Influence of metformin on carbohydrate metabolism and vasoactive nitric oxide pool in patients with comorbid pathology.

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The aim of this study was investigation of metformin action on vasoactive nitric oxide pool in patients with essential hypertension with accompanied type 2 diabetes mellitus.

Material and methods: dynamic observation of 20 patients with essential hypertension and type 2 diabetes mellitus (1, main group), 48 patients with essential hypertension (2 nd., comparative group) was provided. SAP and DAP, body mass index, fasting glucose, insulin, HbA1c, НОМА index were investigasted. Nitric oxide pool was investigated biochemically. Treatment with metformin was provided during 3 months and the dosage 850-1500 мg per day was reached under the control of lab analysis. Base treatment was performed as ACE or/with cardioselective β-blocks.

Results: average age of the 1 gr. was 61,7±5,2 years, 2 - 57,3±7,1 y. Anamnesis of EH in the 1 gr. - 11 ± 2 y., 2 group - 10 ± 2 y. The average anamnesis of T2DM - 6 ± 1 y. After treatment the SAP and DAP significantly decreased, but difference between groups was non significant. In patients with comorbid state the improvement of carbohydrate metabolism was revealed as significant decreased fasting glucose, insulin, HOMA, HbA1c. Body mass decreased non significant. Carbohydrate metabolism in pts of comparative group hasn’t changed.

Summary: treatment with metformin caused positive influence on vasoactive nitric oxide pool in patients with essential hypertension with accompanied type 2 diabetes mellitus. Pharmacologic effects of metformin are connected with increasing of endothelial nitric oxide synthase, decreasing if inducible nitric oxide synthase, glicemic control, diminishing of insulin, glicated hemoglobine and insulineresistance indexes. Metformin as a first choice medicine for the patients with EH and T2DM doesn’t cause and complication that leads to the cancelling of the treatment.