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LABORATORY STUDIES IN OBSTETRICS, GYNECOLOGY AND NEONATOLOGY

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Abstract:

The state of vaginal biocenosis has a serious impact on the reproductive function and, as a consequence, on the quality of life of a woman. Classical clinical and laboratory methods of examination of women in gynecology are cultural and microscopic (examination of a gynecological smear), but they are not always effective enough. Recently, molecular genetic methods for assessing vaginal biocenosis (PCR) have been introduced into clinical diagnostic laboratories, however, their use for screening purposes is not always possible, since they are not included in the standard list of studies and are often paid for at the expense of patients' own funds.

Keywords: Pathological Discharge, Endothelium And Angiogenic Factors, Laboratory Diagnostics

The purpose of our work was to determine the effectiveness and feasibility of using molecular genetic methods to determine the state of vaginal biocenosis in women during screening studies. In 2013, we examined 78 women aged 24-37 years who applied to a women's consultation for a preventive examination, while 17 (22%) women complained of pathological discharge from the genital tract. All patients underwent a comprehensive diagnosis of the state of the vaginal microflora - microscopic examination of the smear and PCR in real time.

In a molecular biological study against the background of vaginal normocenosis, the DNA of ureaplasmas was found in 37% of women, mycoplasmas - in 8%. With moderate vaginal dysbiosis, ureaplasma DNA was detected in 60% of patients, mycoplasma - in 40%; with severe dysbiosis, sections of the ureaplasma genome were detected in 31%, mycoplasma - in 6%, Candida fungi - in 12% of cases.

According to the data obtained, in women with coccoid and mixed vaginal flora, it is desirable to assess the state of biocenosis by PCR, which will not only reveal the etiology of dysbiotic phenomena, but also determine the need, scope and effectiveness of therapy for these conditions.

Modern literature has shown that one of the significant risk factors for the development of neonatal complications in premature newborns is the formation of an infectious process. Intrauterine infections (IUI) negatively affect all links of the fetoplacental complex and are one of the main causes of perinatal morbidity and mortality. Among reproductively significant VUI, the most common are herpesvirus, as well as sexually transmitted bacterial infections: chlamydia, mycoplasmosis. The aim of our work was to analyze the prevalence of markers of bacterial and viral infections among premature newborns with extremely low and very low body weight (up to 1500 g) and their mothers.

The main group included 38 women whose pregnancy was terminated in the first trimester (by the type of non-developing or early miscarriage). The comparison group consisted of 112 women whose pregnancy ended with the birth of live full-term children. The exclusion criteria were: multiple pregnancy; pregnancy resulting from ART; chromosomal pathology of the fetus. The level of markers of the functional state of the endothelium and angiogenic factors in the blood serum was determined in the first trimester of pregnancy by ELISA, the data were presented in the median format (lower quartile-upper quartile).

The resulting circulatory insufficiency and ischemia of the emerging fetoplacental complex contribute to the activation of the release of VEGF, which supports the ability of placental villi to form a large number of branching vessels, which is important for the successful progression of pregnancy. A significant increase in the ratio of pro- and anti-angiogenic factors (VEGF/sVEGF-R1) in the group with early reproductive losses is, apparently, a reflection of the shift in the balance of angiogenesis regulators in the direction of implementing a strategy to enhance va-scularization in conditions of endothelial dysfunction and pronounced vascular rigidity.

However, the PLCC index in women with pregnancy complicated by gestosis significantly exceeds the corresponding values in the comparison group by 1.35 times ($p < 0.05$). In pregnant women of the 1st clinical group, there was a statistically significant increase in platelet aggregation induced

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(ADP, adrenaline and collagen) by 1.63, 1.54 and 1.48 times ($p < 0.05$), respectively, compared with the comparison group. The values of induced platelet aggregation in the second clinical group did not significantly differ from similar indicators of the comparison group. Revealed positive correlation between aggregation (ADP-AT, Adr-AT, Count-AT) platelet activity in blood plasma and platelet PLCC index ($r1 = 0.687$; $p < 0.05$; $r2 = 0.605$; $p < 0.05$; $r3 = 0.613$; $p < 0.05$, respectively), confirms the data that an increase in the fraction of large platelets may be a laboratory marker of platelet hemostasis activation during pregnancy complicated by gestosis.

During pregnancy, morphofunctional, physiological and biochemical changes in the genital tract lead to the fact that the vaginal microflora becomes more homogeneous. In the vagina of women during pregnancy, the concentration of glycogen increases. Favorable conditions are created for the vital activity of lactobacilli, the number of which in the vagina of pregnant women significantly exceeds those in the vagina of non-pregnant women. After childbirth, qualitative and quantitative changes occur in the vaginal microflora, which may be associated with a significant decrease in the level of estrogens, the possibility of traumatization of the vagina and its contamination by intestinal microflora during childbirth. In the postpartum period, the number of non-spore-forming gram-negative strict anaerobes - Bacteroides spp. and gram-negative facultative anaerobic bacteria - E. coli significantly increases and the levels of lacto- and bifidobacteria decrease.

To improve the effectiveness of screening, it is important to observe the timing of its implementation. The maximum shift of serological markers in HPV is observed at 9-10 weeks, and ultrasound data - at 12 weeks of pregnancy. Since the decisive factor for calculating the risk under the Astraia program is the accuracy of the measurement of CT and TVP, but the serological indicators of VPR are more dependent on the duration of pregnancy, the optimal period for examination is 11-12 weeks. In practice, there is usually some delay in the examination due to the lack of ultrasound specialists, which leads to a decrease in the coverage of pregnant women with combined screening in a number of regions to 63.8% of all registered. The reasons for insufficient coverage are also: late referral of pregnant women to a women's consultation for registration (in 9.1% of cases), refusal of examination (in 16.1% of cases) and other reasons (in 10.2% of cases) - irregular visits to a women's consultation, spontaneous miscarriages, antenatal fetal death, medical abortion, lack of quotas for examination etc. That is why most pregnant women are sent to the ICPD at 13-14 weeks, which leads to a decrease in the effectiveness of early screening. In addition, an additional reserve for improving the quality of screening is the development of standards for determining the duration of pregnancy and measuring TVP by ultrasound.

Pregnancy complicates the course of diabetes mellitus (DM). Even with a slight violation of kidney function, more than 50% of pregnant women with diabetes in the third trimester develop hypertension and proteinuria increases, which can be very significant. It is generally believed that the glomerular filtration rate (GFR) is the best marker of kidney function. However, there is evidence that the early stage of renal pathology associated with DM, in which renal hypertrophy and hyperperfusion are observed, is quite difficult to diagnose: GFR, determined by creatinine, is often within the normal range.

Erythrocytes and blood serum of patients with physiological and complicated pregnancy were selected as the material for the study. The activity of catalase and superoxide dismutase was determined in erythrocytes. In serum, the activity of leukocyte elastase and kallikrein, the concentration of malondialdehyde, oxyproline were determined by standardized methods.

We believe that the conducted clinical and biochemical study and the proposed diagnostic algorithm can significantly improve the accuracy and efficiency of using fine biochemical methods for early diagnosis of gestosis in pregnant women. Based on the theoretical data obtained, laboratory diagnostics of the initial stage of gestosis is complex, based on the assessment of the severity of oxidative stress by parameters reflecting the dysfunction of the antioxidant system. The obtained results make it possible to carry out timely diagnosis of gestosis in pregnant women at an early stage of the disease, and selected laboratory diagnostic tests allow us to assess the degree of changes.

Biological rhythms are currently recognized as a universal multilevel mechanism of adaptation of living organisms to changing environmental conditions. This is evidenced by numerous works of domestic and foreign authors. Adaptive reactions largely determine the nature and direction of metabolic processes. Dyslipoproteinemia is an important link in the formation of metabolic disorders, which are the basis for the development of many pathological conditions. Unfortunately, in clinical practice, the circadian variability of lipid metabolism is not taken into account when making a diagnosis, which can lead to erroneous conclusions and the appointment of inadequate drug therapy.

Conducting an active-wait-and-see tactic for PIOV in full-term pregnant women of the main group selected according to these criteria does not lead to a

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change in the level of plasma fibronectin and C-reactive protein in plasma and amniotic fluid.

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