

O574

1-hour Oral Session

Challenges with papilloma and polyoma viruses

Increased p16/Ki-67 expression is associated with high risk human papillomavirus persistence and cervical histology: A 3-year cohort study in China

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Background: Using high-risk human papillomavirus (HR-HPV) testing for cervical cancer screening in lower-resource settings cannot distinguish clinically relevant persistent infections from transient infections, resulting in a significant number of screen-positive women. Specific markers related to HR-HPV persistence are urgently needed. Here we performed this study to evaluate the association of p16/Ki-67 expression and persistence of HR-HPV infection as well as histological abnormalities.

Material/methods: This was a 3-year cohort study among which 2498 Chinese women aged 25 to 65 years were screened by using 6 different tests: Hybrid Capture 2 (QIAGEN) and careHPV test (QIAGEN) on clinician-collected (cc) and self-collected (sc) specimens, HPV E6 test (Arbor Vita Corporation) on a second cc specimen, and visual inspection with acetic acid (VIA) in 2011. 690 women who were positive at any of the tests and a random sample of 164 women with all negative results received colposcopy, cervical specimens for cobas 4800 HPV (Roche diagnostics) test were collected before colposcopy; of this group, 737 cervical specimens were collected to perform cobas, Liquid-based cytology, HPV E6 test and p16/Ki-67 dual staining (Roche diagnostics) in 2014. Colposcopy and biopsies was performed on women with any abnormal result.

Results: Compared to women without HR-HPV persistent infection, women in the HR-HPV persistence group had a higher risk of p16/Ki-67 positive, with an adjusted Odds Ratio(OR) and 95% confidence interval (CI) of 6.29 (4.07-9.72); moreover, adjusted odds ratio for women who had HPV16/18 persistent infection was nearly 4-fold higher than women with other 12 HR-HPV persistent infection (adjusted OR=17.15, 95% CI: 7.11-41.33 vs adjusted OR=4.68, 95% CI: 2.89-7.58). Additionally, p16/Ki-67 positivity rate significantly increased with the severity of the cytological and histological abnormalities, and resulted strongly associated with a cervical intraepithelial neoplasia grade 2 or higher (CIN2+) diagnosis (OR=16.03, 95% CI: 4.46-57.59).

Conclusions: p16/Ki-67 expressions associated strongly with HR-HPV persistence, especially with HPV16/18, and the presence of a CIN2+ lesion. Therefore, p16/Ki-67 could be considered as a suitable biomarker for cervical cancer screening, particularly in HPV-based screening programs.