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SPECTROPHOTOMETRIC ASSESSMENT OF "EPITHELIUM-CONNECTIVE TISSUE" SYSTEM CONDITION IN PATIENTS WITH BENIGN AND MALIGNANT PROCESSES OF THE UTERINE CERVIX

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A great number of works deal with the issues concerning diseases of the uterine cervix both in CIS and abroad. They are supplied by the data from electronic-microscopic, histochemical research methods possessing undisputable novelty. The epithelium outside "epithelium-connective tissue" system cannot exist in the body. Only simultaneous investigation of these changes can give a correct image concerning the sense of events occurring and help in diagnostics of uterine cervix pathology. It can be used not only in diagnostics, but in prognosis of further behavior of certain pre-cancer condition, and later to elaborate the methods of treatment and prevention of the latter.

Objective: to elaborate spectrophotometric criteria of differential diagnostics in patients with underlying, pre-cancer processes and primary stages of cancer in the uterine cervix by means of comparative evaluation of the results with histochemical methods of investigation.

To solve the objective and tasks 116 women were examined. They were divided into the following groups: the main group – 101 patients including 26 with underlying processes of the uterine cervix, 53 with pre-cancer of the uterine cervix, 22 patients with primary forms of cervical cancer (preclinical cancer); the control group included 15 healthy women without uterine cervix pathology.

For histological examination of the connective tissue condition and its optical density the biopsy material was fixed during 48-72 hours in 10% neutral formalin buffer solution. After paraffin coating on the sliding microtome MC-2 histological sections 5 mcm thick were obtained. Histological specimens were stained with hematoxylin and eosin. N.Z. Slinchenko's method was applied for special purpose («chromotrop 2B»–«water blue» after treatment with phosphotungstic acid). Optical images were transformed into digital by means of the microscope ЛЮМАМ-Р8 and digital camera Olympus C740UZ. The obtained digital images were analyzed by means of the licensed copy of the computer program VideoTest-Size 5.0, produced by Ltd Videotest (Russia, 2000). Intensity of staining was measured by means of microprobe method according to the computer microdensitometry by the "optical density" index in the standard units from 0 (completely translucent for the light beam) to 1 (absolutely opaque for the light beam). Specific area (%) occupied by the connective tissue fibers was determined where it was possible pixel by pixel. The hypothesis for normal distribution for the obtained statistical sampling was checked by means of *Shapiro-Wilk Normality Test*. Although the hypothesis was not rejected in any case, not only parametric method of comparison was applied – Student unpaired bilateral criterion, and non-parametric method – *Mann-Whitney criterion.* The rate of statistical significance was considered $p=0,05$.

These preliminary morphological conclusions concerning the condition of the cervical connective tissue enabled to apply biophysical methods to diagnose uterine cervix pathology.

In case of preclinical cervical cancer (Ca in situ, microinvasive) chaotic alternation of the connective tissue staining properties was observed after N.Z. Slinchenko's method. The fibers are stained into grey or pink colors instead of blue. Therefore, due to irregular changes of staining fibers the measuring of such parameters as "optical density" and "specific surface" was not possible. On the basis of conducted histop ahtological investigations different structure of the subepithelial connective tissue of the uterine cervix was found in different pre-cancer conditions. Consolidation of the connective tissue increases in the line: leukoplakia, mild dysplasia, moderate dysplasia, mild dysplasia. Such preliminary morphological conclusions concerning changes of the uterine cervix connective tissue enabled us to apply biophysical methods to diagnose pathology of the uterine cervix.