THE EFFICACY OF LIQUID-BASED PAP TEST AND THE EXPRESSION ANALYSIS FOR POSTMENOPAUSAL WOMEN

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Objectives
The aim of this study was to count the efficiency of liquid-based Pap test and the possibility of differentiation HSIL+ from LSIL or less based on the expression of the 24-gene panel mRNA measurement by quantitative PCR in the residual media Pap test CellPrep in postmenopausal women.

Methods
38 postmenopausal women had subsequent histological examination within 3 months after the cytodiagnosis by Pap test CellPrep. mRNA expression of the 21 genes (Ki-67, STK-15, CCNB1, CCND1, MYC, MYBL2, P16INK4A, PTEN, BIRC5, BCL2, BAG1, TERT, NDRG1, ESR1, PGR, HER2, GRB7, MGB1, MMP11, CTS1, CD68) and 3 house-keeping genes (GUSB, HPRT1, B2M) was measured by quantitative PCR in the Pap test CellPrep media. The study of this set of genes is included in the diagnostic kit - GlobalIndex (GI) - a registered test system for predicting the recurrence of breast cancer.

Results
The histological examination was classified in such clinical groups: normal epithelium/benign tissue changes (16 patients), LSIL (3 patients), HSIL (16 patients), squamous cell carcinoma (2 cases), endocervical adenocarcinoma (1 patient). We observed that 3 cases of LSIL and 1 case of HSIL were false positive and the positive predictive value for the CellPrep Pap test was 80.95% 95% (CI 65.70% to 90.41%). The accuracy of the Pap smear was 80% (95% CI 61.43% to 92.29%). We discovered that combined evaluation of the 24 gene expression panel allows, according to the discriminant analysis, to carry out the correct differentiation for HSIL+ from (LSIL or less) in 94.74% of cases.

The correct classification is mainly influenced by the estimation of the expression of 6 genes: MYBL2, HER2, NDRG1, BAG1, GRB7, BCL2. The estimation of levels ESR1 and MYBL2 mRNA expression has a crucial meaning by forward stepwise analysis.

Conclusions
The inclusion of the expression analysis of 24-gene panel by quantitative PCR to the Pap test CellPrep could lead to more accurate detecting for severe cervical lesions.