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ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО  
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## THE INTERRELATION BETWEEN ALBUMIN TO CREATININ RATIO AND URIC ACID FOR PATIENTS WITH TYPE 2 DIABETES MELLITUS AND ARTERIAL HYPERTENSION

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Patients with diabetes mellitus (DM) are especially vulnerable to hypertensive injury. The coexistence with arterial hypertension (AH) has a significant impact of the poor prognosis for patients with DM because of its effect on the micro and macro vasculature.

Diabetic nephropathy is the leading cause of chronic kidney disease. It is also one of the most significant long-term complications of morbidity and mortality for individual patients with DM. There is the connection between AH and microalbuminuria, which is now recognized as an independent cardiac risk factor, even in the absence of diabetes. On the other hand, blood pressure levels, and genetic predisposition are the main risk factors for the development of diabetic nephropathy.

Epidemiologic and experimental evidence suggests that serum uric acid (UA) is a marker of developing hypertension. Furthermore, hyperuricemia is a true risk factor of chronic kidney disease. Anyway, uric acid could be a prognostic marker of events including myocardial infarction, heart failure, stroke and death.

The purpose of our study was the determination of interconnection between the level of serum uric acid and albumin to creatinine ratio (ACR) in urine for prevention cardiovascular complications in patients with type 2 DM and concomitant AH.

Participants and methods. We examined 82 patients with type 2 DM and AH during our clinical treatment. They were treated in Sumy City Clinical Hospital № 1 from October 1, 2015 to February 15, 2016. Participants were divided in two groups according to the level of ACR in urine.

People from the first (I) group had the normal albuminuria (ACR < 30 mg/g). Microalbuminuria was detected in the second (II)

group ( $30 \text{ mg/g} < \text{ACR} < 299 \text{ mg/g}$ ). Nobody had macroalbuminuria ( $\text{ACR} > 300 \text{ mg/g}$ ). We use this biochemical method of diagnostic albuminuria as ACR because of its accuracy. However, the high cost is the main disadvantage of this method. The definition of ACR is more expensive than the measuring of albumin concentration in urine. Furthermore, the level of ACR is an established marker of cardiovascular and cerebrovascular events for patients with type 2 DM. All participants in this group had the third stage of AH.

All data were analyzed with the help of statistical methods (Excel 2007). In addition, we evaluated the Student criteria (t) and the veracity of differences (p) for assessment results.

In conclusion, we compared the level of ACR and UA.

Results. The mean duration of DM was ( $7,5 \pm 1,5$ ) years for the I group and the ( $12 \pm 1,1$ ) years for the II group,  $t = 2,42$ ;  $p < 0,05$ . Despite, AH was diagnosed during ( $8,6 \pm 1,07$ ) years and ( $17 \pm 0,95$ ) years,  $t = 5,87$ ;  $p < 0,001$  for patients from the I and II group respectively. The mean levels of ACR were ( $28,56 \pm 2,1$ ) mg/g and ( $150,79 \pm 23,76$ ) mg/g,  $t = 5,12$ ;  $p < 0,001$ , of uric acid – ( $290 \pm 20,6$ )  $\mu\text{mol/L}$  and ( $408 \pm 36,4$ )  $\mu\text{mol/L}$ ,  $t = 2,82$ ;  $p < 0,01$  for participants from the I and II group respectively. So, patients with higher ACR had the biggest level of UA. In addition, people with microalbuminuria had the higher duration of DM and AH.

In our clinical treatment we determined the interrelation between two risk factors of cardiovascular and cerebrovascular events such as ACR and UA. It is doubt, that the evaluation of them must be necessary for all patients with DM and concomitant AH to prevention complications and mortality.

Some people say that UA is a predictor of microalbuminuria of diabetes. In our clinical trial this aspect was not highlighted, because there was no data what was the primary, up rise of UA or of ACR. May be it will become clear later.