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CLINICAL AND MICROBIOLOGICAL SUBSTANTIATION OF DIFFERENTIATED CORRECTION OF VAGINAL MICROBIOCENOSIS IN WOMEN WITH BACTERIAL VAGINOSIS DURING PREGNANCY

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ABSTRACT. Along with the difficulties of treating vaginal infections in women during pregnancy associated with the limited use of antibacterial drugs, one of the causes of the recurrence of the infectious process of the lower reproductive tract of a pregnant woman can be considered the absence or inadequate correction of vaginal microbiocenosis after the stage of antimicrobial therapy. The restoration of the vaginal biotope after antibacterial therapy of vaginal infections during pregnancy is a prerequisite for the physiological course of labor, the postpartum period and the prevention of postpartum septic diseases.

Keywords: bacterial vaginosis (BV), dysbiosis, lactobacillus, vaginal microbiome

КЛИНИКО-МИКРОБИОЛОГИЧЕСКОЕ ОБОСНОВАНИЕ ДИФФЕРЕНЦИРОВАННОЙ КОРРЕКЦИИ МИКРОБИОЦЕНОЗА ВЛАГАЛИЩА У ЖЕНЩИН С БАКТЕРИАЛЬНЫМ ВАГИНОЗОМ ВО ВРЕМЯ БЕРЕМЕННОСТИ

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АННОТАЦИЯ. Наряду со сложностями лечения вагинальных инфекций у женщин во время беременности, связанными с ограниченным применением антибактериальных препаратов, одной из причин рецидива инфекционного процесса в нижних отделах репродуктивного тракта беременной женщины может быть отсутствие или недостаточная коррекция микробиоценоза влагалища после этапа противомикробной терапии. Восстановление вагинального биотопа после антибактериальной терапии вагинальных инфекций во время беременности является необходимым условием для физиологического течения родов, послеродового периода и профилактики послеродовых септических заболеваний.

Ключевые слова: бактериальный вагиноз (БВ), дисбактериоз, лактобактерии, микробом влагалища

Introduction. The urgency of the problem of vaginal infections during pregnancy is determined primarily by their high frequency [1,2,3]. Many authors confirm a causal relationship between the infectious process in the mucous membranes of the vagina and cervix and pregnancy complications such as miscarriage [10, 15], placental insufficiency [8, 25], intrauterine fetal infections [2, 6, 29]. Despite modern diagnostic technologies and the two-stage treatment of

vaginal infections adopted in Russian gynecology since the end of the 20th century, the frequency of their recurrence remains high. [9, 19, 23, 27]. During pregnancy, the recurrence rate of bacterial vaginosis ranges from 3.6 to 30%, nonspecific or aerobic vaginitis 16.7-35.9%, candidal vaginitis in 22.5 – 45.9% of cases [29, 30]. The purpose of the study: to develop a differentiated approach to the choice of a method for correcting vaginal microbiocenosis in bacterial vaginosis in pregnant women. Materials and methods: the work was performed at the Department of Obstetrics and Gynecology, base No. 2 of the Bukhara State Medical Institute, on the basis of the Bukhara Regional Perinatal Center. A retrospective analysis of 100 outpatient records of pregnant women with BV was conducted.

A prospective analysis was performed in 60 pregnant women. The main group consisted of 30 patients with BV who underwent differentiated correction of vaginal microbiocenosis; the comparison group consisted of 20 pregnant women with BV who received correction of vaginal microbiocenosis without prior microscopic assessment of the vaginal microflora. 10 conditionally healthy pregnant women without vaginal microbiocenosis disorders were included in the control group.

Microbial communities are an integral part of the human defense system and coexist with humans as symbionts, contributing to metabolic functions and immune protection against pathogens. The ecologically stable microbiocenosis of the vagina is dominated by lactobacilli, which play an important role in the prevention of genital infections by controlling the pH of the vagina, converting glycogen into lactic acid and stimulating the production of bacteriocins and hydrogen peroxide [4, 5, 13, 24.].

The vaginal microflora is a complex and dynamic microecosystem. The vaginal microflora can be divided into transient and resident microflora, and it is easy to distinguish it using new molecular methods. Lactobacilli are the dominant microflora of the vaginal system and are considered resident. The transient microflora, which includes Peptococcus species, Bacteroides species, Staphylococcus epidermidis, Corynebacterium species, Peptostreptococcus species, and Eubacterium species, is unable to compete with the resident microflora in establishing permanent residence in the vagina [11,12, 26.].

The normal physiological vaginal microflora was originally described in 1892 by Albert Doderlein as homogeneous, consisting only of gram-positive bacilli (Doderlein bacilli), which are now known as the genus Lactobacillus. A number of protective Lactobacillus species dominate the healthy vaginal microbiocenosis in most women of reproductive age. Recent advances in molecular biology have shown that the dominant Lactobacillus species in the vaginal microbiocenosis include L. crispatus, L. gasseri, L. iners, and L. jensenii, while other anaerobes, including Gardnerella, Atopobium, Mobiluncus, Prevotella, Streptococcus, Ureaplasma, Megasphaera, and others, are capable of causing

infections such as bacterial vaginosis remains harmless due to the protective action of lactobacilli [7, 14, 16, 17].

Thus, the problem of bacterial vaginosis is becoming particularly relevant due to the high prevalence of obstetric and gynecological complications that negatively affect a woman's reproductive health.

This dissertation work was performed on the basis of the Department of Obstetrics and Gynecology No. 2 of the Bukhara State Medical Institute, on the basis of the Bukhara Regional Perinatal Center.

We conducted a retrospective analysis of outpatient records of 160 pregnant women who complained of genital discharge to the Bukhara Regional Perinatal Center in the period from 2023 to 2025.

A prospective analysis was conducted in 60 pregnant women. The main group consisted of 30 patients with BV who underwent differentiated correction of vaginal microbiocenosis after the stage of antimicrobial therapy. For this purpose, we performed local treatment with antibacterial drugs at the first stage of treatment and at the second stage, depending on the number of lactobacilli in the smear, with probiotics or ascorbic acid preparation (clindabiox, one capsule intravaginally for 7 days, followed by Bioselak probiotic or Vaginorm-C acid-containing preparation, one candle/tablet for 7 days).

The comparison group consisted of 20 women with BV who received correction of vaginal microbiocenosis without prior microscopic assessment of the vaginal microflora (clindabiox, one capsule intravaginally for 7 days, and subsequently the acid-containing drug Vaginorm-C, one tablet for 7 days).

10 conditionally healthy pregnant women without vaginal microbiocenosis disorders formed the control group.

The retrospective group consisted of 160 women. Of these, 67 women lived in the city, which was 41.9%, 93 women lived in rural areas, which was 58.1%.

The predominant group by age category were women aged 26 to 30 years, in the retrospective group their share was 46.2% (74 women), women aged 21 to 25 years made up 28.8% (46 women). 25 women were aged 30 and over, which was 15.6%, 15 women were between the ages of 18 and 20 (9.4%).

The main group consisted of 30 women, 17 of them urban women, which was 56.7%, and 13 rural women, which was 43.3%. The largest contingent in this group were women aged 26-30 years. Their share is 46.7% (14 women). There were 10 (33.3%) women aged 21 to 25, and 3 (10%) women aged 18-20 and 30 and older.

The comparison group consisted of 20 women, including 9 urban (45%) and 11 rural (55%) women. In this group, women aged 18 to 20 accounted for 5% (1 woman), 45% (9 women) aged 21-25, 40% (8 women) aged 26-30, and 10 (2 women) aged over 30.

The control group consisted of 10 women, of which 4 (40%) urban and 6 (60%) rural women. The largest group consisted of women aged 26-30 years, their share is 40% (4 women). Between 21-25 years old, 30% (3 women), over 30 years

old, 20% (2 women) and 18 to 20 years old, 10% (1 woman). A total of 60 women were included in the prospective study.

When examining women of all groups, anamnesis data was studied, as well as clinical, laboratory and statistical research methods were used.

Study of anamnestic information. Anamnesis collection, examination of complaints, and assessment of the general somatic status were carried out at the first outpatient appointment. At the same time, attention was paid to age, social status, premorbid background, duration and frequency of exacerbations of the disease, features of sexual and hygienic behavior, menstrual and reproductive functions, methods of contraception, the presence of extragenital and gynecological pathology.

Methods of clinical examination. During the clinical examination, the general condition and somatic status of the women were assessed, and complaints of heavy discharge with an unpleasant odor were detected. The condition of the mucous membrane of the vestibule of the vagina, the external opening of the urethra, and the presence and nature of vaginal discharge were assessed. The cervix and vagina were examined using gynecological mirrors; at the same time, special attention was paid to the condition of the vulva, the mucous membrane of the vagina and the cervix: the absence or presence of inflammatory manifestations (hyperemia, edema), the presence of discharge in the posterior arch of the vagina, its quantity, color, consistency, odor, the pH of the contents of the vagina and the amine test were performed. In clinical practice, BV is usually diagnosed using the Amsel criteria, which include the presence of at least three of the following four signs: uniform vaginal discharge, a vaginal pH of more than 4.5, and a "fishy" odor when potassium hydroxide is added to vaginal secretions. a positive "amine test") and the presence of key cells during microscopy of a wet preparation. The pH of the vaginal contents, characterizing its acidity, was measured using universal indicator paper strips with a pH range of 0-12 (Lachema). To do this, the indicator paper was inserted into the vagina with tweezers. The obtained result was compared with the reference scale. The amine test was used for the rapid clinical diagnosis of bacterial vaginosis. When performing it, a drop of vaginal discharge was applied to the slide and an equal amount of 10% potassium hydroxide solution was added. The appearance or intensification of a sharp unpleasant odor (the smell of rotten fish) indicated positive test results, it was due to the release of volatile amines, products of the metabolism of obligate anaerobic microorganisms. An external examination was performed using the Leopold-Levitsky method, and the fetal heartbeat was assessed.

Study of the microscopic characteristics of vaginal smears. Laboratory research methods were performed in the clinical laboratory of the Bukhara Regional Perinatal Center. The method of enzyme immunoassay excluded syphilis, HIV, hepatitis B and C, urogenital chlamydia, genital herpes and cytomegalovirus infection. The main advantages of the microscopic method of examining vaginal smears include accessibility and speed of obtaining results. A smear on the vaginal

microflora is performed outside the days of menstrual bleeding. To get the right result, you should refrain from sexual intercourse 1-2 days before the study, do not use antibiotics a month before the study, douche and use various intimate remedies. A smear sample for the microflora in women was taken from the mucous membrane of the vagina, urethra or cervix. Both the native smear and the Gram-stained smear were studied.

Ultrasound of the uterus and fetus. Ultrasound is a highly informative, safe, and accessible research method. It allows you to determine whether the development of the fetus corresponds to the expected period of pregnancy; to identify or exclude congenital malformations and developmental abnormalities of all major organs and systems of the fetus; it is possible to examine in detail the structure of the heart, kidneys, digestive system, brain and spinal cord, as well as other important organs of the growing fetus; to determine the quantity and quality of amniotic fluid, a detailed examination structures of the placenta.

The results of our own research. Analysis of studies on the incidence of bacterial vaginosis during pregnancy in the Bukhara region and its relationship to the complicated course of pregnancy.

To determine the frequency of bacterial vaginosis among pregnant women, as well as to determine its association with complicated pregnancy, we conducted a retrospective analysis of 160 outpatient records. We reviewed the outpatient records of 160 pregnant women who complained of discharge from the genital tract to the polyclinic department of the Bukhara Regional Perinatal Center in the period from 2023 to 2025. According to retrospective data, during gynecological examination of 160 women, bacterial vaginosis was detected in 62 (38.7%) pregnant women. 21 (33.9%) women were in the first trimester of pregnancy, 32 (51.6%) – in the second and 9 (14.5%) – in the third. Thus, the highest incidence of BV was observed in women in the second trimester of pregnancy. Outpatient records of 62 pregnant women with BV and 20 pregnant women with vaginal normocenosis provided material for statistical retrospective analysis. An analysis of the area of residence of women with BV showed that out of 62 women, 26 (41.9%) lived in the city, the remaining 36 women lived in rural areas, which was 58.1%. Of the 20 women with vaginal normocenosis, 8 (40.0%) lived in the city and 12 (60.0%) in rural areas. Among women with vaginal normocenosis, housewives accounted for 40.0% (8 women), workers – 35.0% (7 women), employees – 20.0% (4 women), students – 5.0% (1 woman). As can be seen from the data presented, housewives and workers predominated among women. It should be noted that the group of women with BV in terms of age, place of residence, level of education and social status was practically the same ($p>0.05$).

Conclusions:

1. The incidence of bacterial vaginosis among pregnant women in the Bukhara region was 38.7%, while its highest incidence was observed in women in the second trimester of pregnancy (51.6%). The frequency of various pregnancy

complications, namely, the threat of termination of pregnancy, premature discharge of amniotic fluid, and premature birth was high in women with BV.

2. Characteristic microscopic signs of BV include inhibition of the number of leukocytes (74.0%), a large number of epithelial (72.0%) and “key cells” (98.0%), massive microbial contamination (68.0%) due to the abundance of gram-negative polymorphic microflora (78.0%) and a decrease or absence of gram-positive rod microflora.

3. Antibacterial therapy of BV affects the state of the vaginal normoflora, which is manifested by a change in the morphological shape and / or an insufficient number of lactobacilli in 78.0% of women. The identified variants of the state of the normoflora show the expediency of using means to correct the microbiocenosis of the vagina differentially depending on the state of the vaginal microflora.

4. The use of differentiated correction of vaginal microbiocenosis significantly reduces the number of BV recurrences, complications of pregnancy, childbirth and the postpartum period in women.

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