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TREATMENT OF VAGINAL DYSBIOTIC DISORDERS IN PREGNANT WOMEN BEFORE CHILDBIRTH

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Abstract:
Infectious and inflammatory diseases of the female genital organs caused by various pathogens are a serious problem in obstetrics and gynecology [1]. In addition, violations of vaginal microbiocenosis during pregnancy are of particular importance in obstetric practice, since changes in the vaginal microflora lead to a complicated course of pregnancy, childbirth and the postpartum period, as well as to the development of infectious and inflammatory processes in the mother and fetus [2, 3].
In recent years, an increase in vaginal infections has been noted in many countries of the world, which occupy a leading place in the structure of obstetric and gynecological morbidity. The introduction of modern technologies in clinical microbiology makes it possible to expand research and show that the negative effect on the microflora of a macroorganism of various localization, including the vagina, leads to a variety of pathologies of both inflammatory and non-inflammatory genesis [1,3].

Keywords: pregnancy, vaginal dysbiosis, vaginal infection, violation of microflora, prevention, povidone-iodine.

RELEVANCE OF THE STUDY.

Vaginal infection is determined by its highest prevalence in the structure of obstetric and gynecological morbidity. Currently, the proportion of diseases of the lower genital tract associated with a quantitative imbalance of opportunistic vaginal microorganisms of bacterial and fungal nature, which occur in 40-65% of pregnant women, is increasing. It is known that with vaginal infections and dysbiosis, the risk of placental insufficiency, premature birth, birth of children with low body weight, as well as postpartum endometritis increases significantly more often. In connection with the above, it is important to timely diagnose microflora disorders using clinical and laboratory research methods followed by adequate etiotropic therapy. Timely and effective treatment of vaginal dysbiosis in pregnant women before delivery helps to reduce the risk of postpartum infectious complications.

The issues of prevention and treatment of vaginal dysbiosis, as well as vaginal infections are of particular importance due to their high prevalence, diagnostic difficulties and the absence of pathognomonic clinical manifestations. As is known, the species composition and spectrum of pathogens is extremely wide. In 60-70% of cases, the etiological factor of vaginal infections of the female genital organs are associations of pathogens: Lactobacillus iners, Trichomonas vaginalis, Chlamidia spp., Ureaplasma spp., Staphylococcus spp., Streptococcus spp., Bacillus spp., Aerobacter aerogenes, Escherichia coli, Klebsiella spp., Shigella spp., Corynebacterium spp., Diphteroides spp., Micrococcus flavus, Gardnerella vaginalis, Mobiluncus, Peptostreptococcus, Prevotella, Bacteroides, Fusobacterium, Candida albicans [4, 5]. Most often, sexual infection is caused by several pathogenic factors: viruses, bacteria, fungi, protozoa, which cause similar in clinical course, but different in pathogenesis and methods of treatment of the disease [2,6].

MATERIALS AND METHODS OF RESEARCH.

The idea of the normal microcenosis of the vagina allows us to more accurately understand the main mechanisms of the occurrence of inflammatory processes of a woman's genitals, as well as changes in the vaginal microsystem in response to various adverse effects. Normally, the average number of microorganisms in the vaginal secretions for aerobes and anaerobes is 105-106 CFU/ml. At the same time, peroxide-producing lactobacilli predominate, providing the main protective mechanism by competing with more pathogenic microorganisms. It is important to note that aerobic flora prevails in healthy women in relation to anaerobic – 10:1 [5, 7, 8].
Physiological changes in the body of a pregnant woman, accompanied by a state of temporary immunosuppression and hormonal restructuring, affect the microecology of the vaginal environment. Under the influence of progesterone, with the onset of pregnancy, the volume of cells of the intermediate layer of the vaginal mucosa increases with intensive

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synthesis of glycogen in them, providing favorable conditions for the vital activity of lactobacilli, among which Lactobacillus jensenii and Lactobacillus crispatus dominate. As pregnancy progresses, the number of transient microorganisms decreases, and the active growth of lactobacilli leads to a more acidic pH of the vagina, which, however, is a favorable condition for the reproduction of yeast-like fungi of the genus Candida [5,9,10].

According to the data of domestic authors, any variant of violation of the microcenosis of the vagina should be considered as a dysbiosis of the vaginal microflora. In this case, lactobacilli are eliminated with colonization of the vagina by strict anaerobes (Prevotella/Porphyromonas spp., Peptostreptococcus spp., Fusobacteium spp., Mobiluncus spp.), Gardnerella and Candida fungi. Sometimes, with the absolute predominance of conditionally pathogenic microorganisms, lactobacilli are also present in a low titer, more often lactobacilli of anaerobic origin that do not produce hydrogen peroxide [4,7].

Violation of the quantitative ratio in the bacterial community of vaginal microcenosis leads to the development of clinical manifestations of vaginal infection. There are independent nosological forms of vaginal diseases, which include bacterial vaginosis, candidiasis vaginitis, aerobic vaginitis [2,11,12]. Of course, vaginal dysbiotic disorders do not belong to acute diseases, but the prescribed therapy for these patients is an extremely important and responsible moment, not only because patients have been suffering from manifestations of the disease for years without finding appropriate help, but also for the prevention of infectious and inflammatory diseases and their complications.

In the complex chain of pathogenesis of inflammatory diseases of the female genital organs, an essential role is assigned to the immune reactions of the body. A decrease in nonspecific resistance in these patients is one of the causes of the inflammatory process, its recurrent course, inhibition of regeneration and restoration of the function of the affected organs.

Currently, numerous clinical, microbiological and pathogenetic studies are being conducted on vulvovaginitis, new drugs and treatment methods are being proposed, but the prevalence of this pathology in women of reproductive age remains high. Moreover, such forms as bacterial vaginosis, candidiasis vulvovaginitis, trichomonas vaginitis account for 90% of all cases [6,7,8].

With bacterial vaginosis, the concentration of aerobic and anaerobic microorganisms increases by several orders of magnitude. This contributes to the occurrence of certain symptoms of the disease. Against this background, there is a decrease in the concentration of facultative lactobacilli, which leads to a decrease in the amount of lactic acid, a decrease in the acidity of the vaginal contents and the growth of anaerobes. Regarding candidiasis, it has been shown that asymptomatic carriage of Candida fungi is found in the intestines of 20-50% of healthy people, in the vagina – in 15-20% of non-pregnant women. In pregnant women, this disease occurs in 30-40% of cases, before childbirth, this indicator can reach 45-50%. At the same time, yeast-like fungi are found in small amounts (<103 CFU/ml) [4,11].

The presence of genital infections during pregnancy poses a danger to the mother and fetus. Literature data indicate an adverse effect of vaginal infection and vaginal dysbiosis on the course and outcomes of pregnancy: a high frequency (more than 40%) of premature termination of pregnancy, the risk of antenatal and intranatal infection, the development of chorioamnionitis and amniotic fluid infection, intrauterine infection, inflammatory complications in the postpartum period [3,9].

Analysis of the microbiocenosis of the vagina of pregnant women before childbirth using classical microbiological methods and polymerase chain reaction in real time allows us to develop measures for the prediction and prevention of postpartum infectious and inflammatory complications.

As a rule, vaginal dysbiotic conditions before childbirth are characterized by a decrease in the proportion of lactobacilli from 80% to 20% of the total bacterial mass and an increase in the proportion of aerobes and anaerobes (moderate dysbiosis), as well as a decrease in the proportion of lactobacilli less than 20% of the total bacterial mass and a sharp increase in aerobes and anaerobes (pronounced dysbiosis). It has been shown that a violation of the qualitative and quantitative state of vaginal microbiocenosis, a decrease in the proportion of lactobacilli less than 80% of the total bacterial mass and/or an increase in the amount of Atopobium vaginae should be considered as an unfavorable prognostic sign of the development of infectious and inflammatory diseases [7,8].

According to the authors [1,4,8,], violation of vaginal microcenosis in pregnant women in 40-60% of cases leads to diseases of the cervix, followed by inflammation of the membranes and the development of amniotic fluid infection. Contamination by microbial flora of the birth canal leads to a significant increase in inflammatory diseases after childbirth. In most maternity hospitals with purulent-inflammatory diseases after cesarean section, the spectrum of microorganisms in the uterine cavity corresponds to the disturbed microbiocenosis of the vagina.

As you know, modern criteria for choosing a drug should be based on compliance with the principle of safety in combination with its high clinical efficacy. Betadine, which acts on most types of pathogenic and

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opportunistic microorganisms, is one of the safest local remedies with a wide range of activity, as well as capable of having a sanitizing effect on the lower parts of the birth canal immediately before childbirth. With local treatment, systemic absorption of the drug and the likelihood of adverse reactions are reduced and practically absent, there is a direct injection of the drug into the focus of infection.

In the preparation, Betadine released from the complex with polyvinylpyrrolidone in contact with the skin and mucous membranes, iodine forms iodamines with bacterial cell proteins, coagulates them and causes the death of microorganisms. The drug has a rapid bactericidal effect on gram-positive and gram-negative bacteria (with the exception of Mycobacterium tuberculosis), is effective against fungi, viruses, protozoa . Betadine molecules are quite large, they are hardly absorbed into the blood, so the drug acts mainly topically, penetrating shallowly into the tissues, but its effect is quite long due to the fact that active iodine is slowly released from the tissues.

The bactericidal effect of iodine is explained by its strong oxidizing properties, it actively interacts with amino acids of proteins, as a result of which the quaternary structure of the protein changes, its catalytic and enzyme activity is lost. Basically, iodine disrupts the structures of bacterial transmembrane proteins and enzymes that do not have membrane protection.

Betadine candles should not be used: if you are allergic to betadine or the components of the drug that make up its basis; if the thyroid gland is malfunctioning (for example, with its increased function, because active iodine stimulates additional production of thyroid hormone); during the treatment of various diseases using radioactive iodine; pregnant women in the first trimester of pregnancy, nursing women and newborn children; with chronic inflammatory skin disease with itching and numerous rashes (iodine can enhance these manifestations).

When using vaginal candles with betadine, allergic reactions in the form of redness, itching, rash in the form of bubbles are possible. After the drug is discontinued, all these phenomena pass.

RESEARCH RESULTS AND THEIR DISCUSSION

In our practice, we used the drug Betadine for the treatment of vaginal dysbiotic disorders in pregnant women before delivery as a prevention of postpartum infectious complications. A total of 68 patients with a singleton pregnancy in the period of 32-36 weeks who applied for an appointment before delivery were included. Vaginal smears and molecular genetic examination of the vaginal flora by real-time PCR were performed in all patients. According to the results of the PCR study, the following were most often detected: Gardnerella vaginalis, Prevotella bivia, Porphyromonas spp. in 32 (47.0%) women, Sneathia spp., Leptotrichia spp., Fusobacterium spp. - 11 (16.17%), Mobiluncus spp., Corinebacterium spp. – in 7 (10.2%), Peptostreptococcus spp. – in 6 (8.8%), Atobium vaginae – in 4 (5.8%), Candida fungi – in 8 (11.7%), while moderate vaginal dysbiosis was mainly found in 55 (80.89%) patients, in 13 (19.11%) – severe dysbiosis. All 68 women were prescribed the drug Betadine for 14 days. At the end of the course of treatment, in order to assess its effectiveness, a smear study and a molecular genetic study by PCR were also carried out.

According to the survey results, more than half of pregnant women – 47 (69.11%) did not make any complaints, only 22 (32.35%) patients had unpleasant copious discharge from the genital tract and 12 (17.64%) had itching of the external genitals.

After 3 weeks after therapy, 96% of patients had a vaginal smear landscape normalized – the number of leukocytes was 4-6 in the field of vision. During control examinations by PCR, we did not detect conditionally pathogenic microorganisms, an increase in the titer of lactobacilli was noted.

After therapy, only 6 (8.82%) women complained of moderate discharge from the genital tract, not accompanied by itching and unpleasant odor. In addition, in the course of therapy with Betadine, patients in the vast majority of observations did not notice any adverse reactions associated with the use of candles, in the form of unpleasant sensations in the area of the external genitals and vagina (burning, itching, swelling, etc.).

Subsequently, we also analyzed the outcomes of pregnancy and the postpartum period in all 68 patients included in the study. Childbirth through the natural birth canal occurred in 51 (75%) patients, planned cesarean section – in 11 (16.17%), emergency caesarean section – in 6 (8.82%). Analysis of the course of the postpartum period showed the absence of significant purulent-inflammatory complications in all patients who underwent rehabilitation of the birth canal with Betadine in an average of 4-6 weeks. before delivery.

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CONCLUSION

- Thus, our study showed the high effectiveness of the drug Betadine in the treatment of vaginal dysbiotic disorders among pregnant women before delivery. In 96% of patients, the microbial picture of the vagina was completely normalized 3 weeks after therapy. The results of treatment were maintained in the postpartum period, ensuring the absence of purulent-inflammatory complications in all patients included in the study.
- Modern studies also indicate the high effectiveness of the use of Betadine and povidone-iodine solution in the prevention of postpartum infectious complications and the treatment of vaginal infections in both pregnant and non-pregnant women.
- Successful treatment of dysbiotic disorders of the vaginal microflora before delivery depends on proper diagnosis and pathogenetically based therapy, which further avoids postpartum infectious and inflammatory diseases.

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