

Change of the Cervix under the Action of the Human Papiloma Virus

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ABSTRACT

Cervical cancer is one of the most common forms of cancer in women in the world. The carcinogenesis of breast cancer proceeds for 10-30 years against the background of persistent HPV infection of high oncogenic risk and passes the stages of CIN I, II and III degrees. Currently, much attention is being paid to CIN screening for the prevention of cervical cancer. Numerous studies are being conducted to assess specificity of neoplastic cell staining at different degrees of CIN in cervical tissues and cytological samples. Of great importance for the identification of such markers is the study of the mechanisms and signaling pathways involved in the formation and progression of intraepithelial neoplasia to breast cancer in women. The review article discusses the main mechanisms and targets involved in the carcinogenesis of breast cancer. Promising markers for the diagnosis of CIN are considered.

Introduction. HPV is a DNA-containing virus. The virus is related to epithelial cells. After entering the cells, the virus starts the synthesis of its own genetic material. Infected epithelial cells begin to actively divide. But due to violations, epithelial cells remain immature. The epithelial layer is not formed properly. Dysplasia occurs. In the cervix, in 90% of cases, the virus can be eliminated from the body due to the internal reserves of the woman's body. But prolonged presence of the virus in cells provokes cervical intraepithelial neoplasia (CIN) in 10% of cases.

There are three histological classes of CIN: mild (CIN I), moderate (CIN II) and high (CIN III), with the transition of one to the other, the probability of cancer formation increases. Mild dysplasia (CIN I) in 90% of cases involute into normal tissue or remain unchanged, 10% progress to CIN II. CIN II is transformed into CIN III in 1 case out of 10. With HPV persistence for more than 3 years, cancer develops against the background of high-grade dysplasia. This situation is observed in half of women diagnosed with invasive cancer. There are about 200 types of HPV, but not every type is able to cause cervical lesions. HPV types 16 and 18 are usually detected in cervical intraepithelial neoplasia CIN III and invasive cancer, therefore it is called a highly oncogenic type virus. HPV types 6 and 11 are often associated with CIN I and CIN II and have low oncogenic potential.[1] Infection with the human papillomavirus (HPV) of a high degree of oncogenic risk is considered to be the main etiological factor in the pathogenesis of breast cancer. HPV refers to highly contagious infections with an incubation period of 3-4 weeks to 8 months. To date, more than 300 new papillomaviruses have been identified. Fourteen well-studied HPV genotypes (HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66 and 68) are considered pathogenic or "high risk" genotypes and cause the development of cervical cancer. Chronic persistence of HPV types 16 and 18 causes cervical cancer in 70-75% of cases.

In the etiology of RSM, HPV infection is isolated. For the first time, papillomavirus infection was described in the I century BC by doctors of ancient Greece. In their opinion, genital warts were transmitted sexually. In the 60s of the XIX century Melnick and A.D. Timofeevsky revealed the presence of virus-like particles in papillomas. In 1892, researcher Rigoni- Stern noticed that the cause of death in married women was often cervical cancer, but did not occur in virgins. Dunn researchers and Ogilvie in 1968 discovered viral particles in genital warts.

Results and Discussion. The presence of dysplasia is detected during a cytological examination of Papanicolaou (PAP smear) During the analysis, the features of the structure of cells, their morphology, location are studied, after which a conclusion is issued on the presence or absence of cell atypia.

To perform the analysis, the material must be obtained from three sites: the vaginal part of the cervix, the cervical canal and the transformation zone. The transformation zone is the transition zone of the multilayer flat epithelium of the cervix into the glandular epithelium of the cervical canal. Precancerous changes usually begin in the transformation zone.

The resulting material is transferred to a slide and stained, after which a cytologist examines the sample under a microscope. If the smear does not contain a cylindrical epithelium, then the sample is considered uninformative and is not subject to examination.

The smear sampling process is not standardized, so false negative results may be obtained. In order to avoid false answers, you need to follow the rules of sampling. The responsibility lies with the medical staff, the result depends on the qualifications of the person.

- before the study, you can not douche, inject medications and tampons into the vagina for 24 hours. During the day, it is necessary to exclude sexual intercourse;
- smear sampling is performed prior to bimanual examination and extended colposcopy.

In this case, the sample will not contain foreign elements, and the laboratory will be able to issue a reliable conclusion.

The result of cytological analysis

The cytological interpretation of the cellular composition should be presented to the attending physician in clinically relevant terms and definitions. There are several cytological classifications. The most common are the classification of Papanicolaou and Bethesda.

According to the classification of Pap smears are divided into 5 types:

- ✓ I — normal cervical epithelium of a healthy woman;
- ✓ II — elements of inflammation, mild atypia;
- ✓ III — dysplasia;
- ✓ IV — suspected cancer;
- ✓ V — cancer.

The Bethesda classification is international. It was created as a unified information transfer tool between cytologists and clinicians.

Conclusions In accordance with WHO recommendations, the first cytological examination for Pap is performed at the age of 21 or three years after the onset of sexual activity. For the next three years in a row, it is recommended to undergo an examination once a year. If all three results are normal, then preventive examinations are carried out once every two to three years. After 40 years, the study must be taken at least once a year

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