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COMPARISON BETWEEN VISUAL INSPECTION OF CERVIX WITH ACETIC ACID (VIA) AND PAP SMEAR IN SCREENING OF CERVICAL CANCER IN RURAL SETUP

Dr. S.A.Inamdar
Professor of obstetrics &Gynaecology,
AVBRH, DMIMSU, Sawangi(M),
Wardha, Maharashtra,
India
Saunitrainamdar56@gmail.com

Dr.Gitanjali Bulani & Dr.Amruta Gadge
Resident obstetrics &Gynaecology,
AVBRH, DMIMSU, Sawangi(M),
Wardha, Maharashtra,
India
bulanigitanjali82@gmail.com
amruta.gadge76@gmail.com

ABSTRACT

INTRODUCTION: In developing country like India cervical malignancy is a common, preventable and curable cause of morbidity and mortality .Worldwide pap smear is the most commonly used screening test for cervical lesions .VIA guided biopsy has been defined to be the gold standard method in diagnosing precancerous lesions of the cervix & used in evaluation and management of cervical lesions. In present study we compare clinical performance of Visual Inspection With acetic acid (VIA), as a simple screening test and if it (VIA) would be an adequate alternative to PAP SMEAR , in the screening for cancer cervix in low resource settings.

METHOD: A cross sectional study was conducted in a tertiary care referral institute in 100 symptomatic women of 30-70 years. PAP smears were performed by the conventional method and VIA was done for all 100 women who came with complaints of white discharge per vagina, intermenstrual, or postcoital bleeding, etc. Final correlation of the PAP smear and VIA were based on biopsy reports.

RESULT: VIA has more sensitivity but low specificity(76%)&(33%) than PAP smear(26%) &(88.26%)

CONCLUSION: It is evident that VIA is definitely more sensitive and accurate than pap smear. By combining pap smear with VIA, we can maximize the sensitivity and specificity of cancer cervix screening.

KEYWORDS: Malignancy, VIA, Pap smear, Biopsy

1. INTRODUCTION

With changes in lifestyle and demographic profile non communicable diseases are emerging to be an important healthy problem that demands appropriate control programme before they assume epidemic proportion. Cervical cancer is one of them[1].

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Cervical cancer usually kills women at prime of their life.For a family,cervical cancer is a tragedy.For nation,the disease is a serious health and economic burden.For a nation ,the disease is a serious health and economic burden.India faces a huge toll of death due to cancer as majority of patients are diagnosed with cancer very late and report for treatment at very advanced stage.Even though we have effective screening technique for early detection and diagnosis of cervical cancer,there are no organised screening programmes at national level.

Worldwide, cervical cancer is both the fourth-most common cause of cancer and the fourth-most common cause of death from cancer in women.[2] There are an estimated 528,000 cases of cervical cancer , with 266,000 deaths This is about 8% of the total cases and total deaths from cancer.[3] About 70% of cervical cancers occur in developing countries. In low-income countries, it is the most common cause of cancer death. In developed countries, the widespread use of cervical screening programs has dramatically reduced rates of cervical cancer. In India, cervical cancer is the most common woman-related cancer, followed by breast cancer. 80% of the new cervical cancer cases occur in developing countries, like India, which reports approximately one fourth of the world's cases of cervical cancer each year.

Cervical cancer is preceded by a long phase of premalignant cytological changes, known as cervical intraepithelial neoplasia (CIN) which takes a period of 15-20 years for the invasive cancer to develop. The pathological changes in CIN are microscopically a spectrum of events progressing from cellular atypia to various grades of dysplasia before leading to invasive carcinoma. Thus, cervical cancer can be prevented, if, cellular changes are detected and treated in early stage.[4] The reasons for higher prevalence of cervical cancer in developing countries are lack of resources, lack of awareness, lack of effective screening programs and poorly organized health system aimed for detecting pre cancerous condition before they progress to invasive cancer. In developing countries, cervical cancers are mostly incurable at the time of detection due to the advanced stage. Thereby, the need for a cost effective, mass approach for effective cervical cancer screening programs is eminent.

Several screening modalities are now available for early detection of cervical cancer and its precursors which differ in regard to their test characteristic, feasibility and economic considerations. Cytology screening programmes in several developed countries have been associated with impressive reduction in cervical cancer burden. Papanicolaou (Pap) smear is a simple, safe, non-invasive and effective method for detection of pre-cancerous and changes in the cervix and vagina.[5] Though cytology (Pap smear) is reliable, the laboratory infrastructure, counselling, follow-up and logistic including technical expertise may not be available in low resource setting.[6]

The use of acetic acid during visual examination of cervix is termed as visual inspection with acetic acid(VIA). VIA has been advocated as an alternate screening method to pap smear in developing countries.

VIA has demonstrated high sensitivity for detecting cervical cancer but is limited by low specificity[7][8][9],. VIA requires minimal resources and training . It has also been recommended by WHO, as an alternative to cytology to pick up a patient at risk for cancer cervix[10]

This study was designed to evaluate the clinical performance of VIA as simple screening test and if VIA would be an adequate alternative to cytology in screening for cancer cervix in low resource setting.

2. MATERIALS AND METHOD

2.1 Study Population

Women between the age group 30-50 years, who attended the gynecology OPD, at Acharya Vinobha Bhave Rural Hospital, Sawangi (Wardha)

2.2 Inclusion Criteria

Women in 30-70 years age group who attended the gynaecology department for routine check up.

2.3 Exclusion Criteria

A. Women with age lessthan 30 years and more than 70years.
B. Unmarried
C. Pregnant women.
D. Active vaginal bleeding
E. Women with frank growth of cervix

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F. Post hysterectomy patient
G. Sexually inactive women
H. Women who have already undergone treatment for cervical lesions

2.4 Methodology

Sample size -100

Study design –Cross Sectional Study

Study period- One year

Informed consent was included for women who fulfilled the inclusion criteria and enrolled in the study.

Ethical committee approval- After getting the ethical approval, our study was started.

A careful history including demographic data like age, socioeconomic status, education, parity, age at marriage of the patient was taken. Information was noted on proforma.

2.5 Pap Smear

The patients were placed in modified lithotomy position, per speculum examination of cervix and vagina was done. After visualizing the squamocolumnar junction, it was gently scraped throughout its circumference with Ayres spatula .The scraping was evenly spread on a glass slide and immediately fixed by dipping in koplik`s jar with 95 % ethyl alcohol and ether and transported to the cytopathological laboratory. The result of Pap smear (cytology) was reported according to Revised Bethesda System.

POSITIVE (abnormal) Pap smear was considered if cytology report was ASCUS(Atypical Squamous Cell of Undetermined Significance) and above.

NEGATIVE (normal) Pap smear was considered if cytology report was NILM (Negative for Intraepithelial Lesion or Malignancy) or inflammatory smear.

2.6 Visual Inspection With Acetic Acid

A solution of 5% acetic acid was then applied to cervix using a cotton swab. Applying the cervix acetic acid several times helps in the coagulation and removal of mucous. The secretions are gently wiped off. The cervix was then examined for 1-2 minutes under an adequate light source.

Positive VIA is detection of distinct acetowhite area.

Negative VIA is considered if no acetowhite areas were recorded, or if acetowhite appearance was transient.

3. RESULTS

Table 1. Distribution of Patients According to Age

AGE DISTRIBUTION	NO. OF PATIENT(n=100)	PERCENTAGE(%)
30-40	21	21
41-50	38	38
51-60	28	28
61-70	13	13
TOTAL	100	100

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Table 2. Distribution of patients by Parity

PARITY	NO. OF PATIENT(n=100)	PERCENTAGE(%)
PRIMIPARA	19	19
2-4	66	66
>4	15	15
TOTAL	100	100

Table 3: Distribution of the cases according to Active married life

ACTIVE MARRIED LIFE(IN YEARS)	NO.OF PATIENTS(n=100)	PERCENTAGE(%)
<5	8	8
5-9	5	5
10-14	31	31
15-19	11	11
20-24	26	26
>24	19	19
TOTAL	100	100

Table 4: Results of Cervical Biopsy

HPE REPORT	NO. OF PATIENTS(n=78)	PERCENTAGE(%)
Cervicitis	43	55.1
LSIL	30	38.5
HSIL	3	3.8
CIS	2	2.6
TOTAL	78	100

Table 5: Assessment of Pap smear with reference to Biopsy

	Biopsy positive for pre invasive lesion	Biopsy negative for preinvasive result	Total
Pap positive	9	5	14
Pap negative	26	38	64
Total	35	43	78

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Table 6: Assessment of VIA with reference to Biopsy

	Biopsy positive for pre invasive lesion	Biopsy negative for preinvasive result	Total
VIA Positive	**28**	**29**	**57**
VIA Negative	**7**	**14**	**21**
Total	**35**	**43**	**78**

Sensitivity of Pap smear-26%

Specificity of Pap smear -88.26%

Positive predictive value of pap smear- 64.28%

Negative predictive value of pap smear-59.37%

Sensitivity of VIA-76%

Specificity of VIA -33%

Positive predictive value of VIA-49.12%

Negative predictive value of VIA-66.7%

4. DISCUSSION

It takes about 5-15 years for pre malignant lesion of cervix to progress to invasive cancer .If it is timely detected, pre-invasive disease has nearly 100% cure rate with simple surgical procedure. Advanced cancer has survival rate of less than 35 per cent. In developing countries like India cytology based programmes have achieved very limited success due to lack of trained personnel lab facilities, equipments and poor follow up. In developing countries VIA because of its simplicity and rapidity of performance, is a promising alternative to Pap smear. In the present study, the maximum number of cases were reported in the age group of 41-50 years (38%), similar findings have been reported in other studies. Pradhan B et al showed in their study that CIN was more prevalent in age group of 41 to 50 years.[11]

In this study VIA has significantly higher sensitivity than Pap smear,76% VS 26%. Various studies cited in the literature show sensitivity of VIA as 63.5% , 71% and 88.9% [12] [13] [14]. In some studied low sensitivity of Pap smear has been observed in studies like Basu et al (29.5%) , El Shalanky et al (16.9 %) , ZIMBABWE cancer project and Londhe et al (13.2%)[12][15][16][17]. On the other hand some studies has shown a high sensitivity of Pap smear of 83% by Shastri, 79% by Arbyn M .

Our study showed a low specificity for VIA 33%. In literature VIA demonstrates a specificity range 67.3 to 92.2% respectively.[12][18]In this study Pap had a specificity of 88.26%. Specificity of 87.8% for pap was seen in Sankaranarayanan et al, 90.6% by Zimbabve cancer project and 90.2% by Ghaemmaghami F et al.[12],[18][19]High false positive of VIA may be because many cases had chronic inflammation of cervix. In this study negative predictive value was almost similar for VIA and Pap, with slightly high positive predictive value for Pap.

5. CONCLUSION

Population based programs with Pap smear have reduced cervical cancer incidence and mortality in high-income countries but these programs fail to reduce cervical cancer burden in low resource setting due to poor organization, lack of coverage, and lack of quality assurance. In low resource settings, screening of carcinoma cervix by Pap smear can be replaced by cheaper and easily available visual methods like VIA. Our study showed that VIA had sensitivity comparable to Pap smear and can therefore it is a suitable potential adjunctive screening test. It must be combined with visual screening methods like VIA, as many cases of CIN missed by Pap smear were picked up by the visual tests, and combined testing reduced the number of biopsies taken based on either test alone.

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6. REFERENCES

[1] Juneja A ,SehgalA,sharmaS,PandeyA,.cervicalscreeing in india:stratrgiesrevisited.Indian J med Sci 2007;61:43-7
[2] World Cancer Report 2014. World Health Organization. 2014. pp. Chapter 5.12
[3] World Cancer Report 2014. World Health Organization. 2014. pp. Chapter 1.1
[4] Franco EL, Duarte Franco E, Ferenczy A. Cervical cancer: Epidemiology, Prevention and role of Human Papillomavirus infection. Cmaj, 2001; 164(7): 1017-1025.
[5] Thomas J Elmslie. The Pap smear and Cervical Cancer screening, Can fam Physician. 1987 Jan; 33: 131-137.
[6] O'meara AT. Present Standards for Cervical Cancer Screening. CurrOpinOncol. 2002 Sept; 14(5): 505-511.
[7] MegevandE ,DennyL,DehaeckK,Soeters R, Bloch B. Acetic acid visualization of the cervix: an alternative to cytologic screening. Obstet Gynecol. 1996;88(3): 383-6.
[8] . Sankaranarayanan R, Wesley R, Somnathan T, Dhakad N, Shyamalakumary B, Amma NS, et al. Visual inspection of the uterine cervix after the application of acetic acid in the detection of cervical carcinoma and its precursors.Cancer. 1998;83(10): 2150-6
[9] . Visual inspection with acetic acid for cervical cancer screening test qualities in a primary- care setting. University of Zimbabwe/JHPIEGO Cervical Cancer Project.Lancet.1999;353(9156):869-73.
[10] Dinshaw KA, Shastri SS. Screening for cervical cancer in India. The Natl Med J India 2001; 14(1):1-3.
[11] Pradhan B, Pradha SB, Mittal SP. Correlation of Pap Smear findings with clinical findings and cervical biopsy. Kathmandu Univ Med J. 2007; 20: 461-467.
[12] University of Zimbabwe/KHPIEGO Cervical Cancer project. Visual Inspection with Acetic Acid for Cervical Screening: Test Qualities in a primary care setting. Lancet 1999;353:869-73.
[13] . BelinsonJL,Pretorius RG, ZhangWH, WuLY, QiaoYL,ElsonP.Cervical Cancer By Simple Visual Inspection After Acetic Acid.Obst&Gynaecol 2001;98:441-4.
[14] . SherigarB,Dalal A, Durdi G, Pujar Y, Dhumale H. Cervical cancer screening by visual Inspection with Acetic Acid – Interobserver Variability between Nurse and physician. Asian Pacific Journal of Cancer Prevention 2011;11:619-622.
[15] . Basu PS, Sankaranarayanan R, Mandal R. Calcutta Cervical Cancer Early Detection Group. Visual Inspection with acetic acid and cytology in the early detection of cervical neoplasia in Kolkata, India.Int J. Gynecol Cancer.2003;13:626-32.
[16] . El Shalakany, Hassan S,Ammar E, Ibrahim M. Salam, Magda A, Farid. Direct visual inspection of cervix for detection of premalignant lesions. Journal of lower tract disease Jan 2004;8(1):16-
[17] . Ahmad SS, Batra S, Gandhi G,Zutshi V. Comparison of Methods Used For Screening of Cervical Preinvasive Lesions . ObstetGynecolInd 2003;53(1):70-71.
[18] Shankaranarayanan R, Wesley R, Somanathan T, Dhakad N, Shyamalakumary B, SreedeviAmma N. Visual Inspection of the uterine cervix after the application of acetic acid in the detection of cervical carcinoma and its precursors. Cancer 1998;83:2150-6.
[19] Ghaemmaghami F, Bethash N, ModaresGilani M, Mousavi A, Marjani M, Moghimi R: Visual inspection with acetic acid as a feasible screening test for cervical neoplasia in Iran.Int.JGynaecol Cancer.2004;14(3):465-9.