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CLINICAL ARTICLE

Visual inspection of the cervix with acetic acid for cervical intraepithelial lesions

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Abstract

Objective: Evaluation of visual inspection of the cervix with acetic acid (VIA) for screening cervical intraepithelial neoplasia. *Methods:* In this prospective study, 400 women were screened using the Papanicolaou (PAP) smear, VIA and colposcopy. Those who had positive results with any of the screening methods underwent large loop excision of the transformation zone (LLETZ). The sensitivity and specificity of each of the screening methods was analyzed. *Results:* The sensitivity of VIA (96.7%) was much higher than that of the Pap smear (50%), and almost as high as that of colposcopy (100%). The specificity of VIA (36.4%) was lower than that of the Pap smear (97%) and colposcopy (96.9%), resulting in high false-positive rates for VIA. Two cases of endocervical lesions were missed with VIA. *Conclusion:* Visual inspection of the cervix with acetic acid is very sensitive for ectocervical lesions. The advantages of the VIA method are its low cost and ease of use (it can be used by paramedical workers), its high sensitivity and its immediate results (it is possible to "see and treat" at the first visit). Its main limitation is a high rate of false-positive results, which may lead to overtreatment if a "see and treat" policy is applied.

1. Introduction

Cancer of the cervix is a major health problem in India, which accounts for 26.1—43.8% of all cancers in Indian women [1,2]. Therefore, screening and early detection of precancerous lesions is a priority in our country. A screening test is a simple, cost-effective and sensitive test that can be applied to large numbers of apparently healthy individuals; a diagnostic test, on the other hand, confirms a disease in symptomatic individuals or in individuals at high risk.

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The main method of screening has been cytologic evaluation of the cervix (Papanicolaou [Pap] smear). The Pap smear has several limitations. These include low sensitivity, a need for trained personnel and laboratory facilities, and patients' compliance with follow-up. Thus, alternative strategies are being investigated [3].

One alternative strategy is screening by visual inspection of the cervix after application of acetic acid (VIA) [4–9]. The application of a 3–5% solution of acetic acid to the cervix causes cervical intraepithelial lesions to become white. This aceto whitening, which is visible to the naked eye, constitutes a positive result to the VIA test. Initial studies have shown VIA sensitivity to be similar to or higher than that of the Pap smear; however, more studies are required to confirm the utility of VIA as a primary screening method.

The aim of this prospective clinical study was to screen symptomatic women of reproductive age with the Pap smear, VIA and colposcopy. Those who had positive results with any screening method underwent large loop excision of the transformation zone (LLETZ).

2. Materials and methods

The study was carried out in the Department of Obstetrics and Gynecology of Maulana Azad Medical College (MAMC) and its associated hospital, Lok Nayak Hospital New Delhi, India, from March 2001 to February 2002. All Pap smears and cervical tissue specimens obtained with the LLETZ method were processed and diagnosed in the Cytopathology Division of the Institute of Preventive Oncology of the MAMC New Delhi. The study, which included 400 patients of reproductive age attending the gynecological outpatient department, was approved by the institutional research and ethics committee.

A detailed history was taken from all the women, followed by a general and gynecological examination. Those who were nulliparous or pregnant, with active vaginal bleeding or who had a frank growth on the cervix, were excluded from the study. Informed consent was obtained from all. The procedure included a speculum examination of the cervix followed by a Pap smear, VIA and colposcopy.

After taking a Pap smear, a 5% solution of acetic acid was applied to the cervix using a cotton swab. The cervix was examined after 1–2 min under an adequate light source. The detection of any distinct aceto-white areas was considered a positive result. The area and distribution of aceto-white lesions was recorded diagrammatically. If no aceto-white areas were detected, or if a whitish appearance was doubtful, the test result was considered negative. A review of the literature indicated that performing the cytologic smear first has no impact on VIA.

Colposcopy was performed in all women using the videocolposcope CT14FE (Sometech Model No. RS400). Scoring was done using the Reid combined colposcopic index [10] and a Reid score greater than 2 was considered positive. All patients who tested positive on screening underwent LLETZ and the tissue obtained was sent for histopathologic evaluation.

Large loop excision of the transformation zone was performed under local anesthesia as an outpatient procedure. A Divlabs electrosurgical unit was used (Divlabs Model RS400). The lesions found mildly dysplastic or worse on histopathologic evaluation of the LLETZ specimen were considered true-positive cases.

All results were compiled and analyzed. The sensitivity and specificity, the predictive value for positive test results and for negative test results, and the percentages of false-positive results and false-negative results were calculated for Pap smears, VIA and colposcopy, with histopathologic results as the gold standard.

3. Results

Most women belonged were aged between 30 and 34 years, with a mean age of 32.6 years. Mean age at first coitus was 21 years and 80% of the women had their first coitus before 22 years. Mean parity was 2.7.

Cytologic evaluation of the Pap smear revealed that 384 (86%) of the 400 women evaluated had a normal or inflammatory Pap smear and 16 (4%) had an abnormal Pap smear (Table 1). The result of the cytologic evaluation was considered positive if it revealed mild, moderate or severe dysplasia, carcinoma in situ (CIS), atypical endocervical cells or invasive cancer. Among the 16 abnormal cases, there were five cases of mild dysplasia (1.3%), three cases of moderate dysplasia (0.8%), four cases of severe dysplasia (1%), one case of carcinoma in situ (0.3%), one case of suspicious malignancy (0.3%) and two cases of atypical endocervical cells (0.5%).