

## Features and algorithm of treatment of bacterial vaginitis

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**Abstract:** Infectious and inflammatory diseases of the female genital organs caused by various sexually transmitted pathogens or non-specific microflora represent a serious medical and social problem in obstetrics and gynecology. Bacterial vaginosis (other names: vaginal dysbiosis (dysbiosis)) - this is an infectious non-inflammatory syndrome characterized by a sharp decrease or absence of lactoflora and its replacement by polymicrobial associations of anaerobes and gardnerella, the concentration of which reaches  $10^9$ - $10^{11}$  degrees RFO/ml of vaginal discharge.

**Keywords:** vaginitis, microorganism, vaginas, lactobacilli, microbiocenosis, microflora, secretions, asymptomatic, infections, bacterial vaginosis

*Introduction:* The variety of different microorganisms involved in the occurrence of bacvaginosis explains the term "bacterial", and due to the absence of leukocytes in the vaginal discharge-cells responsible for the development of an inflammatory reaction, the term vaginitis was changed to the term "vaginosis" [1,2,3,4]. In healthy girls and women aged 16-40, the leading place in the vaginal microbiocenosis is occupied by lactobacilli, united under the common name Doderlein sticks. They occupy 95% of the entire vaginal microflora [2,4,6]. In addition to lactobacilli, the vaginal microflora includes more than 40 microorganisms, which is about 5%. In healthy women, anaerobic microflora prevails over aerobic in a ratio of 10:1. Colonizing the vaginal mucosa, lactobacilli take part in the formation of an ecological barrier and thereby ensure the resistance of the vaginal microflora. Protective properties of lactobacilli: due to antagonistic activity, ability to produce lysozyme, adhesive properties [4,6]. However, the main mechanism that ensures the stability of the vaginal microflora is acid formation and production of hydrogen peroxide. Normally, the vaginal contents have an acidic reaction  $\text{pH} = 3.8-4.5$ , resulting from the formation of lactic acid (a product of the metabolism of lactobacilli). At low vaginal pH, the growth of pathogenic and conditionally pathogenic microorganisms, such as Gardnerella, streptococci and obligate anaerobes, is suppressed [3,5,6,8].

The peculiarity of the vaginal microflora is its variability under the influence of both exogenous and endogenous factors. Microbiocenosis is influenced by physiological and hormonal changes (puberty, pregnancy, menopause), phases of the menstrual cycle, various disorders of menstrual function. The degree of sexual activity, the use of antibacterial drugs, hormone therapy, and surgical interventions are of great

importance [9]. In bacterial vaginosis (BV), developed as a result of the action of one or more of the previously listed factors, the elimination of lactobacilli occurs, which leads to the colonization of conditionally pathogenic anaerobes, such as *Fuzobacterium*, *Mobiluncus*, *Peptostreptococcus* *Gardnerella vaginalis*.

The main complaint with BV is abundant discharge from the genital tract of white or gray color, often with an unpleasant odor. The discharge increases before menstruation or after sexual intercourse. With the progression of the process, the pains become yellow-green, thick, viscous, sticky, sometimes foaming, the discharge is evenly distributed along the vaginal wall and the vaginal part of the cervix. When examined on mirrors, these secretions are easily removed from the mucosa with a cotton swab. In addition, there may be other complaints of itching, violation of urination, pain during sexual intercourse, which are less common. Some women with bacvaginosis may have no complaints. In this regard, bacterial vaginosis has two variants: asymptomatic and with clinical manifestations [2,3,4]. The asymptomatic course of the disease is characterized by the absence of clinical manifestations with positive results of laboratory tests. In BV with clinical manifestations, there is a long-term presence of secretions (2-3 years). The nature of the discharge is abundant, liquid, white or grayish in color, with an unpleasant smell of rotten fish. Frequent combination with pathological processes of the cervix (pseudoerosion, leukoplakia, endocervicitis, endometriosis) as well as recurrent course. Menstrual cycle disorders may occur, such as oligomenorrhea or an incomplete second phase of the cycle. The problem of finding optimal methods of treating infectious pathology in obstetrics and gynecology is extremely urgent, which is associated with a steady increase in its prevalence in the population, the emergence of new pathogens, a decrease in the sensitivity of microorganisms to the antibacterial drugs used and the dominance of the association of conditionally pathogenic microorganisms in the structure of pathogens [7]. In this regard, the choice of systemic and topical drugs is promising. The choice of systemic antibiotics is based on their bactericidal action against opportunistic microorganisms, without affecting the normal intestinal microflora, and combined vaginal forms guarantee a high level of concentration of the constituent components locally. One of the optimal options for prescribing a systemic antibacterial drug is a derivative of nitrofurantoin - Nifuratel (trade name Wolfuran tablets 200 mg), which has antibacterial, antitrichomonas and antifungal action, affecting mixed infections of the urogenital tract (*Haemophilus vaginalis*, *Trichomonas vaginalis*, *Trichomonas foetus*, *Candida* spp., *Chlamydia trachomatis*, *Mycoplasma*, *Ureaplasma urealyticum* (A.L.Tikhomirov, S.I.Sarsania 2001)), anaerobic microorganisms (*Bacteroides fragilis* and *Clostridium perfringens*). The main properties are high bioavailability (over 95%), a safe toxicological profile, the absence of a teratogenic effect, the absence of inhibition of the physiological intestinal microflora (Bamer 1995, Serov V.N., Shapovalenko S.A.

2004) and a low percentage of relapses of the disease (Gomberg M.A. 2009). Indications for use are: vulvovaginal infections caused by pathogens sensitive to the drug (pathogenic microorganisms, candida, trichomonas, bacteria, chlamydia), urinary tract infections, pyelonephritis, urethritis, cystitis, pyelitis. For vaginal infections, 1 tablet (200 mg) is used 3 times a day after meals for 7 days (both sexual partners should take the drug). When prescribing local treatment, preference is given to combined drugs with local antibacterial, antifungal and antiseptic effects. An example is vaginal suppositories, which include: 200 mg of metronidazole, 160 mg of clotrimazole and 8 mg of chlorhexidine (trade name Metostyl suppositories). Its activity is in three directions: anti-inflammatory (acute, subacute and chronic inflammation), antibacterial (gram-positive and gram-negative flora, anaerobes), antifungal (dermatophytes, yeast and yeast-like flora, mold fungi). Components of Metostyle suppositories: Clotrimazole: In low concentrations partially inhibits the synthesis of ergosterol, which is the main component of the cytoplasmic membrane of fungi, and in high concentrations - completely blocks the synthesis of ergosterol. Acting on the cell membrane of fungi, it violates its permeability, leads to the destruction of fungi, thus having a fungicidal effect. Metronidazole: The mechanism of action of metronidazole consists in the biochemical reduction of the 5-nitro group of metronidazole by intracellular transport proteins of anaerobic microorganisms and protozoa. The reduced 5-nitro group of metronidazole interacts with DNA cells of microorganisms, inhibiting the synthesis of their nucleic acids, which leads to the death of microorganisms. It is highly active against: *Trichomonas vaginalis*, *Gardnerella vaginalis*, *Giardia intestinalis*, *Entamoeba histolytica*, *Lambliia* spp., as well as obligate anaerobes *Bacteroides* spp. (including *Bacteroides fragilis*, *Bacteroides distasonis*, *Bacteroides ovatus*, *Bacteroides thetaiotaomicron*, *Bacteroides vulgatus*), *Fusobacterium* spp., *Veillonella* spp., *Prevotella* (*Prevotella bivia*, *Prevotella buccae*, *Prevotella disiens*) and some gram-positive microorganisms: *Eubacterium* spp., *Clostridium* spp., *Peptococcus* spp., *Peptostreptococcus* spp., *Mobiluncus* spp. Chlorhexidine Acetate: universal antiseptic, active against protozoa, viruses (Herpes simplex type II), gram-positive and gram-negative bacteria: *Treponema pallidum*, *Chlamidia* spp., *Ureaplasma* spp., *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, *Gardnerella vaginalis*, *Bacteroides fragilis*, violates the functional activity of lactobacilli. Unlike antibacterial drugs, resistance of microorganisms to Chlorhexidine does not develop. It remains active in the presence of blood and pus. Indications for use are: Infectious and inflammatory diseases caused by sensitive microorganisms: nonspecific, fungal, mixed vaginitis, vulvovaginitis and cervicovaginitis; bacterial vaginosis caused by banal pyogenic flora; trichomoniasis; vaginitis caused by fungi of the genus *Candida*; fungal colpitis and with a mixed infectious character. For vaginal use. Lying on your back, the suppository is injected deep into the vagina in the evening before going to bed. The

course of treatment is 7 days. The second course of treatment is carried out after the first menses from the moment of the end of the first course of treatment. For the rehabilitation of the birth canal, a single administration of one suppository is recommended. Contraindications for use: Hypersensitivity to any component of the drug. I trimester of pregnancy.

#### *Material and methods of research*

At the polyclinic of the city of Samarkand, the effectiveness and acceptability of prescribing complex treatment were studied: in the form of a systemic antibiotic, Wolfuran 200 mg (Nifuratel) 1 tablet 3 times a day after meals for 7 days and local treatment in the form of Metostyl suppositories (metronidazole, clotrimazole and chlorhexidine), 1 suppository intravaginally daily for 7 days in 40 women with acute inflammation of the vulva and vagina. All women were of childbearing age (from 19 to 43 years). The median age was 31 years. All women underwent a general clinical examination, microscopy of smears from 3 Gram-stained dots; bacteriological culture with sensitivity to antibiotics, serological blood testing for RW and HIV, and a study for sexually transmitted infections. Screening diagnostic tests were used to diagnose bacterial vaginosis: 1) the pathological nature of vaginal discharge was assessed; 2) the pH of the vaginal discharge; 3) identification of key cells by microscopic examination of wet unpainted preparations of the vaginal discharge, where mature epithelial cells with microorganisms adhered to them (gardnerella, mobiluncus, gram-positive cocci) were determined. With the cultural method of examination, all patients had a marked decrease in the number of lactobacilli and an increase in the content of opportunistic flora. In the examined patients, the main complaints were copious discharge, in some accompanied by itching, sometimes burning of a mucous nature. Dysuric disorders were noted in 25%, dyspareunia in 30%. Hyperemia and swelling of the vulva and vagina were observed in 79%, itching in the vagina and vulva in 65%. Bacterial vaginosis was diagnosed in 65%, yeast colpitis in 25%, including BV accompanied by cervicitis in 25%, BV and pseudoerosion in 2%. All women noted improvement already on the 2-3 day of therapy. Such manifestations as itching, burning, dysuria began to stop most quickly. In 75% of women, the phenomena of endocervicitis had passed by the end of treatment.

#### *Conclusion.*

The tolerability of the drug was good in all patients. The percentage of effectiveness according to our data was 92%, the number of side effects in the form of itching in 1 patient, which were transient in nature, did not require discontinuation of the drug. Given the high therapeutic effect, good tolerability and an acceptable course of treatment, we recommend the widespread use of Wolfuran tablets in combination with Metostyle suppositories in women with inflammation of the vagina and vulva.

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