

Can Human Papillomavirus (HPV) Testing Improve the Performance of Anal Cytology?

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Background: Anal cytology has been proposed as a screening tool for anal cancer prevention in high-risk populations, an approach similar to that of cervical screening. We explored whether the addition of HPV DNA detection and genotyping improved the performance of anal cytology in predicting histologically diagnosed high-grade anal intraepithelial neoplasia (HGAIN) in a community-recruited cohort study of homosexual men.

Methods: At baseline, participants in the Study of the Prevention of Anal Cancer (SPANC) underwent liquid-based anal cytology (ThinPrep®) followed by high-resolution anoscopy-guided biopsy and histological examination. The Thinprep medium was also HPV genotyped using Roche Linear Array.

Results: A total of 218 men were recruited by April 2012. Median age was 49 years (range: 18-79) and 31.1% were HIV-positive. HGAIN was diagnosed in nearly a third (32.6%). Using the conventional threshold of possible low-grade squamous intraepithelial lesion (PLSIL, 53.2% of cohort) as a means of identifying potential HPV-associated disease, the sensitivity and specificity of anal cytology in predicting HGAIN were 73.5% and 57.1% respectively. The introduction of high-risk (Hr)-HPV detection as triage (PLSIL **and** Hr-HPV, 42.3% of cohort) improved specificity (68.4%) but decreased sensitivity (63.2%). Alternatively, using Hr-HPV as co-testing (PLSIL **or** Hr-HPV, 74.1% of cohort) increased sensitivity (86.8%). Sensitivity increased also (76.5%) when high-grade SIL (HSIL) was used as the threshold (HSIL **or** Hr-HPV, 63.2% of cohort). However, in both scenarios, specificity was lowered (43.6% and 32.3%, respectively). A similar pattern was observed with triage and co-testing approaches of HPV16 testing with anal cytology.

Conclusion: Detection of Hr-HPV in addition to cytological abnormalities led to higher sensitivity whereas an Hr-HPV triage approach led to higher specificity. No test combination resulted in both improved sensitivity and specificity. Anal HPV detection alone may not enhance anal cancer screening. Thus alternatives such as HPV biomarkers for HGAIN prediction should also be investigated.

No disclosure of interest