Co-Morbidity of Asthma and Type 2 Diabetes Mellitus

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Background
Metabolic disorders and glomerular filtration rate (GFR) may impact asthma in patients with concurrent type 2 diabetes mellitus (DM2)

Method
105 patients with asthma and DM2 (Group 1) were compared to 62 patients with only asthma (Group 2). All patients had uncontrolled moderate persistent asthma. 21 healthy subjects served as the control group. Respiratory function, GFR, carbohydrate and lipid metabolism and insulin resistance were assessed.

Results
Decrease of volumetric and airflow indicators of pulmonary function and GFR ($p < 0.001$) in all investigated patients was noted. Correlations between FEV1 and GFR ($R = 0.41$; $p < 0.05$; $R = 0.39$; $p < 0.05$) were found in patients from both Group 1 and Group 2, respectively, and between FFF 75% and GFR ($R = 0.55$; $p < 0.05$; $R = 0.37$; $p < 0.05$), respectively. The decrease in GFR in patients from Group 1 was accompanied by microalbuminuria ($p < 0.001$) while in Group 2 microalbuminuria was absent. HOMA-IR was maximally raised in patients with FEV1 <50% in both groups ($p < 0.001$), which coincided with atherogenic dyslipidemia.

Conclusion
Uncontrolled asthma, both isolated and in combination with type 2 diabetes, is accompanied by a cascade of metabolic disorders, including abnormal carbohydrate and lipid metabolism indices, reduced glomerular filtration and progression of airflow obstruction compared to healthy non-asthmatics.

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