VIA Test Results in Dinajpur Medical College Hospital in Screening of Cervical Cancer

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Cervical cancer is one of the few highly preventable cancers. The early detection and removal of precancerous cervical lesions effectively abolish the development of invasive cervical cancer. The Pap test has been the standard screening test in the Western world for the last five decades. Visual inspection of cervix with acetic acid (VIA) is currently more popular method of cervical cancer of screening test in low resource countries. The purpose of the present study was to see the status of VIA test result at a tertiary care hospital**.** This cross sectional study was carried out at Dinajpur Medical College, Dinajpur from July 2013 to June 2014 for a period of one year. VIA was performed and colposcopy was done among the VIA positive patients. A total number of 100 VIA positive patients were evaluated colposcopically. Colposcopy revealed 3 normal cases and 97 premalignant (CIN I, CIN II, CIN III) or malignant conditions. Sensitivity was 95%. We conclude that, in the screening of cervical cancer, the sensitivity of VIA is high. So, visual inspection with acetic acid (VIA) can be an acceptable screening method for cervical cancer which is cost-effective.

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Key words: VIA, Cervical, Cancer, Dinajpur

Introduction

Cervical cancer is the second most common gynecologic cancer worldwide, accounting for 13% of all female cancer in developing countries.[1] The important reasons for higher cervical cancer incidence in developing countries are lack of resources, lack of effective screening programs and poorly organized health system aimed for detecting precancerous condition before they progress to invasive cancer. So, there is a need of low cost approach for effective cervical cancer screening programs.[2] Cervical cancer is a disease that can be prevented through both primary prevention and early detection. So in developed countries the incidence of cervical cancer has decreased due to screening, early detection and treatment. However in developing countries, 80% of cervical cancers are incurable at the time of detection due to their advanced stage.[3] The Papanicolaous (PAP) smear is a simple, safe, non invasive and effective method for detection of precancerous, cancerous and noncancerous changes in the cervix and vagina.[4] Although this effectiveness of PAP smear, sustaining high-quality cytology based program is difficult in low -resource setting due to its complex process of collection, sample, preparation, staining, reading, reporting and the delay between screening and provision of test results. So, in these areas it should be directed toward cost-effective strategies that are more inexpensive and their qualities can be trusted.[5] An alternative test is visual inspection of the cervix with acetic acid (VIA). It has been advocated as an alternative screening method to PAP smears in developing countries.[6]

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This study was designed to evaluate the clinical performance of visual inspection with acetic acid (VIA) as a simple cost effective test.

Methods

This cross sectional study was carried out at Dinajpur Medical College Hospital, Dinajpur from July 2013 to June 2014 for a period of one year. The study was performed among VIA positive women with a age group between 20 to 60 years who were attended in the Department of Obstetrics and Gynecology of the tertiary level hospitals. Patients who were given their informed consent were included. Purposive sampling was done. All pregnant women, menopausal lady and women with frank growth of cervix with active vaginal bleeding were excluded from study. Complete histories of patient pertaining to complaints, any white discharge per vagina, post coital bleeding, obstetric and menstrual history were obtained. Informed written consent was taken. Detailed clinical data were obtained and noted on structured proforma. Per speculum examination of cervix was done.

Squmo-columnar junction was visualized. A solution of 5% acetic acid was applied to cervix using a cotton swab. The cervix was then examined for 1-2 minutes under an adequate light source. The detection of any distinct acetowhite area was considered positive result. If no acetowhite areas wererecorded, or if a whitish appearance was doubtful, the test result was considered negative. Those positive on VIA were invited for colposcopy.

Normal saline was used initially to clean the surface and then vascular lesions and surface lesions were assessed. Abnormal vessels were examined with the aid of green filter. Five percent acetic acid was then applied to mucosal epithelium and it caused disappearance of cervical mucus. If any acetowhite lesions were noted, their intensity, speed of appearance, and disappearance were noted. On colposcopy, findings such as dense acetowhite epithelium, sharply bordered acetowhite epithelium, dilated caliber, irregular-shaped or coiled vessels, coarse punctuation, mosaic appearance, atypical vessels, and irregular surface contour indicate dysplastic epithelium or imminent cancer. A biopsy was taken using a punch biopsy forceps from abnormal areas detected under colposcopic guidance. A structured questionnaire was designed including all the variables of interest. It was finalized following pretesting and necessary modifications.

Data were collected through direct interview of the patients at the respective departments by the researcher. Collected data was checked and edited first. Then they were processed with the help of software SPSS (Statistical Package for Social Sciences) version 16 and analyzed. The test statistics used to analysis the data were descriptive statistics, frequency and sensitivity test.

Results

The study subjects were married women with an age range of 20 to 60 years. The maximum number of patients was in the age group of 31-40 years (45%, Table I). Mean age of the study subjects were 37.57 ± 9.41 years. Mean age of marriage of the subjects were 16.33±3.35 years (range 10-30 years) and mean age of delivery was 19.24±3.91 years (range 13-38 years). Most subjects were 3-4 gravida (46%) and 0-2 para (48%, Table II). Normal and VIA positive cervix is shown the figures 1 and 2, respectively. Out of 100 VIA positive cases, colposcopy revealed 3 normal cases and 97 premalignant (CIN I, CIN II, CIN III) or malignant conditions. Sensitivity was 95% (with 95% confidence interval 91-99). Among colposcopically positive patients

CIN I was 60%, CIN II was 27% and CIN III was 4% and carcinoma cervix was 6% (Table III and fig 3) .

Table I: Age distribution of the study subjects

Age Group	Frequency
20-30 Years	24
31-40 Years	45
41-50 Years	22
51-60 Years	9
Total	100

Table II: Distribution of the study subjects according to para and gravida

Number	Frequency of Gravida	Frequency of Para
0-2	37	48
3-4	46	42
5 or more	17	10
Total	100	100

Table III: Colposcopic findings of the study subjects

Colposcopy	Frequency
Normal	3
CIN I	60
CIN II	27
CIN III	4
Carcinoma Cervix	6
Total	100

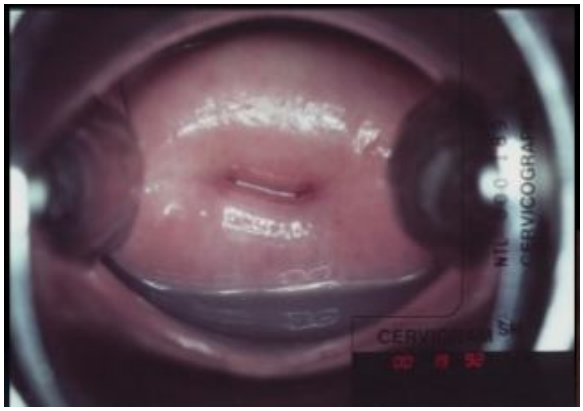

Figure 1. Normal cervix as seen in VIA test

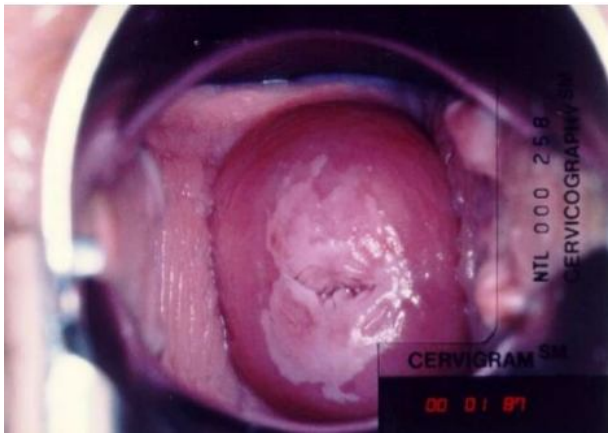

Figure 2. Abnormal cervix (VIA positive) as seen in VIA test

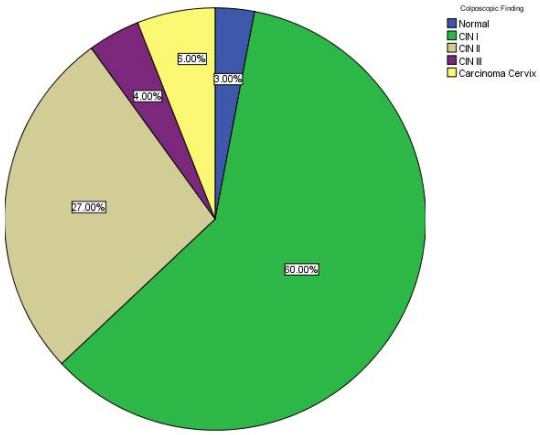

Figure 3. Pie diagram showing colposcopic findings of VIA positive cases

Discussion

In this study, out of 100 via positive cases, colposcopy revealed 3 normal cases and 97 premalignant (CIN I, CIN II, CIN III) or malignant conditions. Sensitivity is 95% (with 95% confidence interval 91-99). Among colposcopically positive patients CIN I was 60%; CIN II was 27% and CIN III was 4% and carcinoma cervix was 6%. Choudhury et al evaluated a total number of 65 VIA positive patients colposcopically. They found, in all VIA positive patients, colposcopically

positive were 47.7% cases. Among colposcopically positive patients 27.69% had CIN I, 18.46% had CIN II and 1.54% had CIN III.[7] Ardahan and Temel in their study stated that when the method of VIA was compared with colposcopy, VIA had a sensitivity of 85.29%, specificity of 68.75%, PPV of 85.29%, and NPV of 68.75%.[8] Sauvaget *et al* have reported 80% sensitivity (range, 79%-82%) and a 92% specificity (range, 91%-92%) for VIA compared to that of colposcopy.[9] Sritipsukho and Thaweekul found using random effect method, the pooled estimates of sensitivity, specificity, positive predictive value and negative predictive value of VIA were 71.8%, 79.4%, 16.7% and 99.0% respectively.[10] The ability of VIA to detect lesions missed by cytology has been reported by others.[11, 12] In one study, cervicoscopy was found to be more sensitive than cytology in detecting lesions, but resulted in a recall of 25.4% of 2,105 subjects for further investigations, as opposed to 3.8% with cytology.[11] In another study, 85 subjects with aceto-white lesions on the cervix and normal Pap smear were subjected to colposcopy; 34 of them had normal colposcopic appearance and the rest were subjected for biopsy and 13 cervical intraepithelial neoplasia (CIN) lesions were detected among those .[12] In a study involving 2,426 women in a suburb of Capetown, those positive on VIA or those with squamous intraepithelial lesion (SIL) on cytology were referred for colposcopy and biopsy. Of these, 61 were positive on VIA plus cytology; 15 were positive on VIA only; 254 were positive for cytology only; and 2,096 were negative for both VIA and cytology. Of the total 31 histologically detected high-grade SIL lesions in this study, 20 were found positive for both tests; 11 were found positive on cytology only. It was concluded that since VIA detected more than 60% of the high-grade SIL, it warrants consideration as an alternative to cytology in low resource settings.[13] In a workshop, a review of preliminary or final results from several studies investigating the performance of VIA, with or without magnification, in detecting cervical neoplasia in low resource settings in Asia (India, Indonesia) and sub-Saharan Africa (Kenya, Zimbabwe, South Africa) suggested that VIA performs comparably to the Pap smear and/or other screening tests being investigated in those settings.[14] Sensitivity for VIA has consistently been measured at between 60 and 70% and specificity at approximately 70%. In our study, it has been found that the sensitivity of VIA is high, means VIA can identify most true cases. So, the cost effective test visual inspection with acetic acid (VIA) can be considered as an acceptable screening method for cervical cancer.

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