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Key words: thyroid gland cancer, biomarkers, single nucleotide polymorphisms

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ROLE OF THE IL-6 / TNF RATIO IN DIAGNOSTICS OF PERINATAL INFECTIONS

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Sporadic miscarriage is mostly associated with infectious causes. Infectious agents on the background of the gestational immunomodulation realize the pathogenic effect by direct damaging effect and through the cytokine system. In this case, it is relevant to study the functioning of the immune system in pregnant women. Given the interaction of cytokines in the development of the inflammatory reaction and the wide variability of their concentrations in the venous and umbilical cord blood of patients. Ratio of IL-6 to TNF α (IL-6v / TNF α v) in venous blood for infection-related gestational pathology and similar coefficient for cord blood cytokines was studied.

Materials and Methods. The case group has consisted of patients with diagnosis of spontaneous preterm birth (before 37 weeks' gestation). Healthy women with the term labor (≥ 37 weeks) were included into the control group. All participants were at least 18 years old at enrollment. All patients in the preterm group had spontaneous delivery between 27+1 and 36 + 6 weeks of gestation. Maternal plasma levels of IL-6 and TNF α different stages of pregnancy were quantified with enzyme linked immunosorbent assay. Mann-Whitney U test was used to compare two independent groups. 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) were calculated. Method of constructing a ROC-curves with the calculation of the area under the curve (AUC), sensitivity (Se) and specificity (Sp) obtained models were used for diagnostically significant indicators of quantitative traits. Significance was established as $p < 0.05$. Statistical analysis was performed using the program «MedCalc 10.2.0.0» (MedCalc, Mariakerke, Belgium).

Results. Ratio of IL-6 / TNF α in the venous and umbilical cord blood in preterm and term labor was as follows (table 1).

Table 1. - The ratio of IL-6 to TNF in venous and cord blood in preterm and term labor, n; Me (25; 75)

Ratio IL-6 / TNF α	Case group (N = 47)	The control group (N = 50)	Significance level
Venous blood	46; 2,50 (1,41; 46,40)	50; 37,15 (7,74; 232,75)	U=650, p=0,0002
Cord blood	46; 1,51 (0,10; 15,80)	50; 1,55 (0,36; 30,22)	U=1006, p=0,4

IL-6 / TNF α ratio in women in the main group who did not have the effect of the injection of tocolytics was lower 3.37 (0.78; 36.92), in comparison with patients whose pregnancy was prolonged 86.29 (4.97; 453.59); U = 77, p = 0,02.

Low and paramedian values of IL-6 / TNF α in venous blood were detected in a significant majority of women (77%) of the main group, whose children were diagnosed with aspiration pneumonia. Five women (23%; N = 22) showed high values of the coefficient ($\chi^2 = 11.0$; $p = 0.0009$), they also had children with aspiration pneumonia.

IL-6 / TNF α ratio was lower in umbilical cord blood in children with sepsis 0.11 (0.09; 1.39), in comparison with children without signs of perinatal infections 1.59 (0.66; 52.53); $U = 54$, $p = 0.038$. When constructing the ROC curve, the threshold value of the ratio of IL-6 / TNF α in cord blood for the development of sepsis in the neonatal period was less than 1.40 (Se = 85.7%, Sp = 63.6%, AUC = 0.71, 95% CI 0.61-0.80, $p = 0.02$).

As a result, it was found that in patients of the main group, lower values of the IL-6 / TNF α coefficient were observed in venous blood (Me = 2.50; $p = 0.0002$). Coefficient of IL-6 / TNF α in a woman's blood serum was lower in group with labor resistant to tocolytics (Me = 3.37; $p = 0.02$). In newborns who had aspiration pneumonia IL-6 / TNF α ratio was assigned to the 1st and paramedian quartile (77.3%; $p = 0,0009$). Lower IL-6 / TNF α index in umbilical cord blood was diagnosed in newborns with sepsis (Me = 0.11; $p = 0.038$). The threshold value for the development of neonatal sepsis was the value of IL-6 / TNF α less than 1.40 ($p = 0.02$).

Conclusion: Low values of the ratio in the placental and fetal stages of perinatal infections were found. IL-6 / TNF α ratio has shown importance as the earliest marker of perinatal infections.

Key words: gestational pathology, cytokines, perinatal infections.

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DYNAMICS OF MARKERS OF INFLAMMATORY ENDOTHELIUM ACTIVATION IN PATIENTS WITH ISCHEMIC HEART DISEASE IN COMBINATION WITH NON-ALCOHOL FATTY LIVER DISEASE AFTER INFLUENCE BETARGIN AND QUERTSETIN

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Coronary heart disease (CHD) is ranked first place among the causes of mortality in the world according to WHO [1]. Functional disorders of the liver cause dyslipidemia, which is a significant pathogenetic component of the CHD. Therefore, according to modern notions, nonalcoholic fatty liver disease (NAFLD) is considered as a risk factor of cardiovascular diseases (CVD) [2]. Recent scientific studies have shown that endothelial dysfunction (ED) is one of the most important links in the pathogenesis of atherosclerosis – the morphological basis of CHD. The disturbance of endothelial properties resulting from damage of the cell membrane by free radicals, modified low density lipoprotein, antigenic complexes, monocytes-macrophages, and cytokines leads to the activation of endothelial cells with subsequent apoptosis and the formation of a stable imbalance of all endothelial-dependent functions [3]. A leading role in the formation of ED and, accordingly, the development of atherosclerosis, plays a chronic systemic inflammation, which is also an important pathogenetic component of NAFLD [4]. The state of the problem with the incidence of CHD, the frequency of comorbid cases with NAFLD causes the necessity to find new effective therapeutic approaches with an impact on the common links of the pathogenesis of these diseases. The purpose of the study was to investigate parameters of inflammatory activation and endothelial dysfunction in patients with stable ischemic heart disease