I S—17

Dection of high risk type human papilloma viruses(16,18) in tissues of cervical lesion using polymerase chain reaction in situ hybridization

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Human papillomaviruses(HPVs) in the female genital tract have been frequently associated with cervical intraepithelial neoplasia(CIN) and invasive cervical carcinoma since 1976. More than 80 different types of HPVs have been isolated and characterized and HPV 16 and 18 are the most prevalent types of these types. The polymerase chain reaction(PCR) represents one of the most exciting developments in molecular biology but one important limitation is the inability to visualize and localize the amplified product within cells and tissue specimens. For PCR, nucleic acid extraction is first required which necessitates cellular destruction before amplification and correlation of results with histological features is rarely possible. In situ hybridization(ISH) permits the localization of specific nucleic acid sequences at the cellular level with high specificity but this is overshadowed by a relatively low detection sensitivity.

Recently, there are few studies which has combined the use of PCR with ISH. In this study, our aim was to identify high risk type human papilloma viruses(16,18) in cervical lesions by using PCR, ISH and PCR in situ hybridization and to compare the results of these methods. 47 randomly chosen neutral buffered formalin fixed cervical tissue were tested for HPV DNA by PCR, ISH and PCR in situ hybridization.

The positivity rate of ISH was 36%(17/47) for all specimens but that of PCR in situ hybridization was 82%(39/47).

Our results confirm that distinct HPV types are present in a high proportion of cases with cervical cancer. The sensitivity of PCR in situ hybridization is greater than that of ISH.

I S—18

Comparison of cytology,cervicography and human papillomavirus detection in cervical intraepithelial neoplasia and cervical cancer

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A commercial test for human papillomavirus detection(hybrid capture assay) and cervicography were examined for its potential value to augment the sensitivity of cytologic study in early detection of cervical cancer.

In a cohort of 837 women with a mean age 40.1 years who underwent cytologic examination, cervicography, and testing for high-risk human papillomavirus by the hybrid capture assay were compared for their ability to detect cervical intraepitjelial neoplasia and invasive cervical cancer. Cervical punch biopsy or LEEP conization were taken in all patients. The data were analyzed by two-tailed X^2 test.

Detection rates of HPV with high oncogenic risks showed control 26.2%, CIN1 37.3%, CIN2/3 67.6% and invasive carcinoma 73.8%. The patient who had positive results for high risk HPV showed higher incidence of CIN2/3 and invasive carcinoma than controls($p<0.0001$). Cervicography identified 73.3% of CIN 2/3 and 95.3% of invasive cervical carcinoma($p<0.001$). Screening for invasive carcinoma can significantly be improved by cervicopgrapy(95.3%) than HPV testing(73.8%) with hybrid capture assay($p<0.001$).

When combined, detection of high-risk human papillomavirus values or cervicography augmented sensitivity of cytologic study to 92.2% and 94% respectively($p<0.0001$).

Screening for cervical intraepithelial neoplasia and invasive cervical cancer can significantly be improved by human papillomavirus testing with hybrid capture assay or cervicography.