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RESEARCH ARTICLE

VISUAL INSPECTION OF CERVIX AFTER APPLICATION OF ACETIC ACID AND LUGOL'S IODINE IN CERVICAL CANCER SCREENING

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ABSTRACT

Background: Worldwide, cervical cancer comprises 12% of all cancers in women and 2,31,000 women die of cervical cancer every year, over 80% of whom live in developing countries. Across India cervical cancer is the commonest preventable cancer reported from all cancer registries except those in Mumbai and Delhi where breast cancer is the commonest. **Aims and Objectives**: 1. To do cervical cancer screening by VIA and VILI. 2. To determine the sensitivity and specificity of VIA, VILI. 3. To assess the reliability of VIA and VILI as a cancer screening tool in the detection of precancerous lesions of cervix by comparing its sensitivity and specificity with pap smear keeping colposcopy and colposcopy directed biopsy as reference standard. 4. To study the efficacy of combined screening programs. **Material and method**: 500 patients were selected from the C.U. SHAH MEDICAL COLLEGE, SURENDRANAGAR Gynaecology OPD over a period of November 2016 to May 2018. **Results:** Sensitivity of VIA is73.56% VILI is70.11% Pap Smear is79.31%. Specificity of VIA is 83.05% VILI is 84.02% Pap Smear is97.82%. **Conclusion:** Visual inspection of the cervix after application of acetic acid and Lugol's Iodine can be used as one of the low cost screening tool in the detection of pre invasive lesions of cervix. The higher sensitivity, accuracy, low cost, easy applicability and immediate results make VIA, VILI a useful screening test in developing countries like India.

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INTRODUCTION

Worldwide, cervical cancer comprises 12% of all cancers in women and 2,31,000 women die of cervical cancer every year, over 80% of whom live in developing countries. Cervical cancer is the most common genital tract cancer in Indian women with 1,26,000 new cases and 70,000 deaths each year. Incidence is higher than in Eastern Asia. Across India cervical cancer is the commonest cancer reported from all cancer registries except those in Mumbai and Delhi where breast cancer is the commonest. Cervical cancer is a preventable disease because of its long preinvasive state of over 10 to 15 years, availability of various screening programmes, effective treatment for preinvasive lesions.

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World wide, successful cervical cancer prevention is based on an organized screening program. Cervical cytology is presently considered to be the only test known to reduce cervical cancer incidence in organized screening programs. The goal of periodic cervical cancer screening is to detect the preinvasive state of the disease and treat it appropriately before it progresses to cervical cancer. In developed countries initiation and sustenance of cervical cytology programs, involving screening of sexually active women yearly or once every 2-5 years have resulted in a large decline in cervical cancer incidence, mortality and morbidity there by saving women's life. VIA,VIAM,VILI is needed in developing countries with very limited resources and infrastructure because it is inexpensive, requires supplies usually locally obtainable and can be competently performed by non physician. Pap smear, colposcopy and cervix biopsy are the other methods by which the cervix can be studied for the evidence of early malignant disease. These are out patient procedure and requires noanaesthesia.

The accuracy of detection and diagnosis may be increased by a systematic combination of the above screening procedures.

MATERIALS AND METHOD

500 patients were selected from the C.U. Shah Medical College, Surendranagar Gynaecology OPD over a period of November 2016 to May 2018 with selection criteria of 1.Women with history of sexual activity for more than three years with Intact uterus and cervix. 2. Non pregnant. 3. No past / present history suggestive of CIN / Cancer cervix. 4. No bleeding P/V at the time of examination. 5. Not had any treatment for cervical lesion (like Cryo, cautery,laser etc.) All 500 women were subjected to a questionnaire addressing clinical and epidemiological risk factors of cervical disease (eg. Socio economic class, age of marriage, parity, birth spacing, occupation, travelling jobs etc.). Then all women were subjected to down staging, pap smear, VIA,VILI and colposcopy. The decision to take ahistological specimen was based upon the abnormal colposcopic findings and by grading (combined colposcopic index). Normal cervix by colposcopy was accepted as truly normal cervix. Apply 3-5 % acetic acid (5ml glacial acetic acid + 95ml distilled water) on the cervix with cotton tipped applicator. Read after 1minute. Followed by the application of Lugol's Iodine (6gm potassium iodide + 100ml distilled water + 4gms of Iodine crystals). Aceto whitening + - VIA Positive No Ace to whitening - VIA Negative. Mahogany brown or black - VILI Negative Mustard yellow or saffron coloured - VILI Positive.

RESULTS

85.2% of the women in the study group were aged between 20 – 40 years. 88% of the women in the study group belong to para 2 – 4.

Table no 1. Age distribution

Age group	No of women	Percentage
20-30 years	241	48.2%
31-40 years	185	37%
41-50 years	58	11.6%
51-60 years	16	3.2%

Table 2. Parity distribution

Parity	No of women	Percentage
1	40	8%
2	290	58%
3	117	23.4%
4	33	6.6%
5	11	2.2%
6	8	1.6%
7	1	0.2%

Table No 3. Via results

VIA	Biopsy positive for CIN/CA Cervix	Biopsy Negative for CIN/CA Cervix	Total
Positive	64	70	134
Negative	23	343	366
Total	87	413	500

Table No 4. Vili Results

VILI	Biopsy positive for CIN/CA cervix	Biopsy Negative for CIN/CA Cervix	Total
Positive	61	66	127
Negative	26	347	366
Total	87	413	500

Though the incidence of unhealthy cervix was similar to healthy cervix in para 2 – 4, number of women with unhealthy cervix was considerably lower in para 1 and considerably higher in para 4.Mean married years duration in the study group was 15.28 years. Most of the women presented with complaints of persistent white discharge per vaginum. Down Staging of Cervix No. of women in speculum examination 263 women had healthy cervix and 237 women had unhealthy cervix of which erosion cervix is the commonest.

VIA was positive in 134 women, negative in 366 women. VIA was positive in 64 women with biopsy report positive for CIN/CA Cervix and 70 women with biopsy report negative for CIN/CA Cervix. VIA was negative in 23 women with biopsy report positive for CIN/CA Cervix and 343 women with biopsy report negative for CIN/CA Cervix. Sensitivity of VIA is73.56% VILI is70.11% Pap Smear is79.31%. Specificity of VIA is 83.05% VILI is 84.02% Pap Smear is 97.82%.

DISCUSSION

Based on a study in Eden Hospital Medical College, Calcutta by Roy Chowdry, 1975, cancer cervix is common in lower age group. In India 40% were between 36- 40 years and 50% married below 16 years with early onset of sexual activity. In our study 40% women were between 31 - 40 years. Our study showed sensitivity of about 73.56% which is comparable with that of De Vuyst *et al*., 2005 and Sankaranarayanan *et al*., 2004 whose study showed sensitivity of about 73.3% and 76.8% respectively. The sensitivity shown by Elit *et al*., 2006, Muwonge *et al*., 2007, Arbyn *et al*., 2008, El-Shalakany *et al*., 2008, is somewhat higher when compared to our study. Our study showed specificity of about 83.05% which is comparable with that of De Vuyst *et al*., 2005, Sankaranarayanan *et al*., 2004 and Arbyn *et al*., 2008, whose study showed specificity of about 80%, 85.5%, 85% respectively. The specificity shown by Elit L *et al*., 2006, Muwonge *et al*., 2007, is somewhat higher when compared to our study.

Our study showed sensitivity of about 70.11% which is comparable with that of SangwaLugoma *et al*., 2006 Shastri *et al*., 2005 whose study showed sensitivity of about 68.3% and 75% respectively. The sensitivity shown by Sankaranarayanan R *et al*., 2003, Muwonge *et al*., 2007, Arbyn *et al*., 2008, El-Shalakany AH *et al*., 2008, is some what higher when compared to our study. Our study showed specificity of about 84.02% which is comparable with that of Sankaranarayanan R *et al*., 2004, Shastri SS *et al*., 2005,Muwonge R *et al*., 2007, ArbynM *et al*., 2008, whose study showed specificity of about 84.7%, 84%, 86.9%, 85% respectively. The specificity shown by El-Shalakany AH *et al*., 2008 is some what higher when compared to our study. In our study, sensitivity of VIA (73.56%) and VILI (70.11%) is almost similar to pap smear (79.31%) but the specificity of pap smear (97.82%) is some what high compared to VIA (83.05%) and VILI (84.02%).Hence VIA and VILI has similar sensitivity to pap smear but with lower specificity in the detection of pre invasive lesions of cervix. This is associated with a high number of false positive rates. The observed high number of false positive results of VIA and VILI may lead to high rates of referral and may increase the rates of treatment which may translate to higher costs. On the other hand high detection rate of VIA and VILI for high grade pre-malignant lesions may prevent malignancies at a low cost.

Conclusion

Visual inspection of the cervix after application of acetic acid and Lugol's Iodine can be used as one of the low cost screening tool in the detection of pre invasive lesions of cervix. VIA and VILI has a similar sensitivity to cervical cytology but with lower specificity. This is associated with high number of false positive rate leading to high rates of referral. On the other hand high detection rate of VIA and VILI for high grade pre malignant lesions may prevent malignancy at a low cost. Hence VIA, VILI can be under taken as a feasible method of screening in cervical cancer in countries where access to cytopathology is limited. The sensitivity of cytology increased significantly when combined with VIA and VILI. Visual inspection can be performed easily by trained paramedical workers in rural areas for early referral to higher centers. This may ultimately bring down the severity of CIN and Cancer cervix in the long run. The higher sensitivity, accuracy, low cost, easy applicability and immediate results make VIA, VILI a useful screening test in developing countries like India. This must go hand in hand with increasing the awareness of women about cervical cancrscreening programmes.

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