Does the First Trimester Screening of *A. uterina* Flow Index Changes Correlate with a Genetic Predisposition to the Development of Pre-Eclampsia?

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Introduction. Pre-eclampsia is a condition that can cause vascular endothelial damage and vasospasms and is one of the leading causes of maternal mortality.

A. uterina dopplerometry investigation provides information about uteroplacental and fetoplacental circulation. One of the pathological *a. uterina* dopplerometric indicators is considered *a. uterina* flow index > 95th percentile, which is one of pre-eclampsia precursors.

Aim, Materials and Methods. The aim of the research is to study whether the first trimester screening of a.uterina flow index changes correlate with a genetic predisposition to the development of PE.

The study was carried out as a prospective randomized study. All participants of the research program conducted antenatal I trimester screening – detailed diagnostic ultrasonography with a.uterina flow index measurements and tested to genes responsible for PE development.

In total, there were 32 participants, of which 28 were included in our study. The study group members had changed *a. uterina* flow index of the first trimester screening, the control group's *a. uterina* flow index was 5th–95th percentile.

Statistical data were analyzed using IBM SPSS Statistics program.

Results. In both study groups 100 % of our subjects were homozygous F5 and F2 genes carriers. Control group's primiparas 25 % were homozygous A/A and so even the G/G and 50 % heterozygous for this gene, while the multiparas this group of representatives 14.3 % were homozygous A/A, 28.6 % G/G and 57.1 % heterozygous A/G AGT gene. Analyzing the same gene in the study population, 100 % primiparous and 50 % multiparous women were heterozygous A/G and 50 % of multiparous were homozygous A/A.

Primiparous of control group were 50 % homozygous G/G and 50 % homozygous A/A to MTHFR gene. In the same group, multiparas women 14.3 % were both homozygous G/G and A/A, but heterozygous 71.4 %. The research group of women who had the first childbirth, 14.3 % were homozygous G/G but 85.7 % heterozygous, while women with recurrent childbirth were 100 % homozygous – 50 % G/G and 50 % A/A.

Conclusions. Factor V Leiden and prothrombin mutation was homozygous for all of our study participants, so having an equal chance of developing pre-eclampsia. Women who have their first pregnancy and the first trimester screening had normal *a. uterina* flow index were least likely to have AGT gene expression. Researching MTHR gene association with altered or normal *a. uterina* flow index trimester first screening at the correlation was not found in any of the groups.