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Title: Nitric oxide oxidation products in bronchoalveolar lavage of patients with different severity of asthma

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Body: Background.It is known that the molecule of nitric oxide involved in the development of asthma by the direct and indirect contribution to allergic inflammation. Aim and objectives. To evaluate the NO oxidation products in bronchoalveolar lavage (BAL) of patients with different severity of asthma. We hypothesized that patients with severe asthma would have increased levels of NO oxidation products. Methods.In data analysis were included samples of BAL of 30 patients with severe asthma, 27 with moderate and 8 with mild, 15 volunteers were the comparison group.The inclusion criteria followed the guideline GINA. All subjects underwent a routine medical history taking, physical examination, spirometry. Nitrite anion, nitrotyrosine (NT) and nitrosoglutathione (GSNO) concentrations in BAL supernatant were determined using a colorimetric assay. Results.An increase of the nitrite anion and NT was demonstrated in patients with severe asthma (nitrite anion 6.57±1.52μMol; NT 204.30±40.06μMol) as compared to mild (nitrite anion 1.62±0.41; NT 4.81±0.79) and moderate disease (nitrite anion 9.14±3.97; NT 69.28±8.43) ($p<0.05$), and to control group (nitrite anion 0.39±0.09; NT 0.80±0.01). GSNO was controversially decreased in severe asthma (0.84±0.19) as compared to mild (3.67±0.46) and moderate disease (2.45±0.36) ($p<0.05$) and volunteers (6.55±1.09). It was revealed by correlation analysis that the level of nitrite anion and NT is negatively correlated with FEV1 ($R=-0,64$; $p<0.005$). Conclusions. In patients with asthma disrupted synthesis of GSNO, accompanied by excessive accumulation of NT and nitrite anion, lead to form nitrosative stress that can support inflammation persistence.