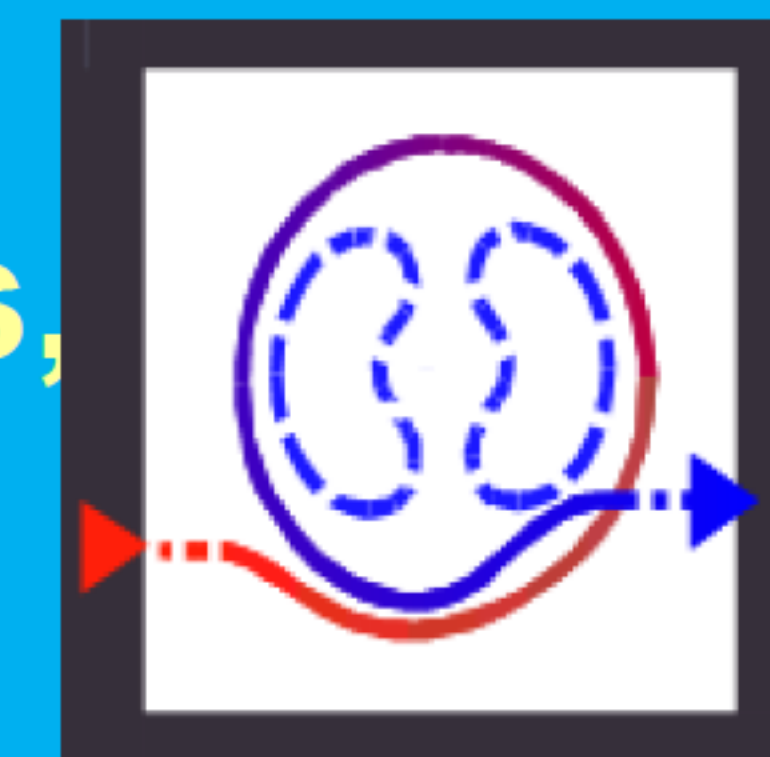# The influence the type of treatment on the asymmetric dimethylarginine (ADMA) plasma level, biochemical parameters, blood pressure in patients with non-diabetic proteinuria .

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Objectives:

Endothelial dysfunction due to reduced availability of nitric oxide (NO) is an early step in the atherosclerotic vascular disease. NO is synthesized from amino acid L-arginine via the action of NO synthase, which is blocked by endogenous inhibitor the asymmetric dimethylarginine (ADMA). ADMA is naturally occurring amino acid found in plasma and various types of tissues. The plasma level of ADMA is reported to be associated with cardiovascular risk factors such as hypertension, diabetes and chronic renal disease.

The aim of this study was estimation of the influence the type of treatment on ADMA plasma level, biochemical and blood pressure in patients with nondiabetic proteinuria. after 6 and 12 months period of treatment using ACE inhibitors, sartans, statins, steroids, cylcophosphamide, cyclosporine.
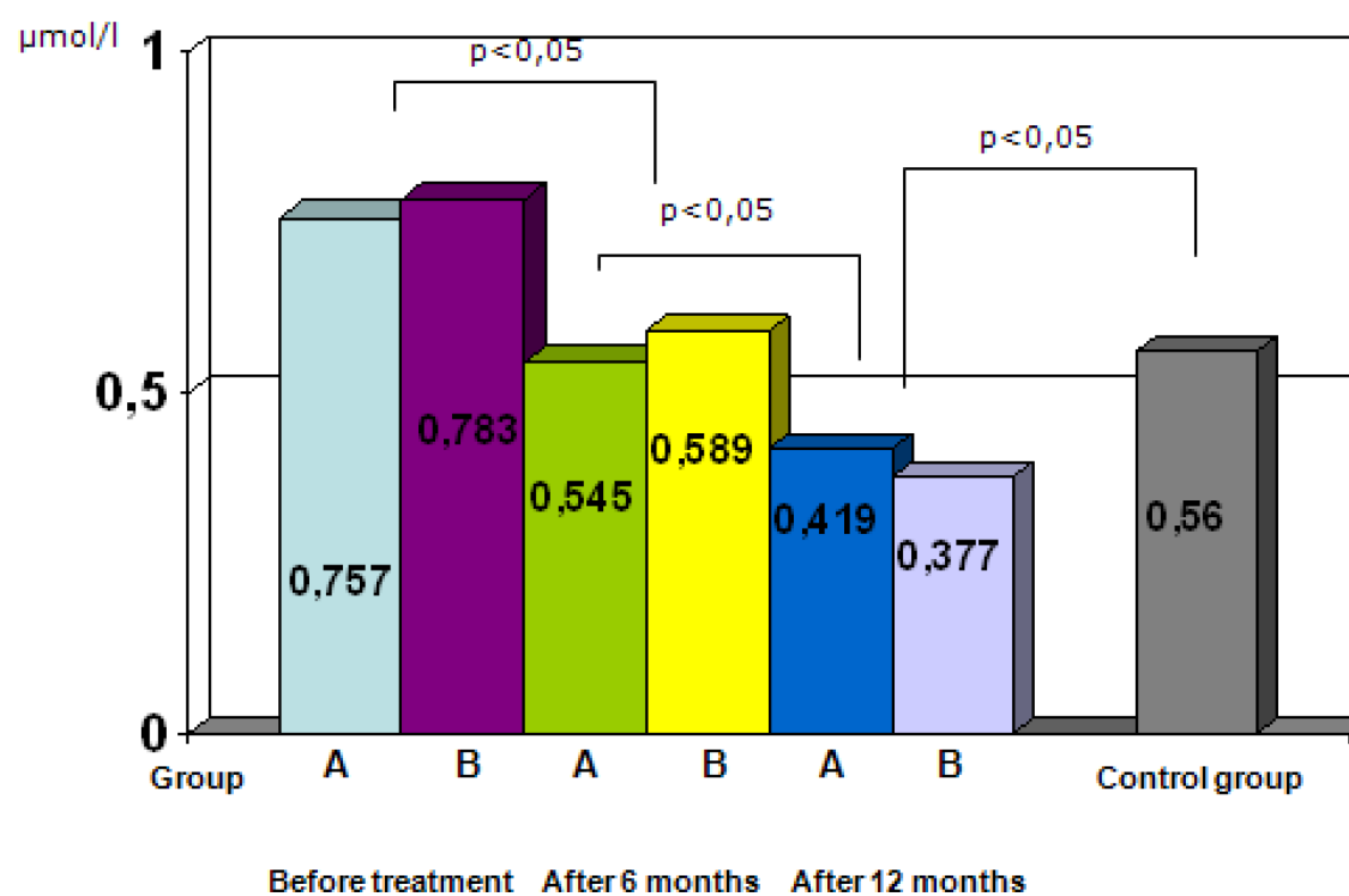
Methods:

Thirty seven patients (11F, 26M) in mean age 38,5 years old with non-diabetic proteinuria were enrolled to the study. Coronary disease was excluded in these patients. Treatment schedule (ACE inhibitors, sartans, steroids, cyclophosphamide or cyclosporine) was adjusted according medical indications. Details are presented in table 1. 17 patients (group A) was treated only using blockade of renin-angiotensin-aldosteron system (RAA) and in 20 (group B) patients RAA blockade and immunosupression were used. ADMA plasma level, biochemical parameters and blood pressure were assessed at the 0 month and after 6 and 12 months. In control group in 29 healthy volunteers in mean age 36,5 years old , only ADMA plasma level was estimated.

Results:

Results are presented in the table 2 and figure 1.
There was statistically significant change in level of ADMA, TCH, triglycerides, albumin, fibrinogen and daily urinary protein loss during 12 months of treatment, without statistically significant change in creatinine level . There were only statistically significant relationship between ADMA level and CRP, fibrinogen and TCH (p<0,05), but non-statically between ADMA and other biochemical parameters, and blood pressure.
Any difference between ADMA plasma level in group A and B was not observed at consecutive study periods..

Table 1 . The treatment schedule.

Kind of drugs	Total (n-37)	Group A (n-17)	Group B (n-20)
ACE inhibitors	15 (40%)	6 (35%)	9 (45%)
Sartans	4 (11%)	0	4 (20%)
Dual blockade RAA	15 (40%)	11 (65%)	4 (20%)
Statins	9 (24%)	4 (24%)	5 (25%)
Diuretics	16 (43%)	1 (6%)	15 (75%)
Glucocorticosteroids	19 (51%)	0	19 (95%)
Cyclophosphamide	4 (11%)	0	4 (20%)
Cyclosporine	1 (3%)	0	1 (5%)

Figure 1 Plasma ADMA level for group A and B at consecutive study periods

Table 2 Average value of biochemical, parameters, blood pressure

Parameter	0 month	6 month	12 month	p
CRP mg/l	1,66	1,26	1,19	ns
Albumin g/dl	37,13	42,88	41,23	<0,001
Fibrinogen g/l	4,93	3,83	3,79	<0,001
Creatinine mg/dl	1,14	1,17	1,15	ns
TCH mg/dl	285,24	219,00	210,79	<0,001
Triglicerydes mg/dl	238,81	195,73	154,53	<0,001
Daily urinary protein loss g	4,13	1,76	1,55	<0,001
ADMA umol/l	0,77	0,56	0,40	<0,001
SBP mmHg	121,8	126,1	124,1	ns
DBP mmHg	75,6	76,2	78,1	ns

Conclusions:

➢ **ADMA concentration decreased significantly during the treatment period in patients treated with different mode of therapy.**

➢ **After 12 months of treatment the ADMA plasma level was lower than in control group.**

➢ **The correlation of ADMA with single biochemical parameters were statistically significant.**

➢ **Blood pressure did not show any significant changes independently from the type of therapy and this variable didn't correlate with ADMA.**