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Title: Severe asthma in old patients is characterized by signs of immunosuppression and by lymphocyte resistance to glucocorticoids

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Body: The aim of this study was to investigate the adaptation system in asthmatic patients. Twenty one patients were enrolled into the study. In 15 patients the clinical course was evaluated as severe and 6 patients demonstrated the middle asthma (mean age, 60.3±2.5 and 30.8±3.0 years, respectively). Individual susceptibility of peripheral blood lymphocytes (PBL) to glucocorticoids (GCs) was evaluated by Δh value calculation: an integrative parameter, including the level of mitogen-induced lymphocyte proliferation and inhibition degree of the cell proliferation by dexamethasone. In healthy subjects the mean Δh level was -0.24 ± 0.30 (negative values of Δh correspond to high cell sensitivity to GCs). Results of the study are presented in the Table.

Parameter	Severe Asthma	Middle Asthma	P value
Length of disease (years)	19.6±3.6	12.4±3.3	0.17
FVC	89.3%	89.4%	0.6
FEV1	67.7%	71.8%	0.43
ACTH (pg/ml)	12.0±1.7	23.1±4.8	0.05
TGFβ1 (ng/ml)	17696±1026	12461±1810	0.024
Δh	2.03±0.18	1.0±0.17	<0.001
PBL proliferation (cpm*)	14542±2339	34567±7690	0.036

*Cpm, counts per minute

The results show that severe asthma is associated with low PBL sensitivity to GCs, HPA axis exhaustion (low ACTH level) and the signs of immunosuppression (high TGFβ1 level and low PBL proliferative

response).