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The clinical value of HPV E6/E7 and STAT3 mRNA detection in cervical cancer screening

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Abstract

Objective: To explore the value of human papillomavirus (HPV) E6/E7 and signal transducer and activator of transcription 3 (STAT3) mRNA detection in the screening of cervical lesions. **Methods**: 192 patients with abnormal ThinPrep cytology test (TCT) results and/or high-risk HPV infection were screened to identify possible cervical lesions in cases. Diagnoses were confirmed by histopathology. Fluorescence in situ hybridization (FISH) was performed to detect and qualify the mRNAs of HPV E6/E7, STAT3, and Survivin in cervical exfoliated cells. In addition, the performance of separate and combined mRNA detection methods were compared with TCT, HR-HPV DNA schemes respectively. **Results**: 1. Compared with HPVE6/E7 and STAT3 mRNA methods, Survivin mRNA assay had poor specificity (*Sp*), Youden index (*YI*) and concordance rate. 2. HPV E6/E7, STAT3, and STAT3+HR-HPV methods had the best *Sp*, concordance rate and positive predictive value (*PPV)* for cervical lesions screening and atypical squamous cells of undetermined significance (ASCUS) triage. For screening of high grade squamous intraepithelial lesions or greater (HSILs+), no difference was observed in the *Se* of mRNA detection methods in comparison with that of TCT, HR-HPV and TCT + HR-HPV, whereas the false positive rate (FPR) decreased by 41.48%/55.99%/17.19% and the colposcopy referral rate reduced by about 20.00%/25.00%/11.17%. For triage of women with ASCUS, no difference was observed in the *Se* of mRNA detection methods as compared to that of