

Comparison of HPV-based assays with Papanicolaou smears for cervical cancer screening in Morelos State, Mexico

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Abstract

Objective: To compare the performance of human papillomavirus (HPV) assays with conventional Pap cytology for cervical cancer (CC) screening in Mexico.

Methods: Pap smears, self-collected vaginal specimens (SS) for HPV testing, and clinician-collected cervical specimens (CS) for HPV testing were obtained from 7868 women, aged 15–85 years old, attending CC screening at the Mexican Institute of Social Security (IMSS) between May and October, 1999. SS and CS specimens were screened for oncogenic HPV DNA by Hybrid Capture 2. Women who received cytological interpretations of atypical squamous cells of undetermined significance (ASCUS), and/or a positive HPV test were referred for colposcopy and histologic studies. The relative estimates for sensitivity, specificity and predictive values of each test were calculated using histological diagnoses of cervical intraepithelial neoplasia (CIN) grades 2 or 3, or CC histological diagnosis.

Results: Oncogenic HPV detection rate was 11.6% for SS, and 9.3% for CS. Pap smear abnormalities were observed in 2.4% of the women. Of 1147 women who had at least one abnormal test result, 88.5% underwent colposcopy, and 101 biopsy-confirmed CIN2/3 or cancer cases were identified. The relative sensitivity estimates for the Pap test, SS and CS were 59.4% (95% CI: 49.2–68.9), 71.3% (95% CI: 61.3–79.6), and 93.1% (95% CI: 85.8–96.9), respectively, while the specificities were 98.3% (95% CI: 98.0–98.6), 89.2% (95% CI: 88.5–89.9), and 91.8% (95% CI: 91.2–92.4), respectively. The positive predictive values of Pap, SS and CS were 36.1, 9.1 and 14.9, the colposcopy referrals needed to detect a case of CIN2/3 or cancer were 2.8, 11.0 and 6.7, respectively.

Discussion: Both HPV assays detected more cases of CIN2/3 or CC than Pap cytology alone. However, the HPV assays increased the number of colposcopy referrals. Our study suggests that HPV testing could be an effective way to improve the performance of CC screening.

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Introduction

During the last 40 years, Pap cytology has been the major means for cervical cancer (CC) screening. The