

In summary, it has been found that in response to the damaging effect of medium factors, there is an increase in the number of micro-nuclei in somatic cells.

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### EVALUATION OF QUALITATIVE AND QUANTITATIVE APPROACH OF PCR METHOD IN EARLY DETECTION OF HPV

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PCR is characterized by the possibility of qualitative and quantitative analysis. The work was based on the results of a survey of 100 women who applied to the medical center "Invitro" in Minsk with suspicion of HPV. HPV genotypes 16 and 18 are the most common, defined in 70 % of squamous cervical cancer cases and approximately 90 % by adenocarcinoma.

*Keywords:* human papilloma virus, method of polymerase chain reaction.

HPV is the cause of a number of conditions, in both women and men, including precancerous lesions that can progress to become cancerous. In the laboratory diagnosis of HPV, DNA methods are used. PCR "in real time" is characterized by the possibility of qualitative and quantitative analysis.

The work was based on the results of a survey of 100 women who applied to the medical center "Invitro" in Minsk with suspicion of HPV. The materials for the study were scrapes of the epithelium of the endocervical canal, scrapes of the epithelium from the surface of the cervix. Two reagent mixtures were used: HPV 1 and HPV 2. PCR was used for diagnosis. Testing was carried out to detect HPV infection with subsequent serotyping of the found variants, as well as determination of the concentration of HPV DNA.

1. DNA detection of HPV-54 women was carried out using a test system that identifies 11 genotypes of high carcinogenic risk (16, 18, 31, 33, 35, 39, 45, 51, 52, 58, 59, 67), with a separate definition of HPV 16 type DNA working on the principle of PCR Amplicens HPV WRC;

2. DNA detection of HPV-26 women was carried out using a test system that identifies two main phylogenetic groups-A7, A9, which include the following 10 types: 16, 18, 31, 33, 35, 39, 45, 52, 58, 59 + HPV DNA of 51 (group A5) and 56 (group A6) types, and also allows to calculate DNA concentrations of these phylogenetic groups in the studied material;

3. Detection of HPV – 20 DNA of women was carried out using a test system that will allow them to differentiate and determine the concentration of the most oncogenic type 16 and 18 viruses in clinical material to determine the likelihood of cervical dysplasia.

After receiving the results of the study, all women were divided into two groups: HPV – positive and HPV-negative. A qualitative version of PCR allowed to identify 54 women who applied: 20 (37 %) – women detected human papilloma virus; 34 (63 %) – not infected. Of the women who were diagnosed with the virus, 25 % had HPV 16; 25 % had HPV 31, 35, 39, 59 and 50 % had HPV 18, 33, 45, 52, 58, 67. Quantitative variant of PCR in determining human papilloma virus of high carcinogenic risk 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 the analysis revealed 26 women who applied: 16 (62 %) women were found to have human papillomavirus; 10 (38 %) women were not infected. Of 26 women, 20 % have lg copies of 3 to 5/100000 cells, i.e. is clinically significant-there is a risk of dysplasia; 80 % of women have >5 lg copies/100000 cells, i.e. a high probability of dysplasia.

The quantitative variant of PCR in determining the human papilloma virus of high carcinogenic risk 16, 18, type allowed to identify 20 women who applied: 4 (20 %) women were found human papilloma viruses; 16 (80 %) women were not infected. Of the women who were diagnosed with the virus, 100 % had HPV 16 and 0 % had HPV 18. Moreover, in 50 % of women the number of lg copies < 3/100000 cells, which is clinically insignificant; in 50 % of women from 3 to 5 lg copies/100000 cells, i.e. is clinically significant-there is a risk of dysplasia.

According to the results of the studies, women were divided into two groups: 40 (40 %) women were found to have human papilloma viruses, 60 (60 %) women were not infected.

HPV WRC infection is a necessary but not the only condition for carcinogenesis. When interpreting the results of HPV testing within cervical screening is taken into account the woman's age, the genotype of the virus, the number of detected genotypes, viral load and dynamics, persistence of the virus more than 12 months. All these characteristics are compared with the results of other methods of examination and allow to determine the tactics of management and treatment of women.

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### TOXICOLOGICAL EVALUATION OF EPICUTANEOUS EFFECT, INHALATION OF HEXYL ESTER OF 5-AMINOLEVULINIC ACID AND ITS REGULATION

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The hexyl ester of 5-aminolevulinic acid is a very perspective growth-control tool for plants. In that case it is very important to investigate it for some unpleasant effects and to regulate the usage, provided with suggestions of its critical toxicological doses.

**Keywords:** hexyl ester of 5-aminolevulinic acid, toxicity, transdermal, inhalation.

#### Materials and methods

The investigation of transdermal toxic effect was done on 7 male randombreed white rats. The monitoring of their status lasts for 14 days with registration of toxic effects.

Toxicity of 50 % water solution of chemical was studied by inhalation experiment in 250 cm<sup>3</sup> chamber by dispersed pulverization on 20 white randombreed rats of both sexes. As a way of control, we used an aspirator to gather the air probe to measure the concentration of hexyl ester of 5-aminolevulinic acid. Inhalation time was set to 2 hours of application. Monitoring of health status was set for 14 days.

The research results were processed by conventional methods of variation statistics. A critical level of significance when testing statistical hypotheses was accepted  $p \leq 0,05$ .

#### Results and discussion

During the study of the toxic properties of hexyl ester of 5-aminolevulinic acid under conditions of epicutane exposure during the observation period after single applications, no manifestations of intoxication and death of animals were recorded. In terms of body weight of experimental animals, the exposure dose of hexyl ester of 5-aminolevulinic acid was 800 mg / kg, which is the maximum possible value for the conditions of this experiment. Consequently, the average lethal dose when applied once to the skin of animals exceeds the values accepted as classification when classifying substances as class 3 - substances that are moderately hazardous. White rats subjected to a single epicutane exposure to hexyl ester of 5-aminolevulinic acid showed a weight gain of 129% of the values of control animals, however, the differences are not statistically significant. Macroscopically, during autopsy, there were no significant signs of the toxic effect of the drug: the state of the internal organs in experimental and control rats, as well as the weight of a number of their organs, did not have significant differences.

Under conditions of inhalation inoculation (the maximum achievable concentration of fine aerosol disintegration of the drug was 72,2 mg / m<sup>3</sup>) and in the next 14 days of observation after exposure to hexyl ester of 5-aminolevulinic acid, animal death and signs of intoxication were absent. The mice were mobile, they maintained a normal level of spontaneous motor activity. Animals willingly consumed food and water, they did not register changes in the speed and depth of breathing, as well as skin color and visible mucous membranes. By the end of the experiment, the increase in body weight of animals subjected to a single inhalation exposure to hexyl ester of 5-aminolevulinic acid did not have significant differences compared with the control. Consequently, under the