Objective: A large research portfolio indicates that an activated renal renin-angiotensin system or a deficit on melatonin is associated with several cardiovascular pathologies. In this observational clinical study, we hypothesized that alterations in urinary melatonin or angiotensinogen levels may be altered in two common conditions, preeclampsia and gestational diabetes. Our primary objective was to assess melatonin and angiotensinogen as novel disease biomarkers detectable and quantifiable in the urine of pregnant women with or without pregnancy complications.

Design and Methods: This was a concurrent cohort study of pregnant women with selected obstetric pathologies (gestational diabetes, preeclampsia, hypertension and obesity with hypertension). A group of healthy controls was also included. Urinary 6-sulfatoxymelatonin and angiotensinogen were measured by sensitive and specific ELISAs in first morning void urine samples. The patients were included in the cohort consecutively, and the diagnosis was blinded at the level of urine collection. Urinary 6-sulfatoxymelatonin and angiotensinogen levels were investigated in the patients included in the cohort.

Results: Urinary levels of angiotensinogen were significantly higher in the gestational diabetes [angiotensinogen/creatinine ratio median (25th, 75th): 0.11 (0.07, 0.18)] and preeclampsia [0.08 (0.06, 0.18)] groups than in those with healthy pregnancy [0.05 (0.04, 0.06)]. 6-sulfatoxymelatonin levels were significantly lower in the gestational diabetes [ug/h: median (25th, 75th): 0.12 (0.08, 0.17)] and preeclampsia [0.12 (0.09, 0.15)] groups than in those with healthy pregnancy [0.20 (0.15, 0.27)]. Neither morning void protein/creatinine ratio nor 24-h urine protein estimate were significantly different between the study groups.

Conclusion: These results suggest that urinary angiotensinogen levels may indicate an intrarenal RAS activation while melatonin production appears to be deficient in gestational diabetes or hypertension. An angiotensinogen/melatonin ratio can be used as an early biomarker for identification of gestational diabetes or hypertension. An angiotensinogen/melatonin ratio may indicate the intrarenal RAS activation while melatonin production appears to be deficient in gestational diabetes or hypertension.

References:
1. Gabriela R Valias1, Patricia RG Gomes1, Fernanda G Amaral1, Saif Alnuaim2, Daniela Monteiro1, Siobhan O'Sullivan4, Renato Zangaro1, Jose Cipolla Neto3, Juan Acuna4, Ovidiu C Baltatu1,4, Luciana A Campos1,4, 1Anhembi Morumbi University, Anima Institute, Brazil, 2Institute of Biomedical Sciences, University of Sao Paulo, Brazil, 3Federal University of Sao Paulo, Brazil, 4College of Medicine and Health Sciences, Khalifa University, United Arab Emirates

PS-C30-3 FEATURES OF THE C-786T NOS3 GENE POLYMORPHISM IN PREGNANT WOMEN WITH PREECLAMPSIA.

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Relevance: Preeclampsia is the multi cause illness. One of the genetic risk factors for the development of preeclampsia may be a polymorphism of the endothelial system genes.

Objective: To study the C-786T polymorphism of the NOS3 gene in patients with preeclampsia.

Materials and methods: The study group consisted of 140 pregnant women, of which the main group included 72 patients with preeclampsia, and 68 apparently healthy individuals (control group). The study was conducted in the Tashkent city maternity complex 6. The age of the pregnant women ranged from 19 to 42 years. The material for the study was DNA samples from a patient with a clinically diagnosed preeclampsia. Statistical processing of the results was carried out using statistical programs “EpiCalc 2000 Version 1.02”.

Results: The proportion of wild C allele in the subgroup of patients was statistically significantly lower compared to the control (68.6% versus 79.9%, respectively; (p = 0.04; RR = 0.86; OR = 0.55; 95%). On the contrary, the frequency of the unfavorable T allele among patients with severe preeclampsia was significantly higher compared to controls - 31.4% and 20.1%, respectively (p = 0.04). At the same time, the calculated odds ratio for detecting this allele was OR = 1.8, and the relative risk of developing diseases was RR = 1.17 (p = 0.04).

There was a trend towards an increase in the heterozygous C/T genotype in the group of patients with severe preeclampsia, where it was detected with a frequency of 39.5% compared to 27.1% in the control group (p = 0.15; RR = 1.46; OR = 1.76).

The functionally unfavorable T/T genotype was insignificantly more common among patients with severe preeclampsia compared to the control group 11.6% and 6.5%, respectively (p = 0.30; RR = 1.78; OR = 1.85).

A significant relationship was found between the risk of developing preeclampsia and the carriage of a rare allelic variant of the C-786T polymorphism of the NOS3 gene, associated with a decrease in the synthesis of the NO-synthetase enzyme.

Conclusions: Thus, the results of our study allow us to conclude that unfavorable genotypic variants of the C-786T polymorphism of the NOS3 gene (associated with vascular endothelial dysfunction) contribute significantly to the mechanism of preeclampsia development.

Results: Mean baPWV value was highest in the group with the shortest height for both sexes (both P < .001). Bivariate correlation analysis between height and baPWV showed significant correlations in men (r = -0.131, P = .003) and women (r = -0.180, P < .001). In the multiple regression analysis with adjustment for identified confounders, group height was a predictor of baPWV (P for trend = .003) in younger men (< 50 years old) but not in older men, while group height was correlated with baPWV in older women (50 years old or more, P for trend = .014) but not in younger women.

Conclusions: Height is inversely correlated with baPWV in subjects without overt CVD, especially in younger men and older women. This may explain the historical epidemiological observation of an inverse relationship between height and CVD.

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