Research Paper

Comparative Assessment of Visual Inspection with Acetic Acid and PAP Smear Method For Cervical Cancer Screening in High Risk Cases

Medical Science

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ABSTRACT

Objective: To compare the screening tool visual inspection using acetic acid (VIA) and Pap smear among high risk cases considering biopsy as gold standard.
Methods:A hospital based prospective study was done in first 200 women above 25 year among high risk group from year 2010 to 2011 using VIA and Pap smear as screening tool for early detection of cervical cancer. The result was compared with cervical biopsy.
Results:Out of 200 cases, VIA and Pap was carried out on 182 patients as 18 had bleeding on touching cervix. On VIA 127 were positive while Pap was positive in 122 patients. Histological diagnosis of CIN/ cancer was made in 126 out of 182 patients. Sensitivity of VIA was 88.89% and of Pap was 97.50%. Corresponding specificities were 73.21% and 85.71%. PPV of VIA was 88.18 % versus 93.60% for Pap which was not statistically significant.
Conclusion:The study concluded that as VIA detection rate is comparable to Pap smear so it is feasible alternative in low resource setting.

Introduction

Cervical cancer is the second most common cancer in women worldwide[1,2] It is the leading cause of morbidity among women, having 400000 new cases every year, out of these 80% are in thedeveloping world.[3]In developing world, it is the most common gynecological cancer and one of the leading cause of cancer death in women.[1]

In India, its incidence is 45/ Lac women and mortality is 2.83/ Lac women, so it is a public health problem in this country.[4] An ideal screening test is one that is minimally invasive, easy to perform, acceptable to the subject, cost-effective and efficacious in diagnosing the disease at its earliest. Pap smear remains the most common and conventional method of screening test for cervical cancer.[3] but Visual inspection with acetic acid (VIA) is an alternative low-cost easy to perform screening test and also it has additional advantage of diagnosis at the spot. This study is an effort to determine diagnostic efficacy of VIA for screening preoplastic lesion of cervix.

Methods:

This study was conducted in Department of Obstetrics & Gynaecology, SMS Medical College, Jaipur on 200 women who were >25 years of age presenting with complaint of vaginal discharge, Vaginal discharge, Irregular menses, Pain in lower abdomen, Post-coital bleeding or had history of early marriage ,early coitus multiparous or had abnormal per speculum examination. Patient already diagnose with genital malignancy or pregnant were excluded. Women were subjected to Pap smear after which VIA was applied, then further biopsy cervix was taken for further evaluation. Result so obtained were evaluated and analysed statistically.

Results:

Two hundred patients were enrolled for the study out of which on 182 patients VIA and Pap was performed. **Table-1** shows demographic profile of women participating in cervical cancer screening.

Patient in age group of 31-40 years had a greater frequency of squamous intraepithelial lesion. Maximum cases of invasive carcinoma were seen in the age group of >50 yrs. In present study mean age for development of cervical cancer and dysplasia are

48.87 yrs ± 11.75 In this study maximum number of patients (78%) had 4 and more childrenand maximum cases with dysplasia (74.54%) and cancer cervix belonged predominantly to lower socio-economic class (80.89%). In this study mean age at first coitus with cervical cancer was 17.7 yrs ± 3.08.Out of total 89 cases of invasive carcinoma 52.38% and out of 55 cases of preneoplastic lesion 26.67%were in group with first coitus at less than 18 years (Table-1).

In **Table-2**, Most common complaints with which patients presented was excess discharge per vaginum (56%), followed by abnormal bleeding (45%), pain lower abdomen (38%)**.**

Our study revealed a sensitivity of VIA detecting invasive carcinoma was 88.89% and specificity was 73.21%. Predictive values of positive & negative tests were 88.18% & 74.54% respectively. False negative results were 25.45% & false positive results were 11.81%. In present study sensitivity and specificity of pap's smear in detecting cervical abnormalities were 97.50% and 85.71% respectively. The predictive value of positive and negative test was 93.60% & 94.11% respectively **(Table-3, 4 and 5).**

The study establishes validity of VIA as an alternative tool for cancer cervix screening in low resource setting.

Discussion:

In India, incidence of cancer cervix is 45/ Lac women and it is a public health problem in this country.[4] By the time most patients appear to the hospitals the cancer has already advanced to stages two or three. VIA has shown its potential value as an effective screening approach in less-developed countries in several studies .According to our results, we can effectively screen most of the cases with cervical pre-cancer and cancer through VIA.

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Megevend[6] et al showed value of VIA as an alternative to cytology, were performed VIA and cytology in a mobile unit equipped to process smears on it. Rana et al (2010) reported sensitivity of VIA was 93% and of pap smear was 83%.Corresponding specificity were 90% and 97%.

In this study, Patient in age group of 31-40 years had a greater frequency of squamous intraepithelial lesion. Maximum cases of invasive carcinoma were seen in the age group of >50 yrs. Chakravarty[7]et al (1976) also studied that the incidence of dysplasia was maximum in the age group of 31-40 yrs. And that of carcinoma cervix above the age of 40 which matches with the present study.

In present study 81.81% cases of dysplasia, were in para 4 and above which is concordance with J Mishra et al1979 and Bhatia et al 2001 and 80.89% cases of cancer cervix were in the higher parity i.e. more than 4 or equal to 4. Hence there was a significant association of cancer cervix with higher parity (p<.05).

In this study, maximum cases with dysplasia (74.54%) and cancer cervix belong predominantly to lower socio-economic class (80.89%) Chauhan[8] L (1986) has found dysplasia was commonest in the low socio-economic group. In this study mean age at first coitus with cervical cancer was 17.7 yrs ± 3.08,it is proved statistically early age at first coitus is a significant risk factor for development of cervical neoplasm (P<.05). Recently Bhatia et al in 2001 has reported the mean age of marriage was 17.7 yrs, which is finely correlating with the findings of present study. They took age of marriage as age of first coitus, as incidence of premarital sex is very less in India.

Conclusion
The study concluded that as VIA detection rate is comparable to Pap smear so it is feasible alternative in low resource setting.

TABLES
Table-1
Demographic Profile of Women Participating in Cervical Cancer Screening

Age (yrs)	20-30	30-40	40-50	50-60	>60	Total
Lesion						
Malignant	3	20	33	21	12	89
Premalignant	2	30	16	5	2	55
Nonmalignant	3	38	12	3	0	56
Total	8	88	61	29	14	200

Parity	Nullipara	1-3	>4	Total
Lesion				
Malignant	0	17	72	89
Premalignant	0	10	45	55
Nonmalignant	0	17	39	56
Total	0	44	156	200

SES	Lower	Middle	Upper	Total
Lesion				
Malignant	72	15	2	89
Premalignant	41	11	3	55
Nonmalignant	33	22	1	56
Total	146	48	6	200

Age at 1st coitus	<18	18-24	>25	Total
Lesion				
Malignant	55	34	0	89
Premalignant	28	25	2	55
Nonmalignant	22	31	3	56
Total	105	90	5	200

Table-2
Correlation Between Symptomology and Cervical Neoplasm

Presenting Complaint	Malignant		Non-Malignant		'P' Value
	No.	%	No.	%	
Excessive discharge	83	76.85	25	23.15	0.134
Pain lower abdomen	43	55.84	34	44.16	0.000
Irregular bleeding	41	87.23	6	12.7	0.013
Postcoital bleeding	29	93.55	2	6.45	0.007
Postmenopausal bleeding	13	100.00	0	0.00	NA
Foul smelling discharge	5	100.00	0	0.00	NA

Table-3
Analysis of Result of VIA

Histopathology Report				
VIA of Cervix	Malignant	Premalignant	Non-Malignant	Grand Total
Negative	8	6	41	55
Positive	67	45	15	127
Grand Total	75	51	56	182

Table-4
Analysis of Results of Cytohistological Correlation

	Histopathology report		
Cytology report	Malignant	Non-Malignant	Grand Total
Malignant	117(a)	8(b)	125
Nonmalignant	3(c)	49(d)	52
Grand Total	120	57	177

Table-5
Comparison of Diagnostic Efficiency of VIA and Pap Smear as Screening Method

	VIA	Pap	Z	P Value*
Sensitivity	88.89	97.50	2.410	0.016
Specificity	73.21	85.71	6.095	0.161
PPV	88.18	93.60	1.275	0.202
NPV	74.54	94.11	2.478	0.013

*'Z' TEST FOR DIFFERENCE OF PROPORTION

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