

DIAGNOSIS OF HUMAN PAPILLOMAVIRUS IN WOMEN OF REPRODUCTIVE AGE

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Annotation. Human papillomavirus (OPV) is one of the most common viruses in the human body, which is widely studied as one of the factors causing health problems in women of reproductive age. High-risk OPV types (oncogenic) cause the development of intraepithelial neoplasia of the cervix (CIN) and, eventually, cervical cancer in women [1-8]. According to the World Health Organization (WHO), tens of thousands of women worldwide die from cervical cancer every year [9-13]. This study is aimed at analyzing laboratory methods for early detection of OPV and developing scientific foundations for protecting the health of women of reproductive age [14,15].

Keywords: reproductive age, human papillomavirus (OPV), Laboratory diagnostics, molecular methods, PCR, screening, cervical cancer, prevention.

The main part. Biology and pathogenesis of human papilloma virus: OPV is a double-stranded DNA virus that is infectious in the basal layer of epithelial cells. The virus is divided into high-risk and low-risk genotypes. Genotypes 16 and 18 belong to the high-risk group and account for more than 70 percent of cases of cervical cancer. The E6 and E7 virus genes interfere with cell cycle regulation by disrupting the function of tumor suppressors such as p53 and RB [1-4].

Prevalence of OPV in women of reproductive age: the main routes of transmission of OPV in women depend on gender, and the rate of transmission of the virus varies in different regions. Epidemiological studies show that a high rate of infection is observed in women aged 25 to 35 years, but the importance of early diagnosis increases due to the difficulty of detecting clinical signs of the disease during this period [5-11].

Diagnostic methods and their advantages: cytological methods: Pap test (Pap test): A classic method designed to detect morphological changes in the cells of the cervix. This test is simple, but has low diagnostic sensitivity, so it is recommended to use it together with molecular methods to increase accuracy [1,4,7]. **Molecular methods:** PCR (polymerase chain reaction): This method has high sensitivity and specificity in detecting OPV DNA. Allows you to identify genotypes with a particularly high risk.



Genomic sequencing: used for detailed analysis of viral genotypes and determination of the level of oncogenicity.

Hybrid manual test: allows you to distinguish oncogenic and non-oncogenic types of OPV. This method is suitable for use in screening programs.

Immunological methods: Enzyme immunoassay (EIA):

It is aimed at detecting antibodies to OPV in blood serum, but is limited in assessing the active phase of infection.

Methods: during the study, epidemiological and laboratory analyses were performed among 200 women aged 21 to 45 years.

* **Sampling:** A sample of cervical cells was collected for PAP smear and PCR methods.

* **Laboratory analysis:** The obtained samples were examined using a hybrid capture test and PCR in the laboratory of molecular diagnostics.

* **Statistical analysis:** Epidemiological indicators and laboratory results were processed using SPSS software, and the results are presented graphically.

Conclusion: early diagnosis of human papillomavirus in women of reproductive age is more effective due to the use of modern laboratory methods. The widespread introduction of molecular methods makes it possible to increase sensitivity to the detection of OPV infection and send women from risk groups for timely treatment. In addition, regular screening programs play an important role in the prevention of cervical cancer in women. The use of new technologies and the strengthening of regional research are important for improving future diagnostic strategies.

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