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Microalbuminuaria as a predictor of pre-eclampsia in women with high-risk pregnancy

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Background: Pre-eclampsia is among the leading causes of maternal and perinatal morbidity and mortality worldwide. Pre-eclampsia is characterized by new-onset hypertension and proteinuria in previously normotensive women. High-sensitivity and specific markers for early detection of pre-eclampsia still do not exist. Thus, elevated microalbuminuria in the 1st trimester can be used to predict pre-eclampsia.

Objective: The main objective of this study is to evaluate microalbuminuria as a predictor of pre-eclampsia in women with high-risk pregnancy.

Materials and methods: In this study, there were 101 pregnant women included, divided into three groups: the first group of pregnant women with a high-risk pregnancy (n=41), the second group of pregnant women with pre-eclampsia (n=30), and the third group of healthy pregnant women as the control group (n=30). The pregnant women were referred from The University Clinic of Gynecology and Obstetrics at the Faculty of Medicine in Skopje. In urine samples, we measured microalbumin using a turbidimetric method and creatinine by Jaffe reaction on the ChemWell analyzer at the Institute of Medical and Experimental Biochemistry at the Faculty of Medicine in Skopje. Morning urine samples were collected to estimate the urinary microalbumin/creatinine ratio (UM/CR) for detecting microalbuminuria. This method is more convenient than and correlates well with the results for microalbuminuria obtained through 24-hour urine sample collection. We calculated the UM/CR ratio by the Cockcroft-Gault equation.

Results: In the first group - pregnant women with high-risk pregnancy, the UM/CR ratio was 169.0±271.7 mg/g; in the second group - pregnant women with

pre-eclampsia, the UM/CR ratio was 214.3±160.3 mg/g; and in the control group, the UM/CR ratio was 15.8±11.0 mg/g. The results indicate significant differences in UM/CR between studied groups with a p-value of <0.001.

Conclusions: Microalbuminuria could be a strong predictor for pre-eclampsia in patients with a high-risk pregnancy.

Keywords: pre-eclampsia, microalbuminuria, pregnancy