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Evaluation of Visual Inspection of Cervix with Acetic Acid in Detecting Precancerous Lesions

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Abstract **Original Research Article**

Background: Cervical cancer is a major public health problem in Bangladesh without widespread organized cervical screening programs. The acetic acid visual inspection of the cervix (VIA) is an efficient, low-cost screening test that can be paired with easy treatment procedures for early cervical lesions provided by skilled health workers. To evaluate the effect of any prevention program on cervical cancer incidence and mortality rates, women aged 25 to 50 must be adequately covered. VIA is a cost-saving method of screening, according to mathematical modeling of the expenses of various screening procedures in Bangladesh. ***Methods:*** Total 100 eligible woman who randomly came to the VIA centre of BSMMU were examined by VIA detection of well defined, opaque, acetowhite lesions close to the squamocolumner junction or in transitional zone or dense acetowhitening of ulcero proliferative growth on the cervix constitute a positive VIA Those who had abnormal results in screening test and those who had clinically suspicions lesion were sent for colposcopic evaluation and directed biopsy were taken from colposcopically suspected area. The final diagnosis was based on histology. ***Results:*** Healthy cervix was in 11 cases (11%) suspected inflammation was 4 cases (4%), CIN-I was 58 cases (58%), CIN-II was in 14 cases (14%), CNN-III was in 10 cases (10%), and invasive carcinoma was in 3 case (3%). Out of 100 patients biopsied, cervical intraepithelial neoplasia found among 81% cases of which CIN was in 52.5%, CIN II was in 17% and CIN III was in 8.5%. Invasive carcinoma found in 3% and inflammation was in 4% cases. ***Conclusion:*** VIA was as effective as colposcopy at detecting various grades of intraepithelial cervix lesions. Here, VIA was suitable for the diagnosis, follow-up care, and epidemiological research of cervical cancer, as well as for the detection of precancerous lesions in low resource settings.

Keywords: VIA, Cervical cancer, Conventional cytology, Colposcopic

INTRODUCTION

Cervical cancer is a condition that can be prevented by cervical screening and can be treated if found at an early stage [1]. The second most frequent malignancy among women overall is cervical cancer [2]. Annual mortality from cervical cancer is predicted to be 1, 90,000, with an estimated 3, 71,000 new cases being diagnosed [3], 80% of newly reported cases have place in underdeveloped nations. Nevertheless, because of the adoption of new screening tests, this is diminishing in the developed world. 75% of disease diagnoses in developing nations occur at an advanced stage. Mortality is hence high [4].

The most frequent genital cancer seen in clinical practice is still cervical cancer [5]. Understanding the etiological factor is crucial for the effective prevention of this disease because the problem of cervical cancer in Bangladesh is particularly acute due to poverty, early marriage, multiple marriages, high parity, illiteracy, and other diseases linked to poor nutrition and lack of basic knowledge of health matters among the people [6]. One of the most common neoplasms among women in poor nations, cervical cancer [7], primarily affects them in their fifth to sixth decade of life. Cervical intraepithelial neoplasia (CIN), a protracted pre-malignant phase, is the precursor to invasive cervical cance [8].

To detect cervical intraepithelial neoplasia grade 2 or 3 (CIN 2-3) which are considered to be true precancerous leaions, we need a well implanted secondary prevention system that provides screening for all woman at risk as well as treatment of detected abnormalities according to local policy [9-11]. The substantially greater prevalence of cervical cancer in developing countries when compared to developed countries has been attributed to the fact that successful pap smear screening programs could be maintained in developed countries but not in developing countries [12].

A successful pap smear screening program requires a number of sequential steps, including (a) collecting cells from the transformation zone of the cervix and end ocervix in the clinic, (b) spreading the cells on a slide and fixing them, (c) staining and reading the slide by a cytopathologist, (d) transmitting the cytology results to the healthcare provider, (e) communicating the cytology results to the women and setting up a second visit if the smear is abnormal and (f) a second visit by the women for additional test for treatment. The infrastructure required for all these steps has not been available in the developing world and there has been a strong need for a screening test that is simpler and can be interpreted immediately and combined with treatment, if necessary, at the initial screening visit.

The most promising screening technique in environments with limited resources has been deemed to be visual examination of the cervix following administration of acetic acid (VIA). In order to do VIA, a qualified healthcare professional must first apply a 3% to 5% acetic acid solution to the cervix. After that, the cervix's transformation zone must be observed for up to two minutes in order to detect the appearance of white epithelium, which is regarded to be a sign of aberrant cellular alterations [13]. The VIA positive women can typically be treated with cryotherapy to destroy the transformation zone during the same appointment. Cryotherapy and VIA can both be applied in the field, doing away with the requirement for a trip to the clinic entirely.

This method has numerous benefits, including the ability to be carried out by a certified paramedical worker, the use of basic equipment, the availability of the results right away, and the ability to administer therapy during the same visit if necessary [14]. More research is needed to validate the viability of VIA as a primary screening approach despite its high sensitivity for detecting CIN and cervical cancer and its low specificity. Identification of patients at risk for cervical cancer will be aided by this study. Finally, it will aid in the development of VIA's role in the detection of cervix precancerous lesions. This study is very well warranted in this regard.

METHODOLOGY

This is a descriptive cross-sectional study. This study was carried out on 100 patients the find out about the population including male and female patients in the Department of Obst and Gynae, Bangabandhu Sheikh Mujib Medical University (BSMMU), Shahbag, Dhaka, Bangladesh. The duration of the period from July 2010 to December 2010. After collection, the data were checked and cleaned, followed by editing, compiling, coding and categorizing according to the objectives and variable to detect errors and to maintain consistency, relevancy and quality control. The choice of treatment was made by the patient after a full discussion with the multidisciplinary team consisting of Transfusionists. The data for this study about had been accumulated from patients' medical information. Statistical evaluation of the results used to be got via the use of a window-based computer software program devised with Statistical Packages for Social Sciences (SPSS-24).

RESULTS

Table 1: shows the age of the patients was in between 25 - 50 years of age. The highest number was 39 (39.0%) in the age group 36 - 45 years and the lowest number was 8 (7.5%) in the age group 46 - 50.

Table 1: Distribution of age between two groups (n=100)

Age in years	N	%
25-30	21	21.0
31-35	32	32.50
36-45	39	39.0
46-50	8	7.5
Total	100	100.0
Mean age SD	35.7±6.4	

Table 2 shows that the Socio-demographic characteristics of the patients. Here, the most of the patients had no formal occupation i.e., 15% of the patients were housewives. 2.5%, 12.5% and 10% were student, industrial / garments workers and secretarial jobs respectively. Among the respondents, 60% had satisfactory personal hygiene and 40% cases had unsatisfactory maintenance of their personal hygiene. Regarding the distribution of the husband's occupation of the study patients, more than one third of the cases husband 37% had business and 26.5% had government service, which was the second highest among the husband's jobs. Only five cases 2.5% had job in abroad.

In regard to number of children of the cases, 46.5% patients had 3-4 children in their families. Five or more than 5 children had in 17 cases (8.5%). Only in 8 cases had no children during the period of interview. Almost 40.5% family had yearly income ranging from 40,000 to 50,000 Tk. The lowest income was in 7 cases

(3.5%) that was Tk. Relating to the area of residing 26% of the study subjects were living in the urban area and 26% in rural area. The people residing in the urban were more than double than that of the rural area. Regarding structure of housing 66% cases lived in the building and 31% cases lived in tin shade house.

Table 2: Distribution of patients by socio demographic characteristics (n= 100)

Variables	N	%
Occupation (n=100)		
Unemployed / housewife	75	75
Secretarial job / Office job	10	10
Industrial job / Garments work	13	12.5
Student	2	2.5
Personal Hygiene (n=100)		
Satisfactory	60	60
Unsatisfactory	40	40
Husband's Occupation (n=100)		
Farmer	13	12.5
Businessman	37	37
Govt. Service	26	26.5
Private Job	13	13.5
Rickshaw Puller	8	8
Abroad	3	2.5
Number of Children		
No children	4	4
= 2	41	41
3= 4	47	46.5
=> 5	8	8.5
Yearly Family Income (TK.)		
< 20,000	4	3.5
20,000 – 29,999	7	7.5
30,000 – 39,999	30	30
40,000 – 49,999	41	40.5
50,000 – 60,000	16	16
> 60,000	2	2.5
Residence (n=100)		
Rural	26	26
Urban	74	74
Total	100	100

Table 3 shows that the age of menarche ranged from 12 - 14 years of age. Highest percentage was at the age 13 years (47.5%) and lowest was 10% in the age 14 years. Among the cases having regular menstruation, (44%) had 4 - 5 days duration of the cycle, that is the highest group within regular cycle group. But in 8.3% cases and 13.8% cases had scanty and excessive flow respectively. 72.2% had no intermenstrual bleeding, while in 27.78% cases had inter-menstrual bleeding among the studied subjects.

Table 3: Menstrual history of the study subjects

Variables	N	%
Age of Menarche (age in years)		
12	43	42.5
13	47	47.5
1400	10	10
Menstruation (n= 90)		
Stopped	10	10
Continued	90	90
Period of Menstruation (n= 90)		
2 – 3 days	12	11.11
4 – 5 days	44	44.44
6 – 7 days	11	11.11
Irregular	33	33.33
Menstrual Flow (Amount) (n= 90)		
Scanty	9	8.33
Average	77	77.77
Excessive	14	13.88
Inter Menstruation Bleeding (n= 90)		
No	73	72.22
Yes	27	27.78

Table 4 shows that 10 (10%) cases had elapsed less than 10 years after their marriage. The majority (32%) had passed 16 – 20 years period after their marriage. The age elapsed 31 - 35 years after marriage was only in 5% cases. Regarding para, 8 cases had no children and 17 cases had >5 children each. In regard to age of the last child, 43 (42.7%) had children of 2 - 5 years of age. Only in 2 cases had children within 21 - 25 years of age.

Table 4: Obstetrical History of the Subjects

Variables	N	%
Married for (n=100)		
< 10 years	10	10
10 – 15 years	23	23
16 – 20 years	32	32
21 – 25 years	20	20
26 – 30 years	10	10
31 – 35 years	5	5
Mean ± SD	18.3±6.8	
Para (n= 96)		
Up to 2	43	42.7
2 – 4	48	48.4
Or > 5	9	8.9
Mean ± SD	18.3±6.8	
ALC (n= 96)		
2 – 5	42	42.7
6 – 10	26	26.6
11 - 15	16	15.7
16 – 20	14	14
21 - 25	2	10
Mean ± SD	8.8±5.6	

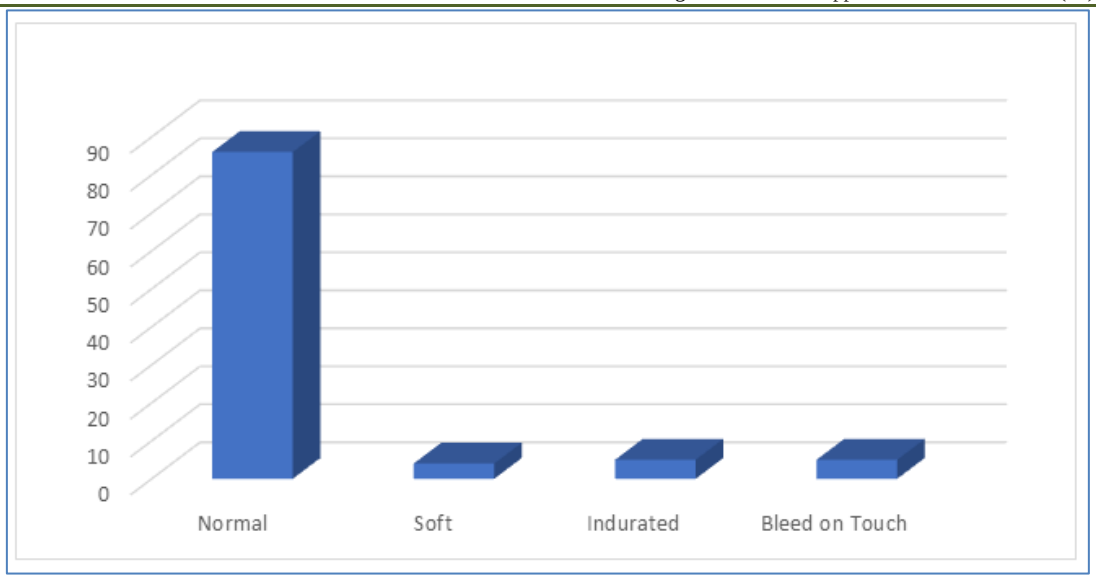

Figure 1: Cervical conditions by bimanual examination

Figure 1 shows that, the cervix was normal in 86% cases by bimanual examination. Among the rest soft was in about 4% cases. But about 5% was Indurated or firm while in examination. Bleed to touch was in 5.

Table 5 shows histology results of biopsy findings of 100 cases. Of the study subject's cervical intraepithelial neoplasia found among 81% cases of which CIN I was in 52.5%, CIN II was in 17% and CIN III in 8.5% cases. Invasive carcinoma found in 3% and inflammation was in 4% cases.

Table 5: Distribution of colposcopically directed biopsy

CDB	N	%
Negative for intra epithelial lesion	15	15
Inflammation	4	4
CIN I	52	52.5
CIN II	17	17
CIN III	9	8.5
Invasive carcinoma	3	3

Table 6 shows the correlation of colposcopic findings and histopathological reports of VIA positive cases of 100. The study subjects colposcopic findings found negative for intra epithelial lesion 11, cervicitis 4, CIN I 58, CAN II 14, CIN III 10 and invasive carcinoma 3 in cases.

Table 6: Correlation of colposcopic findings and histopathological reports

	Colposcopic findings	Histopathological findings report
Negative for intra epithelial lesion	11	15
Cervicities	4	4
CIN I	58	52
CIN II	14	17
CIN III	10	9
Invasive carcinoma	3	3
Total	100	100

Figure 2 shows that all the cases were VIA positive, therefore the sensitivity and specificity could not be analyzed. VIA test was positive in 100% cases as the study planned, which revealed 85% cases positive in colposcopy and 81% cases positive in biopsy. The sensitivity and specificity of colposcopy were 88.2% and 60% respectively.

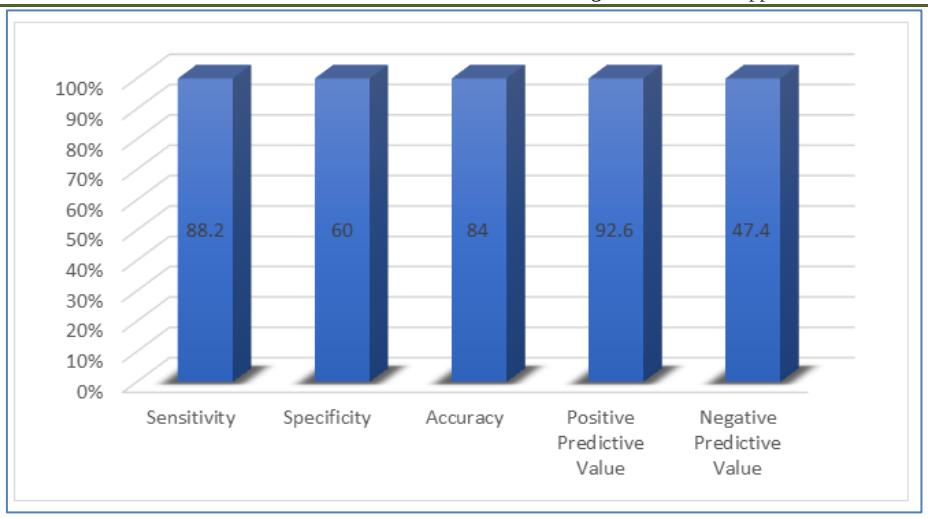

Figure 2: Sensitivity and specificity analysis

DISCUSSION

The goal of the current study was to ascertain how VIA and colposcopy diagnose cervical intraepithelial neoplasia in women between the ages of 25 and 50 who visited the BSMMU coloscopy clinic over the six-month period between July 2010 and December 2010. The VIA (+ve) cases that were referred from the OPD to the colposcopy clinic for this investigation. 100 instances total were included in the study.

The peak age range of people between the ages of 36 and 45. More than two thirds of the cases fell into the 31-to- 35- year age range. As people aged, the percentage of cases falling into this age range decreased. Approximately 32% of people aged 36 to 45 and 38.46% of people aged 26 to 35 were discovered in Syeeda S.'s study from 2003 [15].

According to Tofazzal N. *et al.*, (1994), invasive cervical cancer most frequently occurs in people between the ages of 40 and 50, closely followed by those between 30 and 40 [16]. The results of Sayeda's study are consistent with those of this one and suggest that CIN is more likely to have females who are sexually active. As a result, WHO recommended the age range of 35 to 45 as the priority for screening. The employment status indicated that students were affected least in descending order, followed by female office workers and housewives who were mostly affected. A third of the instances among the subjects of the study had poor personal hygiene.

The majority of the instances in the study came from urban areas; this may be because the urban populace is aware of the issue and the investigation was conducted in an urban region. The majority of the house construction was made of brick, which is consistent with the urban-based study.

More over one-third of the respondent's spouses worked for a business; behind them, in decreasing order, were government jobs, private occupations, and farmers. This shows that the patients from the awakened family visited the hospital. Together, the farmer and rickshaw driver made up 20.5%.

In the current study, the majority of women had menarche by the time they were 13 years old. 17% of the 100 cases had irregular periods. 40% of cases with a regular menstrual history had a cycle lasting 4 to 5 days, and 39% had an average menstrual flow.

As in our community, none of the participants in our study were smokers, so we were unable to identify the risks associated with smoking. Additionally, 15% of cases had a history of exposure, or many sexual partners. Hormonal contraceptives were used by 61% of women, exceeding the national average of 53.8%. This suggests that more contraceptives are being used in CIN situations. Regarding the first coitus, 76.5% had one prior to the age of 18. In 52 cases, Syeeda S. (2003) discovered that more than 80% had engaged in their first coitus before the age of 19, which is consistent with the findings of the current study. 10% of the 100 instances showed no symptoms or signs at all. Backache, dysuria, dysperunia, and profuse vaginal discharge made up the majority of the presentation. All of these were non-specific, which brought to mind the requirement for CIN screening tests.

Out of 100 cases, a speculum examination found that 85% had typically appearing cervix, erosion, ulcer, or nodularity, which may indicate a delayed visit to the doctor or be linked to secondary lesions. Since VIA was positive in every case, it was impossible to determine the sensitivity and specificity of VIA. The sensitivity and specificity of colposcopy were, however, 44% and 30%, respectively, when using CDB as the gold

standard. 42% of the 100 VIA positive cases had colposcopy positive findings. In CDB, 40% of the results were favorable. Given that all instances were assumed to be VIA positive, it follows that 9.5% of VIA test results were false positive when compared to CDB results.

CONCLUSION

The study came to the conclusion that colposcopy and VIA are crucial techniques for identifying cervical lesions of various grades (invasive cancinoma, CIN-I, CIN-II, and CIN-III). Because VIA is a straightforward procedure, it is simple to use, and it is inexpensive, it may be a useful tool for cervical cancer screening in areas with limited resources. Not just in settings with limited resources, but also in well-equipped medical facilities and cancer treatment facilities, VIA is helpful for detecting precancerous lesions of cervical cancer. In order to detect precancerous lesions of cervical cancer as well as to diagnose, monitor, treat, and conduct epidemiological studies on the disease, VIA is a good option.

LIMITATIONS

Moderate specificity results in resources being spent on unnecessary treatment of women who are free of precancerous lesions in a single visit approach. No conclusive evidence regarding the health or cost implications of over-treatment, particularly in areas with high HIV prevalence. There is a need for developing standard training methods and quality assurance measures. Endocervical lesions cannot be detected.

RECOMMENDATIONS

From this study, we can use VIA as a screening method for detection of precancerous lesions of cervix. VIA is noninvasive, easy to perform and inexpensive. It can be performed by all levels of health care worker in almost any setting. Provides immediate results on which decisions regarding treatment on referral can be made.

REFERANCES

1. Sellors, J., Lewis, K., Kidula, N., Muhombe, K., Tsu, V., & Herdman, C. (2003). Screening and management of precancerous lesions to prevent cervical cancer in low-resource settings. *Asian Pacific journal of cancer prevention: APJCP*, *4*(3), 277-280.
2. Bosch, F. X., & De Sanjosé, S. (2003). Chapter 1: Human papillomavirus and cervical cancer—burden and assessment of causality. *JNCI monographs*, *2003*(31), 3-13.
3. Kim, S. J. (2000). Role of colposcopy and cervicography in screening and management of precancerous lesions and early invasive cancer of uterine cervix. *J Obstet Gynecol India*, *50*(5), 139-146.
4. Panda, S. N. Lecture notes on screening of cancer cervix by Visual Technique. MKCG Medical College, Orissa, India.
5. Bosch, F. X., & De Sanjosé, S. (2003). Chapter 1: Human papillomavirus and cervical cancer—burden and assessment of causality. *JNCI monographs*, *2003*(31), 3-13.
6. Ratnam, S. S., Rao, K. B., & Arulkumaran, S. (1994). Illancheran A screening for cervical cancer in Obstetrics & Gynaecology for postgraduate, 2nd editions Orient Longman, India, 2, 328-338.
7. Parkin, D. M., Bray, F. I., & Devesa, S. S. (2001). Cancer burden in the year 2000. The global picture. *European journal of cancer*, *37*, 4-66.
8. Schiffman, M., & Kjaer, S. K. (2003). Chapter 2: Natural history of anogenital human papillomavirus infection and neoplasia. *JNCi monographs*, *2003*(31), 14-19.
9. Lăără, E., Day, N., & Hakama, M. (1987). Trends in mortality from cervical cancer in the Nordic countries: association with organised screening programmes. *The Lancet*, *329*(8544), 1247-1249.
10. Gustafsson, L., Pontén, J., Zack, M., & Adami, H. O. (1997). International incidence rates of invasive cervical cancer after introduction of cytological screening. *Cancer causes & control*, *8*, 755-763.
11. WHO J. National cancer control programme policies and management guidelines.
12. Denny, L., Quinn, M., & Sankaranarayanan, R. (2006). Screening for cervical cancer in developing countries. *Vaccine*, *24*, S71-S77.
13. Of Zimbabwe, U., & Project, J. C. C. (1999). Visual inspection with acetic acid for cervical-cancer screening: test qualities in a primary-care setting. *The Lancet*, *353*(9156), 869-873.
14. Denny, L., Kuhn, L., Pollack, A., & Wright Jr, T. C. (2002). Direct visual inspection for cervical cancer screening: an analysis of factors influencing test performance. *Cancer*, *94*(6), 1699-1707.
15. Syeeda, S. (2003). Colposcopic findings in clinically unhealthy cervix: A study in a group of patients attending colposcopy clinic at BSMMU, BCPS Dissertation, Dhaka.
16. Tofazzal, N., Khan, B. R., Islam, B., Mohsin, A., & Quddus, R. (1994). Study of the association of human papiloma virus with cervical cancer and precancerous lesions in a group of Bangladeshi women. *J Bangladesh Coll Phy Surg*, *12*(1), 85-88.