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Research Article

HUMAN PAPILLOMAVIRUSES: RELEVANCE AND TREATMENT METHODS

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ABSTRACT

The article under discussion depicts human papillomaviruses, their relevance and treatment methods. The author of the article considers that one of the urgent problems of modern medicine - papillomavirus infection occupies the first place among sexually transmitted infections in terms of prevalence. HPV causes a wide range of cancers of the reproductive system, including cervical, vulvar, and vaginal cancers, as well as anal canal cancer and anogenital condylomas, which occur in both men and women. One of the reliable method of preventing papillomavirus infection is vaccination. Thanks to the effects of vaccination, it is possible to prevent the development of cancer in 90 to 95% of cases.

KEYWORDS

Papillomavirus infection, human papillomavirus, cervical cancer, anogenital area, prevention, vaccination, men, women.

INTRODUCTION

Human papillomaviruses (HPV) are a group of extremely common and genetically diverse DNA-containing viruses that affect the epithelium of the skin and mucous membranes. Human papillomavirus belongs to the papillomavirus family. More than 190 types of HPV have been identified and described. More than 30 HPV types can infect the epithelial layer of the urogenital tract. Depending on their oncogenic

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potential, viruses of high (types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59) and low (types 6, 11, 42, 43, 44) oncogenic risk are distinguished.

The two high-risk HPV types (16 and 18) account for up to 70% of cervical, 80% of vaginal and vulvar cancers, 92% of anal cancers, 95% of oral cancers, 89% of oropharyngeal cancers and 63% of penile cancers [2].

Relevance: Currently, there is an increase in cancer morbidity. Despite the availability of diagnostic tests, cervical cancer ranks second in the world among malignant tumors of female reproductive organs and is second only to breast cancer.

Risk factors for HPV infection:

1. Early onset of sexual activity;
2. The presence of a large number and frequent changes of sexual partners;
3. High incidence of sexually transmitted infections;
4. Young age;
5. Smoking, alcohol;
6. Pregnancy;
7. Endometriosis;
8. Endogenous factors (avitaminosis, changes in immune status).

Causes of HPV

The disease caused by the human papillomavirus (HPV) refers to diseases with a latent onset, chronic persistent course and manifests as benign and malignant neoplasms in the area of the entrance gate of the infection.

The source of the infectious agent is a sick person or a carrier. HPV is transmitted from person to person through oral, genital and anal intercourse, as well as through contact, household and vertical (from mother to child) routes [4].

The human papillomavirus is the only virus that does not penetrate into the blood, so that the infectious process occurs without the development of an inflammatory reaction. In the course of infection, the human papillomavirus affects immature cells, more often the basal layer, which then become a permanent source of infection of epithelial cells. Microtraumas and inflammatory processes of the skin and mucous membranes, leading to a decrease in local immunity, contribute to the infection.

The virus can persist (be chronically present) in the infiltration site for as long as desired. The incubation period of the disease can last from several months to several years. The average time between HPV infection and the development of anogenital warts is 3 months in women and up to 11 months in men. A person can be infected with one or more types of HPV.

The interval between HPV infection and progression to invasive cancer is usually 10 years or more.

Papillomavirus infection is more common in young adults with a large number of sexual partners. According to WHO, 50-80% of the population is infected with HPV, but only 5-10% of infected individuals have clinical manifestations of the disease.

Classification of the disease

There is no generally accepted classification of anogenital (venereal) warts. However, several clinical varieties are distinguished:

- Acute condylomas;
- Warts in the form of papules;
- Lesions in the form of spots;
- Intraepithelial neoplasia;
- Bowenoid papulosis and Bowen's disease;

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- Buschke-Leuvenstein giant condyloma (carcinoma-like acute condyloma).

Clinical practice distinguishes between latent, clinical, and subclinical forms of papillomavirus infection [6].

Symptoms of HPV

Subjective symptoms:

- The presence of single or multiple formations in the form of papules, papillomas, spots on the skin and mucous membranes of the genitalia;
- Itching and paresthesias (sensitivity disorder) in the affected area; pain during sexual intercourse (dyspareunia);
- If the lesions are localized in the urethra, itching, burning, painfulness when urinating (dysuria); if there are extensive lesions in the urethra, difficulty in urination is observed;
- Painful cracks and bleeding of the skin and mucous membranes in the affected areas.

Pinworms - finger-like protrusions on the surface of the skin and mucous membranes of the genitals that have a typical "mottled" and/or loop-like pattern.

Papular warts are papular eruptions without finger-like protrusions, localized on the keratinized epithelium of the genitalia. Patches are grayish-white, pinkish-red, or reddish-brown patches on the skin and/or mucosa of the genitalia;

Bovenoid papulosis and Bowen's disease - papules and spots with a smooth or velvety surface; color of elements in mucous membrane lesions is brown or orange-red, and lesions on the skin are ash-gray or brownish black.

Buschke-Leuvenstein giant condyloma - small, wart-like papillomas that fuse together to form a lesion with a broad base.

Respiratory papillomatosis is a disease in which papillomas form in the respiratory tract leading from the nose and mouth to the lungs [5].

Diagnosis of HPV:

- Examination of the patient;
- Colposcopy;
- Cervical smear cytology;
- Tissue histology;
- PCR.

A latent infection is diagnosed only by molecular biological methods. Subclinical infection is diagnosed by molecular biology, colposcopy, cytology, and morphology.

To improve the visualization of anogenital warts, a test with a 3-5% acetic acid solution may be performed. The test is considered negative if there are no white spots on the surface of the cervix after treatment with acetic acid and positive if areas of white color (aceto-white areas) different from the rest of the surface of the cervix are detected on the cervix.

Changes in the epithelium of the cervix caused by HPV can be detected by cytological microscopy of squished cells with Papanicolaou staining (Pap test).

Cytological examination of cervical and cervical canal scrapings (Papanicolaou staining, RAR test).

The method of Papanicolaou staining is a specially developed method which allows to detect with the highest degree of reliability early precancerous diseases of the cervix. Cervical cancer ranks third in the

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structure of malignant neoplasms of the reproductive system [7].

The Pap test is aimed at detecting cervical cancer in its early stages. It can also be used to detect precancerous cells and active HPV. There are different classifications for results that deviate from the norm, but the most common is atypical squamous epithelial cells of undetermined significance (ASCUS).

Chronic infection can be diagnosed by retesting for HPV DNA.

Treatment in women

To cope with papillomas help both medicinal and surgical techniques. First of all, the efforts of specialists will be aimed at removing warts. For this purpose, it can be applied:

- Freezing the formations with liquid nitrogen;
- Electrocoagulation;
- Surgical excision;
- Chemical treatment;
- Laser removal of warts.

An alternative method would be drug therapy: taking special drugs that lead to the death of papillomas. This method of treatment is called cytotoxic therapy. However, the reception of drugs is not allowed to everyone. The disadvantages of the method include a large number of relapses, the presence of multiple side effects [8].

Comprehensive treatment of HPV in women can not include the reception of immunomodulatory agents. Drugs help to strengthen the body's defense, which allows it to more effectively resist infection. In this case, both local and general immunity of the patient is strengthened.

Diagnosis of papillomavirus in women

It is impossible to independently recognize the presence of the infection in the body. Only a comprehensive examination of the patient can confirm the diagnosis. First of all, a woman is assigned a colposcopy. This study is conducted with a special device, which allows a detailed and targeted examination of the mucosa of the genitals. In addition, the patient will have to undergo:

- PCR analysis. This is a frequently used method of detecting infection based on the study of genetic material. Its cost varies from 300 to 500 rubles. The accuracy of the results reaches 90%.
- Digene-Test. This is a modern highly informative analysis, which allows to detect papillomavirus in women. Its accuracy reaches 95%. You will have to pay about 4500 rubles for such examination.
- Biopsy of the cervix uteri. The diagnostic method is used to collect epithelium and analyze it. The method allows you to determine with an accuracy of 90% the presence of malignant cells.

After receiving the data of the examination, the doctor begins to develop a treatment program for the patient. At the same time, he takes into account the woman's general state of health, her age and the nature of the course of the disease.

Prevention.

Non-specific prevention is compliance with personal hygiene, rules of conduct in public places, increase overall immunity and the need to avoid promiscuity.

Specific prevention is vaccines!

There are two types of vaccines available worldwide. One is a quadrivalent vaccine, which means it protects against infection by four types of HPV - 6, 11, 16 and 18.

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The second vaccine is bivalent, which protects against only two types of HPV - 16 and 18. The quadrivalent human papillomavirus vaccine is called Gardasil and is produced by the Dutch pharmaceutical company MSD - Merck Sharp & Domu B.V., while the bivalent vaccine, produced in Belgium by GlaxoSmithKline Biologicals, is called Cervarix.

CONCLUSION

In order to avoid human papillomavirus infection, basic care and hygiene are necessary. It is especially important to protect yourself from HPV, which causes anogenital condylomas and cervical cancer.

Different methods are used to combat HPV manifestations. The simplest and most effective is vaccination. Thanks to the effects of vaccination, it is possible to prevent the development of cancer in 90 to 95% of cases.

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