the lung diseases. We studied the content of sulfur-containing amino acids and their derivatives in the blood plasma of patients with pneumonia and infiltrative tuberculosis. The study involved 46 patients (30 men diagnosed with pneumonia and 16 with tuberculosis) and 63 healthy (control group) of both sexes. Determination of homocysteine (L-Hcy), cysteine (L-Cys), cysteinylglycine (CysGly) and glutathione (GSH) was performed by HPLC with fluorescence detection. The results show that patients with pneumonia had statistically significant increase (155%) of cysteine level ($356,9 \pm 14,5 \mu\text{mol/L}$ in healthy persons vs. $553,3 \pm 30,5 \mu\text{mol/L}$ in pneumonia, $p < 0,05$) and a significant decrease (79%) cysteinylglycine level in comparison with control group ($24,8 \pm 0,4 \mu\text{mol/L}$ in control group against $19,5 \pm 1,2$ in pneumonia patients, $p < 0,05$). Infiltrative tuberculosis patients showed another picture: on the background of high (138%) levels of cysteine ($493,3 \pm 31,3 \mu\text{mol/L}$, $p < 0,05$) had a statistically significant increase in homocysteine levels ($8,4 \pm 0,4 \mu\text{mol/L}$ in control group vs. $15,3 \pm 3,7 \mu\text{mol/L}$ in tuberculosis patients, $p < 0,05$) and a constant level of cysteinylglycine. The level of glutathione in plasma remained unchanged in all groups studied. The ratio of the concentrations of [Cys/Hcy] in patients with pneumonia was significantly higher (almost double) $74,1 \pm 3,8$ vs. $45,8 \pm 2,0$ in the control group, $p < 0,05$, whereas in infiltrative tuberculosis group - did not differ from control values and amounted to $47,4 \pm 5,8$, $p = 0,75$. In conclusion, the results can serve as an additional diagnostic criterion by early differentiation of nonspecific pneumonia and infiltrative tuberculosis.