ORIGINAL ARTICLE

Visual Inspection of the Cervix with Acetic Acid for Screening of Cervical Cancers

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ABSTRACT

Objective: To evaluate the visual inspection with acetic acid as screening test for cervical cancer

Subjects and Methods: The current interventional study was led at Gynae/Obstetrics Department, Liaquat University of medical and health Science. All married sexually active women with age 15 to 60 years and presented with vaginal discharge were included. After obtaining well-versed consent, females were asked regarding demographic data. Investigation was performed as per standard protocol. Pap smear was taken and fixed according to protocol. An Airwick soaked within 5% acetic acid was after that applied substantially in cervix. Following a minute, the cervix was observed with torch-light and specimens were taken and send to diagnostic laboratory for biopsy. All the data was recorded in proforma. The data analysis was done by windows released SPSS version 21.

Results: Total 135 women were elected their means age was 39±11.7 years. Frequency of acetowhite region was positive among 15 (11.1%) females. Within all of these 15 females, the acetowhite within 2 cm touched the CJ region. Out of 15 women 13 exhibited shiny white lesions. Biopsy was negative among 125 cases and was positive among 10 patients out of 15 Acetowhite lesions. Acetowhite lesions showed 80.0% sensitivity and 94.4% specificity.

Conclusion: Visual examination with acetic acid is a good screening tool for cervical cancer with high sensitivity and specificity. It is cost-effective, feasible and easily to perform.

Key words: Cervical cancer, Visual examination with acetic acid, screening test

INTRODUCTION

The stated prevalence of yearly burden of cervical growth is above 530,000 of fresh cases and mortality rate of 275 thousand. Most deaths are found in underdeveloped middle and low income nations. One factor for raised mortality within underdeveloped nations is the poor screening services and untimely detection.[1,2] Cervix uteri cancer represents around 3.6% of all carcinomas in females of Pakistani.[3] Cervical carcinoma is most prevailing cancer of cervix uteri among underdeveloped nations and affects females with age ranging from 50 to 60 years.[4-6] It is the 2nd most common factor of cervical carcinoma in female groups of reproductive age, and a major cause of mortality among underdeveloped nations.[7-9] It is second to carcinoma of breast as first worldwide. The aim of testing for cervical carcinoma is for a timely detection and timely instigation of target-centered therapy prior to the development of carcinoma or before it becomes excessively advanced.[10-12] Among developed nations, the mortality has lowered due to accessibility of screening services, however prevalence remains alike.[13] It is documented by an earlier Study that screening rate for cervical dysplasia was just 5% of women since previous 5 years, which is much low rate. In contrast, much low rates are reported from underdeveloped nations since previous 5 years. Quite the reverse, reported rate of screening from developed nations was 85% in the previous 5 years.[14] Among developed nations, mortality rate because of cervical carcinoma has decreased due to timely detection rates as services for screening are accessible. Among developed nations, screening measures for cervical carcinomas became compulsory around 5 decades ago.[7,9,15] Pakistan has a shocking state with burden of cervical carcinoma is 13.6 per 1,000,000 cases and rate of screening is just 1.9%.[2,3,14] A most extensively practiced tool to screen cervical carcinoma is cytology of cervix-.[9] Pap-smear is an effective, simple, non-invasive, safe however takes a lot of time that a pathologist needs to carry out histological study. Alternatively, visual examination using acetic acid (VEA), one more screening technique which has no such technical issues.[12] VEA has been recommended as a screening assay which can possibly be reliable alternate to Pap-smear.[16] In spite of the necessity, no effective screening program is available within university hospital. This study was planned to evaluate the viability of VEA within hospital setting prior to recommend it as one of screening assay for cervical carcinoma detection in distant rural regions of Sindh. The results of current study may be used as a base in the training of healthcare benefactors who work in community and thus mortality from this carcinoma can be overthrown in an economical way.

MATERIAL AND METHODS

This interventional study was carried out at the Department of Obstetrics /Gynecology, Unit IV, Liaquat University Hospital of Medical and Health Sciences. Study duration was 2 years from 2014 to 2016. All married women who are sexually active, age between15-60 years with presentation of vaginal discharge were enrolled in the study. All the pregnant females, females with puerperium, sepsis and females with evident cervical cancer were excluded. After providing a pre study designed awareness talk on cervical carcinoma and obtaining well-versed consent, females were inquired regarding demographic data. Females were assisted on investigation couch in

lithotomy position. Appropriate size cuscos speculum was chosen. A swab containing diluted solution of pyodine was used to clean Vulva. Speculum was inserted into the vagina for the visualization of the cervix. Outcomes were documented in Proforma. Pap smear obtained when female subjects had already carried a kit from the pathology department then fixed it as per protocols was . A wick of the ear saturated in 5 percent acetic acid was gently placed on the cervix. The cervix was visualized using light from the torch after a minute, and results were reported. Appointment for colposcopy or cervical biopsy was given to all VEA positive subjects at the same time. All the negative females on the screen were given a follow-up date of two years. Endpoints were defined through VEA in the OPD with complete data collection facilities, mobile phone number with females. If there were some other department concerned, communication liaison was developed. The total positive and negative cases on VEA were entered in Proforma to analysis data. The data was preserved in strict supervision in the room and the authority was deemed sensitive to accessibility.

Data analysis: Data analysis was done by a windows released SPSS version 21.0 (IBM, incorporation, USA). Analysis of categorical and continuous variables was done by chi-square, t-test and students test. Continuous variables were presented as mean ±SD and categorical variables as frequency and %. Graphs were modeled with the help of Microsoft excel. Data was presented as graphs, charts and tables. P-value ≤ 0.05 was taken as significant.

RESULTS

Total 135 women with vaginal discharge were selected, their means age was 39±11.7 years. Majority of6women were with6fifth decade of6life. Most of the women 44.4% and 42.9% were with marriage duration >40 years and 12-40 years respectively, while 12.5% women were with marriage duration of 1-20 years. Most of the women 72.5% were high para, 19.2% were low para and 08.1% were nulipara. Mostly 70.3% women were with healthy uterus and 29.6% were presented with non-healthy uterus. Table 1.

Table 1: Demographic characteristics of study population (n= 135)

	No. of Pt.	Percentage
Age		
15-24.9 years	18	13.3%
25-29.9 years	25	18.5%
30-39.9 years	29	21.4%
40-49.9 years	38	28.1%
>50 years	25	18.5%
Duration of marriage		
1-20 years	17	12.5%
21-40 years	58	42.9%
>40 years	60	44.4%
Parity status		
Nuli Para	11	08.1%
Low Para	26	19.2%
High Para	98	72.5%
Cervix		
Healthy	95	70.3%
Non-healthy	40	29.6%

Frequency of6aceto-white area6found positive in615 (11.1%) and negative6in 1206(88.8%), Fig: 1.

According to Acetowhite lesions area 80.0% out of 15 were with 2cm, 1 case with 1(06.7%) cm and 2(13.3%) were with > 2cm. 86.7% Acetowhite were with shiny white colour and 13.3% with dull white colour. Table 2

Biopsy was negative among 125 cases and positive among 10 cases. By taking the biopsy as gold standard Acetowhite lesions showed 80.0% sensitivity and 94.4% specificity. Table 3

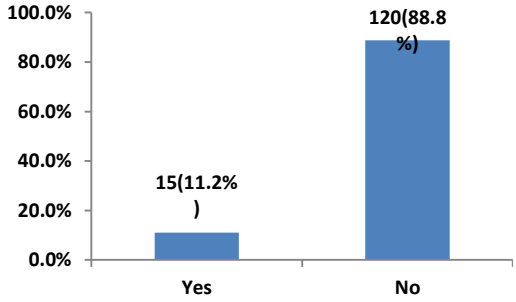

Fig 1: Frequency Acetowhite lesions (n=135)

Table 2: Area and colour of Acetowhite lesions (n=15)

Variables	Frequency	Percentage
Aceto-white area		
1 cm	01	06.7%
2 cm	12	80.0%
>2 cm	02	13.3%
Total	15	100.0%
Acetowhite area color		
Shiny white	13	86.7%
Dull white	02	13.3%
Total	15	100.0%

Table 3: Acetowhite lesions according biopsy (n=135)

	Biopsy		
Cervix acetowhite area	**Positive**	**Negative**	**Total**
Positive	08	07	15
	80.0%	5.6%	11.1%
Negative	02	118	120
	20.0%	94.4%	88.9%
Total	10	125	135
	100.0%	100.0%	100.0%

DISCUSSION

Cervical malignancy is a curable and preventable malignancy if diagnosed before time. As cervix uteri are an easily reachable site, therefore screening can be carried out easily. Comparatively cheap, easily available, and inexpensive methods can possibly be practiced to detect cervical malignancy prior to it progression to incurable stages. There are several screening approaches for cervical malignancy used worldwide, however experts in developing generally prefer rapid, cheaper and time oriented approaches to detect cervical malignancy as they are handicapped by economic challenges. One of such screening technique is the Visual inspection with acetic acid (VEA) which has exhibited encouraging outcomes in numerous earlier studies from underdeveloped nations.[16-18]

In this study, means ± SD of age was 39±11.7 years. Though, majority of females were aged 50 years old i.e. 38 (28.1%). The findings are consistent with earlier studies.[19] It is as-well in reflection to age of females attending majority of the gynaecological centers. Age, as an only factor, is a sole factor of performance of screening assay of the study populace correlated to cervical malignancy.[20]

In this series Acetowhite lesions area 80.0% out of 15 were with 2cm, 1 case with 1(06.7%) cm and 2(13.3%) were with > 2cm. 86.7% Acetowhite were with shiny white colour and 13.3% with dull white colour. A comparative cross-sectional research conducted by Mahmud et al at the Pakistan Institute of Medical Sciences, Islamabad, included 519 women. This earlier research contributed to the evaluation of the reliability of VEA in pre-cancerous cervix lesions compared with Colposcopic biopsy and Pap smear. Positive screening was found in 70(13.4%), but biopsy revealed 29(5.6%) CIN. Of which the rate for VEA positivity was 26 (37.1%) and the rate of cytological positivity was 14 (20%). The Pap smear sensitivity index and VEA was measured at 61.1% vs. 78.5 % accordingly. Specificity for cytology and VEA was found to be 99.4% vs 99.3% respectively. Finally, the analysis suggested that VEA has a substantial sensitivity to Pap smear, so VEA can be used in future.[21] The results of our study are consistent with earlier research conducted by Mahmud et al[21], because current study found proportionally comparable outcomes. The findings of current study regarding VEA acetowhite regions in identifying malignancy in situ are similar to earlier studies.[13,16,21] V Singh et al[22] in their study assessed specificity and sensitivity of VEA for pre-cancerous and early precancerous cervical carcinoma. They found excellent specificity and sensitivity of VEA and thus suggested the application of VEA because it is cost-effective and is a reasonable substitute to biopsy or Pap smear. Basu et al[23] from Kolkata, India studied the VEA application with 3-5% of acetic acid. They suggested VEA as a valuable alternative to biopsy-cytology for using as screening modality in developing nations.[23] An earlier prospective research on 501 women from Gynecology Department of Fatima Jinnah Medical College Lahore, assessed Pap smear vs VEA, for cervical carcinoma screening. 156 cases out of total 501 were found to be positive using VEA, whereas positivity rate for pap smear was seen in only 78 cases. Precision of VEA and Pap smear were 77.5% and 52.8% respectively. Thus researchers concluded that VEA was superior according to specificity and sensitivity.[24] in the University of Zimbabwe, JHPIEGO cervical malignancy project studied 1090 females to compare cytology and VEA and found that VEA has an outstanding sensitivity and thus can be used to detect pre-cancerous lesions in cervix uteri, though, it was highlighted that specificity rate of VEA should be increased.[25] Albert, et al[13] (2012) compared the Pap smear and VEA in detecting cervical carcinoma in 351 females, at the Teaching Hospital of Ahmadu-Bello University, Zaria. Specificity, Sensitivity, PPV, accuracy and NPV in Pap smear was found to be as 100%, 60%, 100%, 99.4% and 99.4% respectively, whereas for VEA same parameters were found to be as 94.4%, 60%, 50%, 98.6%, and 99.4% respectively. Hence it was concluded that the VEA had high values than Pap smear in terms of cervical malignancy screening in females. The VEA was suggested to be incorporated in national screening program instead of more expensive screening approaches. [13]

Bano, et al (2013) [26] recently at Civil Hospital Karachi studied the validity of VEA vs cervical cytology in detecting cervical carcinoma in 150 women. The study was comparative cross sectional in nature.[28] Gami, et al (2013)[27] from India, in a prospective study compared HPV-DNA testing, VEA and Pap smear. The sensitivity of VEA was reported to be highest (91%) in detecting cervical dysplasia of any grade or level, however, specificity was found to be low, while Pap smear had low sensitivity but highest specificity.[27] NAZ, et al[16] (2014), at the Sir Ganga Ram Hospital Lahore, compared Pap smear and VEA for screening the cervical carcinoma in 250 females, in a comparative cross sectional study. VEA was suggested to be a good screening tool in low source developing nations where Pap smear is not available.[16] VEA has a fair accuracy, hence can be used for screening in comparison to other techniques that are costlier, need sophisticated tools, skills and specialists. It may lower the burden of histopathological investigations and can narrow down the frequency of cytological investigations cases for suspicious lesions.

CONCLUSION

It was concluded that visual examination with acetic acid is a good screening tool for cervical cancer with high sensitivity and specificity. It is cost-effective, feasible and easily to perform. Research should be sought to increase the specificity of this women friendly procedure at low recourse setting.

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