Genetics and Molecular Research

Evaluation of novel assays for the detection of human papilloma virus in self-collected samples for cervical cancer screening

Q. Chen[1], H. Du[1,2], R. Zhang[3], J.H. Zhao[4], Q.C. Hu[1,2], C. Wang[1,2], G.X. Wang[1,2], J.L. Tang[1,2] and R.F. Wu[1,2]

[1]Peking University Shenzhen Hospital, Shenzhen, China
[2]Shenzhen Key Laboratory on Technology for Early Diagnosis of Major Gynecological Diseases, Shenzhen, China
[3]Jiangsu BioPerfectus Technologies, Jiangsu, China
[4]Human Assisted Reproduction Center, Shanxi Women & Children's Hospital, China

Corresponding author: R.F. Wu
E-mail: wuruifang_l@163.com

Genet. Mol. Res. 15 (2): gmr.15027896
Received October 22, 2015
Accepted March, 18, 2016
Published June 24, 2016
DOI http://dx.doi.org/10.4238/gmr.15027896

ABSTRACT. The aim of this study was to evaluate the performance of three new high-risk human papillomavirus (HPV) assays for primary cervical cancer screening, by using self-collected samples, and to identify an HPV assay that could overcome the major obstacles faced during large-scale population-based screening. Two hundred and ten women showing abnormal cervical cytology (and referred for a colposcopy) were recruited in this study. Self-collected samples obtained from all women were tested with the Cobas, Seq, and BioPerfectus Multiplex Real Time HPV assays; simultaneously, clinician-collected samples (from the same women) were tested with the gold-standard Cobas HPV assay. The results of all the assays were consistent. The sensitivity, positive predictive value, and negative predictive value for cervical intraepithelial neoplasia 2+ (CIN2+) and CIN3+ were comparable

between the self-collected samples tested with the three new assays and the clinician-collected samples tested with the Cobas HPV assay ($P > 0.05$). The single-genotype HPV load per sample did not differ significantly between the self- and clinician-collected samples ($P = 0.195$). In conclusion, the results of this study demonstrated the applicability of the three new HPV assays for primary cervical cancer screening based on self-collection.

Key words: Cervical cancer; Human papillomavirus; Screening; Cervical intraepithelial neoplasia

