COMPARATIVE CHARACTERISTICS OF VAGINAL BIOCENOSES IN PREGNANT WOMEN WITH PREMATURE DISCHARGE OF AMNIOTIC FLUID

PhD, Associate Professor Husiev V. M.

Ukraine, Liman, Donetsk National Medical University, Department of Obstetrics and Gynecology

Abstract. The microbiocenosis of the vagina of women of reproductive age is a well-balanced and stable system. Normally, in this biotope there are microorganisms that can survive, coexist and develop in a particular physical environment without causing a disease of the macroorganism. The emergence of disturbances in the quantitative and qualitative relationships of resident microorganisms - saprophytic and opportunistic, inhabiting the genitourinary system in the norm, leads to an imbalance. The development of an imbalance of microbiocenosis can be accompanied by metabolic, immune disorders and in some cases clinical manifestations, the degree of expression of which varies from asymptomatic carrier to a pronounced clinical manifestation.

One of these rather serious complications of vaginal biocenosis disorders in pregnant women is a premature outflow of amniotic fluid, which is one of the causes of maternal morbidity and pathological conditions of the fetus and newborns.

With a diagnostic purpose to determine the species and quantity composition of the vaginal microflora, as a pregravid preparation, it is of interest for the practical use of the test system "Femoflor 16" in real-time mode.

Timely diagnosis of vaginal biocenosis disorders during pregnancy will allow to reduce the incidence of complications in the mother and fetus.

Keywords: biocenosis, vagina, diagnosis, complications.

Introduction. Premature outflow of amniotic fluid is a common obstetric pathology, occurring in 10-19 % with timely delivery and is the cause of premature birth (22-36 weeks) to 35 % of cases [1,2], which complicates the process of labor in 19.0 % and is one of the reasons leading to an increase in perinatal and maternal morbidity. One of the main causes of maternal morbidity with premature outflow of amniotic fluid remains chorioamnionitis and endomyometritis. Childbirth is accompanied by a lingering course leading to physical and nervous exhaustion of the woman in childbirth, an increase in the frequency of surgical delivery, and more frequently purulent-septic diseases of the puerperas and newborns.

One of the main factors contributing to premature discharge of amniotic fluid is the disturbance of vaginal biocenosis, resulting in impaired elasticity of the amniotic membrane and the disturbance of their integrity.

The vagina, vaginal microflora and vaginal environment, controlling the microflora, form a harmonious ecosystem. During pregnancy, under the influence of the hormones of the corpus luteum, the vaginal mucosa thickens, the elasticity of the cells of the intermediate layer increases, inside them the synthesis of glycogen increases, favorable conditions for the life of lactobacilli are created. As pregnancy progresses, the number of transient microorganisms decreases and the number of lactobacilli increases. Thus, by the time of delivery in a healthy pregnant women, the level of microbial contamination of the birth canal decreases with the maximum dominance of the acidophilic flora.

However, during pregnancy, against the background of physiological immunodeficiency and hormonal changes, activation of chronic infections often occurs [1,3]. The vast majority of infectious diseases of the vagina are variants of the disturbance of the biocenosis and are associated with the activation of opportunistic microorganisms of the urogenital tract. Analysis of the literature showed that bacterial vaginosis and urogenital candidiasis 2-6 times increase the risk of developing complications of pregnancy such as chorioamnionitis, premature birth, intrauterine infection of the fetus, polyhydramnios, premature outflow of amniotic fluid [4,5,6]. Pathogenetically, this is explained by the ascending pathway of infection and the features of the immune reactivity of the macroorganism. A special anatomical and histological structure of the cervix, cervical mucus, adequate immune response mechanisms and intact fetal membranes create an effective barrier against bacterial invasion. However, the antibacterial properties of the cervix can significantly weaken with infectious (cervicitis) and dyshormonal diseases (endocervicosis, endometriosis), as well as in the presence of organic
pathology (ischemic-cervical insufficiency, scar deformation), playing a significant role in infection of the ovum. Against the background of the disturbance of the biocenosis of the vagina, the risk of infection with sexually transmitted infections increases dramatically [6-8], and the manifestation of a latent virus infection. This is due to low redox potential and tissue hypoxia, as well as high pH values of vaginal contents.

Inflammatory diseases (infections) at the level of the vagina and cervix - colitis and endocervicitis - are the most common cause of disruption of the integrity of fetal membranes. Local inflammatory processes trigger the activation of enzymes [6,8], in particular, metalloproteinases, which begin to dissolve the connective tissue of the amnion, making the fetal membranes thinner, supple and easily tearing, even with a slight increase in the tone of the uterus. Simultaneously, local inflammatory processes trigger cascades of biochemical reactions, the microbial phospholipids accumulate in large amounts, which trigger the synthesis of prostaglandins P2 and E2 from tissue phospholipids of the amniotic epithelium. This leads to the development of labor at any time of pregnancy.

Bacterial phospholipases destroy the fetal lung tissue surfactant, as a result of which the child is born with clinical manifestations of respiratory distress syndrome [5], the genesis of which is not associated with hypoxia, but reflects the pathogenetic stages of genital dysbiosis.

For this reason, taking into account the prevalence of opportunistic microorganisms in the etiology of vaginal infections and their role in the development of premature outflow of amniotic fluid, the continuation of studying the pathophysiology of this disease is highly relevant, which in the future will greatly improve the methods of prognosis, and consequently, the prevention and treatment of this pathology [4-8].

Results of the study. The aim of the work was to determine the disturbances of microbial associations in pregnant women with premature discharge of amniotic fluid. Examination of smears of the posterolateral wall of the vagina was performed in 27 pregnant women who entered the maternity department with a premature outflow of amniotic fluid in the period of 22-36 weeks and 30 pregnant women with a physiologically developing pregnancy by polymerase chain reaction in real-time mode ("Femoflor 16") with the definition of the species and quantity composition of the vaginal microflora. In addition the use of the test system "Femoflor 16", in order to verify the pathogenic and conditionally pathogenic flora, according to the protocols of management of pregnant women with premature outflow of amniotic fluid, bacteriological examination of the vaginal secretion was carried out in the maternity ward.

The change in microbial flora in pregnant women with premature outflow of amniotic fluid was detected in 70.37% of cases, against 13.33% in women with physiologically ongoing pregnancy (p < 0.002). The biocenosis of the vagina in a group of patients with a premature outflow of amniotic fluid is represented for the most part by a combination of two, and sometimes three, microbial associations. The dissemination of microorganisms in the groups studied was significantly different. In pregnant women with premature discharge of amniotic fluid, the amount of Lactobacillus spp. was reduced less than 10^7 CFU/ml, seed with microorganisms of the family Enterobacteriaceae, Streptococcus spp., Staphylococcus spp. in groups was not different, and the number of obligate anaerobes represented by Gardnerella vaginalis, Prevotella spp., Eubacterium spp., Sneathia spp., Leptotrichia spp., Megasphaera spp., Veillonella spp., Lachnobacterium spp., Clostridium spp., Mobiluncus spp., Corynebacterium spp., Peptostreptococcus spp., Atopobium vaginae, significantly increased more than 10^5-6 CFU/ml with a simultaneous increase in the amount of Mycoplasma spp.

The biocenosis of the vaginal tract in pregnant women with a physiological course of pregnancy in large part was represented by Lactobacillus spp. in average values of 10^8 CFU/ml, with sufficiently low figures of conditionally pathogenic microorganisms and anaerobes.

Analyzing the data of the bacteriological study, the biocenosis of the vagina in the main group of patients with POAF was represented by the following microorganisms: Candida fungi were verified in 24 pregnant women, which was 88.89%, E. coli -59.26% (16 patients), Enterococcus faecalis - 40, 74%. Whereas in pregnant women with a physiological course, in 80% of cases with bacteriological examination the sowing of the contents of the vagina was conditionally sterile, i.e. there was no growth of pathogenic and conditionally pathogenic microbial flora.

Conclusions. Analyzing the results of a survey of pregnant women (test system "Femoflor 16") with a premature outflow of amniotic fluid, as a predictor, it is possible to determine the disturbance of microbial associations in favor of increasing obligate anaerobes against the background of a general decrease in the number of lactobacilli.
It is impossible to exclude the pathological effect of fungi of the genus Candida and E. coli as the factors that take part in the trigger mechanism of damage to the fetal membranes, which coincides with the results of bacteriological screening and the data of many, both domestic and foreign sources. The revealed facts confirm the point of view about the significant role of the disorders of the vaginal biocenosis in the genesis of a premature outflow of amniotic fluid, dictating the need to determine the dysbiotic conditions in the period of pregravid preparation with the subsequent restoration of normal microflora and selective action on aerobes and fungi.

REFERENCES