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Key words: atrial fibrillation, coronary artery disease, amino acids, metabolomics analysis.

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THE STUDY OF SOME ANTIMICROBIAL PEPTIDES IN PREGNANT WOMEN WITH TORCH INFECTION

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The problem of miscarriage is an urgent issue both for medicine and for the future society. Recently, one of the main reasons for spontaneous abortion is considered TORCH infection. Viral infections lead to the development of inflammatory processes affecting intercellular interactions, and alter the synthesis of regulatory antimicrobial proteins (AMPs), including cytokines, by cells of the immune system. The aim of the study was to determine the level of certain antimicrobial peptides (lactoferrin, endotoxin, hepcidin, defensin and BPI) in 69 pregnant women. 40 of them with TORCH infection were divided into 2 subgroups: 33 women without miscarriage and 7 women who already had a miscarriage. 29 pregnant women without TORCH infection were included in the comparison group. All patients were examined in the first trimester of pregnancy. The study revealed a significant increase in the content of AMP in the group of pregnant women with miscarriages. They have a content of lactoferrin, endotoxin, hepcidin, defensin and BPI, respectively, by 54.7% ($p < 0.001$); 3.0 times ($p < 0.001$); 2.6 times; 4.1 times ($p < 0.001$) and 2.8 times ($p < 0.001$) were higher than the values in the group of pregnant women without TORCH infection. A comparative analysis showed that in this subgroup the levels of lactoferrin, endotoxin, hepcidin, defensin and BPI are respectively 17.7%; 2.7 times ($p < 0.001$); 71.3% ($p < 0.001$); 36.7% and 2 times ($p < 0.001$) exceeded the level of relevant indicators in pregnant women with TORCH infection without miscarriage. The results of our studies show that an increase in the level of antimicrobial peptides in the blood serum of pregnant women can be a sensitive marker in predicting miscarriage.

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COEFFICIENT OF THE RATIO OF INTERLEUKIN 6 TO INTERLEUKIN 8 — PROGNOSTIC CRITERION FOR INTRAUTERINE INFECTION

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The aim of this study was to investigate the attitude between maternal serum levels of interleukin 6 (IL-6) and interleukin 8 (IL-8) in venous blood and cord blood in 50 Belorussian Caucasian women with preterm labor (PL) and 50 women with term labor as controls.

Materials and Methods: The case group consisted of patients with a diagnosis of spontaneous preterm birth (before 37 weeks gestation). The control group comprised healthy women with the term labor (≥ 37 weeks).

All participants were at least 18 years old at enrollment. All patients in the preterm group had a spontaneous delivery between 27+1 and 36 + 6 weeks gestation.

Upon admission to the delivery room, 5 ml of venous blood was drawn from each participant. Samples were collected in tubes containing ethylenediamine tetraacetic acid (EDTA). Maternal plasma levels of IL-6 and IL-8 in different stages of pregnancy were quantified using enzyme linked immunosorbent assay.

To compare two independent groups by variables the Mann-Whitney U test was used. Odds ratio events in the one group to the chances of the same event in another (OR) and 95% confidence interval for them (95% CI). Significance was established at $p < 0.05$. Statistical analysis was performed using the program «MedCalc 10.2.0.0» (MedCalc, Mariakerke, Belgium).

Results: Taking into account the interaction of cytokines in the development of the inflammatory reaction and the wide variability of their concentrations in the venous blood and in cord blood, the coefficient of the ratio of IL-6 to IL-8 ($IL-6^b / IL-8^b$) in venous blood in case of infection-related gestational pathology and similar indices for cord blood cytokines ($IL-6^p / IL-8^p$).

The values of the coefficient of IL-6 / IL-8 in the venous blood of patients with premature and urgent delivery and in cord blood are presented in table 1.

Table 1 — Ratio of IL-6 to IL-8 in venous and umbilical cord blood in premature and urgent births, n; Me (25; 75)

Coefficient IL-6/IL-8	Case group (N=47)	Comparison group (N=50)	Significance level
Venous blood	47; 0,92 (0,03; 4,77)	50; 5,46 (0,75; 21,43)	U=773, p=0,004
Cord blood	46; 0,64 (0,01; 0,96)	50; 0,18 (0,02; 1,30)	U=1098, p=0,7

In the case group of patients with microbial contamination of the placenta, the coefficient of IL-6 / IL-8 in the venous blood was higher than 3.84 (0.98; 18.87) in comparison with 0.29 (0.02; 1.51) in a group of women with preterm delivery without microorganisms in the placenta ($U = 645$, $p = 0.004$). Low values of IL-6 / IL-8 in the venous blood of women with premature births were observed during the placental stage of the intrauterine infection of 0.85 (0.02; 2.59) compared with 4.29 (0.74; 15.91) in a group of women with preterm delivery and inflammatory changes in the placenta ($U = 164$, $p = 0.034$). The coefficient of IL-6 / IL-8 in the case group whose children had signs of intrauterine infection was 0.97 (0.26; 3.57) compared to 14.22 (1.80; 48.60) in a group of women with term labor and the presence of intrauterine infection in newborns ($U = 84$, $p = 0.006$). Thus, lower values of the coefficients of IL-6 / IL-8 (Me = 0.92; $p = 0.004$) were noted in the case group. Higher values of the IL-6 / IL-8 coefficient were diagnosed in a group of women with preterm birth and placenta infection (Me = 3.84; $p = 0.004$).

Prospects for further research: In this way, the proposed ratio of interleukin 6 to interleukin 8 can be used for early diagnosis of intrauterine infection. For a more accurate early diagnosis of intrauterine infection, the amount of tumor necrosis factor a and the ratio of interleukin-6,8 to tumor necrosis factor a should also be determined.

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Key words: interleukin-6, interleukin-8, preterm labor, intrauterine infection.