Vaginal Microbial Ecosystem Changes in Patients with Cervical Precancerous Lesions in Latvia

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Introduction. Vaginal pH is related to genital tract inflammation and changes in the bacterial flora, both suggested cofactors for persistence of CIN (cervical intraepithelial neoplasia). Bacterial vaginosis (BV), the most common vaginal disorder among women of reproductive age, has been suggested as a co-factor in the development of cervical cancer. Positive association between BV and cervical precancerous lesions was found, with an overall estimated OR of 1.51 (95% CI, 1.24–1.83) [Gillet, et al., 2012].

Aim. The aim of the study is to detect the alterations in vaginal pH and vaginal microbial ecosystem in association with cervical precancerous lesions in Latvia.

Material and methods. We performed pH measurement and native microscopy of vaginal samples obtained from 50 women aged 18–65 with abnormal cervical smear referred for colposcopy during their first visit to Reference Colposcopy Centre in Rīga Eastern Clinical University Hospital (study group). 35 women aged 20–62 with normal cytology were included in control group. Vaginal pH was measured using *Machery Nagel* pH strips. Microscopic examination of wet mounts was interpreted according to *Donders'* modification of *Schröders'* classification.

Results. Elevated pH > 4.4 was detected in 8/14 patients with LSIL and 22/36 HSIL cases. In control group pH > 4.4 was detected in 9/35 cases ($p = 0.01$). Normal vaginal flora Lactobacillary grade I **(**LBG I**)** was found in 17/35 cases in the control group and 10/50 in the study group ($p = 0.01$). Comparing the prevalence of LBG III between groups, it was defined to be much higher in the abnormal cytology group ($p < 0.05$): LBG III in the study group was diagnosed in 20/50 cases (LSIL-4, HSIL-16) and control group only 7/35cases.

Conclusions. A significant correlation between the increased vaginal pH level/abnormal vaginal LBG and cervical cytology abnormalities was found. The findings confirm the association between pathological vaginal flora and the development of cervical precancerous lesions.

The plan to study vaginal flora patterns more detailed in patients with precancerous lesions is to be set forward for furter studies of the matter.