STUDYING THE SENSITIVITY OF N.GONORRHOEAE TO ANTIMICROBIAL DRUGS

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Annotation: *This article attempts to reveal the main reasons for the use of antibiotic-resistant strains of the causative agent of gonococcal infection as one of the directions for the formation of a national collection of pathogenic microorganisms. To carry out scientific work, the author conducted an experiment on where viable strains of N.gonorrhoeae obtained as part of the program for monitoring the antibiotic resistance of STI pathogens in the territory. Verification, typing and sensitivity testing of N.gonorrhoeae to antimicrobial agents is carried out using a complex of microbiological and molecular biological methods. The problem in question is still little studied, therefore, requires more thorough research.*

Key words: *n.gonorrhoeae, sensitive, typing and research.*

Introduction: Gonococcus (lat. Neisseria gonorrhoeae) is a species of Gram-negative diplococci of the genus Neisseria. Cause gonorrhea - anthroponotic venereal infection, characterized by purulent inflammation of the mucous membranes, often the genitourinary system. Transmission of pathogens occurs, as a rule, sexually or through

personal belongings. In 10% of infected men and 80% of infected women, the disease is asymptomatic.

Due to the common transmission routes of the pathogen, a mixed infection is possible, in which, in addition to gonococci, there are chlamydia, ureaplasma, Trichomonas, Candida fungi, herpes viruses, etc. It is known that gonorrhea with concomitant trichomoniasis is treated with great difficulty, and this is due to the fact that trichomonads - the causative agents of trichomoniasis - "absorb" gonococci and make them inaccessible to antibiotics. In addition, gonococci are capable of endocytobiosis - that is, to live and multiply inside other cells, in particular, inside blood cells - leukocytes. In such cases, after the death of gonococci, the inflammatory process can be supported by these microorganisms (post-gonorrheal diseases). Gonorrhea is often noted in patients with syphilis.

Gonococci parasitize mainly on mucous membranes lined with cylindrical or glandular epithelium (urethra, cervical canal, distal rectum, conjunctiva). Eye damage in adults occurs due to the introduction of pathogens by hand from the genitourinary organs. It is also possible to infect girls at home in violation of hygienic rules (“potty” infection, sharing a bed with a sick gonorrhea, using common personal hygiene items, such as sponges, etc.) Lesions of mucous membranes covered with stratified squamous epithelium, as well as skin lesions, rarely occur , only under special circumstances (trauma, hormonal changes in the body, immunodeficiency states). Reproducing on the surface of the epithelium, gonococci can cause its destruction and enter the superficial lymphatic and blood vessels. The time required for the penetration of gonococci into the subepithelial layer and the development of inflammation determines the duration of the incubation period: from 1-2 days to 1 month or more.

Diagnostic value has an increased content of leukocytes in the urine in the absence of any complaints. The diagnosis is considered proven only when pathogens are determined in smears or cultures

Purpose: Deposition, storage and use of antibiotic-resistant strains of the causative agent of gonococcal infection as one of the directions for the formation of a national collection of pathogenic microorganisms

Materials and methods: viable strains of N.gonorrhoeae obtained as part of the program for monitoring the antibiotic resistance of STI pathogens in the territory. Verification, typing and sensitivity testing of N.gonorrhoeae to antimicrobial agents is carried out using a complex of microbiological and molecular biological methods. For the storage of biological samples, the cryopreservation method (-80 ° C) is used, the most valuable objects of storage are duplicated in a freeze-dried state. The electronic base of the collection is maintained using the specialized program "Diam: Bank of Microorganisms", adapted to the characteristics of the storage facilities.

Results: The main direction of their use is the analysis of long-term trends in changes in antibiotic resistance of gonococcal pathogens, allowing to update clinical guidelines for the management of patients with this STI. Characteristics of the collection stock in terms of sensitivity to antimicrobial drugs, as well as the presence of genetic determinants of antibiotic resistance, indicates a gradual restoration of the sensitivity of N. gonorrhoeae to penicillins, tetracyclines, and fluoroquinolones. A stable high level of sensitivity of N. gonorrhoeae to third-generation cephalosporins (primarily ceftriaxone) has been shown, which determines their importance as drugs of choice for the treatment of gonococcal infection.

An in-depth analysis of N. gonorrhoeae deposited in the collection using targeted and whole genome sequencing technologies allows us to assess the current stage of the molecular evolution of the causative agent of gonococcal infection, which consists in the preservation of a significant proportion of multi-resistant strains in the bacterial population, which are a potential resource for the emergence of epidemically dangerous genotypes. The characterized multidrug-resistant strains are a valuable element of the collection, potentially in demand when searching for reserve drugs for the treatment of gonococcal infection.

Conclusion: N. gonorrhoeae can be considered as an element of the emerging national collection of pathogenic microorganisms, the use of which will allow assessing and preventing the risks of incurable forms of gonococcal infection.

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