



Qualitative and Quantitative Characteristics of Papillomavirus Infection in Women with Inflammatory and Neoplastic Processes of the Cervix

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ABSTRACT

The purpose of the work is to establish the qualitative and quantitative laboratory characteristics of human papillomavirus infection (PVI) in women with inflammatory and neoplastic processes of the cervix.

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Introduction: The purpose of the work is to establish the qualitative and quantitative laboratory characteristics of human papillomavirus infection (PVI) in women with inflammatory and neoplastic processes of the cervix.

Materials and methods. 140 women were examined, including: with mild dysplasia (LSIL) - 40 women, with severe dysplasia (HSIL) - 40 women, 30 people with chronic viral cervicitis, the control group - 30 healthy women with a negative HPV test. Clinical examination of patients included the use of colposcopic, cytological (traditional method) and histological studies.

The laboratory study was carried out by real-time PCR on an iQ5 Cycler analyzer (Bio-RAD, USA) using the Amplisens test systems of the Central Research Institute of Epidemiology of Rospotrebnadzor.

Results. In the groups of mild, severe dysplasia, cervicitis, the most common genotypes of the phylogenetic groups A9 - 16, 33, 31; A5 - 51 types; A6 - 56 type. The distribution of human papillomavirus (HPV) types in mild dysplasia (LSIL) and cervicitis differs significantly from the distribution of HPV in severe dysplasia (HSIL). In severe dysplasia, the degree of cervical damage increases and HPV type 16 is dominant. In addition to 16, 18, 31, 33 types of HPV in all groups, except for the control group, the frequent occurrence of 52, 56 types of the virus was noted, and 35, 39, 45, 51, 58 types were also observed. Among the examined women, PVI with mild dysplasia is represented in half of the cases by mono-infection, in half - by multi-infection. As the severity of intraepithelial lesions increases, the proportion of HPV multi-infection increases to 87.5%, with cervicitis, the value of this indicator is also high - 86.7%. Viral load was determined in the groups of mild, severe dysplasia, cervicitis and averaged 4.14, 4.68 and 3.92 logarithms of the HPV genomes (log GE per 10⁵). In all groups, except for the control group, both high and low viral loads are observed. The average "load" indicator exceeded the clinically significant threshold, which is 3 lg

GE per 10^5 . In our study, the "viral load" indicator was not a diagnostically significant criterion for inflammatory or neoplastic diseases of the cervix and did not characterize the severity of cervical lesions.

Discussions. Further, in the analysis of viral load, we used a pooled group, which included the groups of mild dysplasia (LSIL), severe dysplasia (HSIL), and cervicitis. When analyzing the quantitative expression of HPV in the combined group of subjects, the viral load is statistically significantly higher in the presence of HPV types 16, 18 ($p=0.0039$). Highly oncogenic types of HPV are characterized by a greater quantitative expression than low oncogenic types, regardless of the inflammatory or neoplastic nature of the pathological process of the cervix, and the degree of cervical neoplasia does not play a role in this case. In the combined group of female subjects with multi-infection of the human papillomavirus, the viral load was statistically significantly higher ($p=0.015$).

Conclusion. The results of the study indicate that, according to the qualitative and quantitative laboratory characteristics of papillomavirus infection, the group of women with cervicitis is close to the groups of subjects with squamous intraepithelial lesions of the cervix, which makes it possible to include HPV-associated cervicitis in the risk group for neoplastic cellular changes.

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