



An Analysis of High Risk Cases for Early Detection of Cervical Cancer by Pap's Smear and Visual Inspection by Lugol's Iodine Method

KEYWORDS

Preeclampsia, Eclampsia

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ABSTRACT *Introduction: Carcinoma of cervix is the most common gynecological malignancy in the developing countries and the third most frequently diagnosed cancer in Indian women. In the present study, Carcinoma of cervix, due to easy accessibility to examination, gives us ample opportunity for early detection and thus considerably improved prognosis. Design: 50 women were included from hospital with age between 30-39 years with excessive vaginal discharge. Discussion: In present study, in women undergoing screening for pre-invasive and invasive cervical cancer, VILI was same sensitive to conventional cytology, but cytology was more specific. Conclusion: Thus as a screening tool, VILI test and Pap smear useful in early diagnosis of cervical cancer in high risk cases.*

Introduction

Carcinoma of cervix is the most common gynecological malignancy in the developing countries and the third most frequently diagnosed cancer in Indian women. In India more than 120,000 cases of cervical cancer are detected each year and nearly 75,000 women die annually from the disease.¹

In many developing countries, it is the most common cancer among women and the most common cause of death among middle-aged women. There are the women who needed most in family. Despite of its public health importance there is no effective prevention programme in most of the developing countries and hence the risk of disease and death from cervical cancer remains largely uncontrolled.

Carcinoma of cervix, due to its slow progression from pre-cancerous lesion to malignancy and easy accessibility to examination, gives us ample opportunity for early detection and thus considerably improved prognosis. Early detection may be through opportunistic examination of women attending outpatient clinics or through systemic programme of screening.

Screening has been defined as "the search for unrecognized disease or defect by means of rapidly applied tests, examinations or other procedures in apparently healthy individuals."²

VILI is nothing but a study of cervix after applications of Lugol's iodine and studying the colour changes on the cervix.³ It is a simple screening test, which is based on ability of trained health care personnel to detect yellow, non-iodine uptake areas in the cervical transformation zone.

Exfoliative cytology by Pap smear has become the gold standard for screening.

With this goal in mind, this discussion reviews the role of Pap's smear and visual inspection of cervix by Lugol's iodine method in high risk cases.

AIMS AND OBJECTIVES

This study aims to promote the concept that Pap's smear and visual inspection of cervix after application of Lugol's

iodine (VILI) can be applied as a screening method for the detection of the pre-cancerous lesion of cervix in low resource countries like India.

THE FOLLOWING OBJECTIVES ARE CONSIDERED IN THIS STUDY:

1. To determine the sensitivity and specificity of VILI and Pap smear as a screening procedure for early detection of cervical cancer in high risk cases.
2. To compare the VILI with that of Pap smear.
3. To compare the results of this study with those carried out by others.
4. To decrease the morbidity and mortality from cervical cancer by early detection of pre-cancerous lesions.

MATERIALS AND METHODS

This is a study of 50 women who are high risk for cervical cancer. This study is carried out between May 2011-April 2013 in our hospital.

High risk factors for cervical cancers are:^{4,5}

- Early sexual intercourse
- Early age of first pregnancy
- Too many and too frequent births
- Low socioeconomic status
- Multiple sexual partners
- STD
- Infection: HPV(16,18,31,33), HIV, Chlamydia
- Immunosuppressed individuals
- Oral pill users
- Smoking habits

The study participants were apparently healthy, women who were aged 20-65 years with an intact uterus and with no past history of cervical neoplasia were included in the study. Women with obvious cervical growth and women who had unsatisfactory colposcopy with no biopsy were excluded from the study.

Detailed history of participants including menstrual history, sexual history, obstetrical history, marital history and educational history were taken in detail. A brief general examination was carried out. In all participants, Pap smear was taken followed by VILI. If results of VILI test was positive or Pap smear was suggestive of squamous intraepithe-

lial neoplasia(SIL)then colposcopy of the patients was done and biopsy from suspicious area were taken and sent for histological examination.The patient was treated according to the results of biopsy and/or colposcopy.

OBSERVATION AND DISCUSSION

In the present study commonest age group is 30-39 years (40%).Most of the women were having high school education (42%) & 64% women had coitage before 20 years.56% of the women had 3 or more children.

In the study done by Sankaranarayana et al,in Trivendrum, Kerala most of the women were between the age groups of 30-39 years (34.7%) Most of the women were having primary grade education (56.6%)and more than half of women had coitage before 20 years.(79.9%)75.5% of the women were having 3 or more children.

Present study correlates with the study done by Sankarana rayana et al.

TABLE-1 : PRESENTING SYMPTOMS OF PATIENTS

SYMPTOMS	NUMBERS (%)
Excessive vaginal discharge	37(74%)
Lower abdominal pain	5(10%)
Post coital bleeding	4(8%)
Inter menstrual bleeding	3(6%)
Post menopausal bleeding	1(2%)

Above table shows that most of the patients came with complaint of excessive vaginal discharge(74%) followed by lower abdominal pain(10%).

TABLE-2: VISUAL EXAMINATION FINDING IN VILI EXAMINATION

VISUAL EXAMINATION	NUMBER (%)
Squamous columnar junction fully seen	33(66%)
Cervical polyp	4(8%)
Nabothian follicles	4(8%)
Cervicitis	5(10%)
Erosion	4(8%)

Above table shows that in 66% of the women squamo-columnar junction was fully seen followed by cervicitis(10%).

TABLE-3 : CRITERIA FOR CATEGORIZING VILI TEST RESULTS⁶

RESULTS	CRITERIA
NEGATIVE	<ul style="list-style-type: none"> • Normal cervix where squamo-columnar junction stains mahogany brown or black and the columnar epithelium does not charge colour. • Patchy,indistinct,ill-defined,colourless or partially brown areas in transformation zone. • Scattered,irregular,ill-defined,non-iodine uptake areas on cervix. • Thin,yellow,non-iodine uptake areas with angular or digitizing margins,resembling geographical areas located far away from squamo-columnar junction.

POSITIVE	<ul style="list-style-type: none"> • Well-defined,dense,thick,bright mustered yellow or saffron yellow,iodine non-uptake areas touching the squamo-columnar junction. • Circumferential,well-defined,thickdense,yellow lesion occupying large portion of cervix. • Growth on cervix turn yellow.
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Present study has been done by adhering to these criteria.

TABLE-4 : CONVENTIONAL CYTOLOGY RESULTS

CYTOLOGY RESULTS	NUMBER (%)
Result positive	5(10%)
Result negative	45(90%)
True positive	4(8%)
True negative	44(88%)
False positive	1(2%)
False negative	1(2%)

Conventional cytology (Pap smear) results showing ASCUS,AGUS,LSIL,HSIL and carcinoma were considered positive.Out of 50 women,5 women tested positive for cytology results. ASCUS (1),LSIL (1),HSIL(3)

And 45 women tested negative for cytology results.One women was reported ASCUS which on histology turned out to be negative for premalignant lesion or malignancy. One women was reported s smear report negative for intra-epithelial lesion or malignancy.One women reported as smear report negative for intraepithelial lesion or malignancy,which on biopsy showed CIN1 respectively.4 women which were reported as having premalignant lesion or malignancy by conventional cytology were later on confirmed on histology.

TABLE-5 : COMPARISON OF CONVENTIONAL CYTOLOGY RESULTS

CONVENTIONAL CYTOLOGY RESULTS	PRESENT STUDY(%)(N=50)	SAMIRA KHAN ET AL STUDY(%)(N=300)
Normal	90	69.4
ASCUS	2	-
LSIL	2	19.4
HSIL	6	9.7
Carcinoma	-	1.5

In the present study 6% of women shows conventional cytology report of HSIL.In Samira Khan et al study,HSIL is present in 9.7% of women. In Samira Khan et al study,LSIL is present in 19.4% of women as compared to 2% in present study.The difference between present study and study done by Samira Khan et al may be due to larger sample size in study by Samira Khan et al.

TABLE-6 : VILI TEST RESULTS

RESULTS	NUMBER (%)
Test positive	8(16%)
Test negative	42(84%)
True positive	4(8%)
True negative	41(82%)
False positive	4(8%)
False negative	1(2%)

50 patients,8 women came out to be VILI test positive.42

women were VILI test negative. Out of 8 women tested positive for VILI test, 4 women were having false positive test. False positive results were due to false interpretation of erosion, cervicitis, infection with trichomonas vaginitis as VILI positive. One woman tested false negative because in post menopausal women squamocolumnar junction ascends into cervical canal, leading to false negative test. 41 women had true negative test as their conventional cytology reports were negative.

TABLE-7: COMPARISON OF VILI TEST RESULTS

STUDY	SENSITIVITY	SPECIFICITY	POSITIVE PREDICTIVE VALUE	NEGATIVE PREDICTIVE VALUE
Present study	80	91.11	50	97.6
Bhatla et al	87.5	58.7	15.6	98.2
Samira Khan et al	78.9	74.4	57.7	88.9

In the present study sensitivity, specificity, positive predictive value, negative predictive value for VILI test are 80%, 91.11%, 50%, 97.6% respectively. The corresponding values for Bhatla et al study were 87.5%, 58.7%, 15.6% and 98.2% respectively, corresponding values for Samira Khan et al study were 78.9%, 74.4%, 57.7%, 88.9% respectively.

The difference of sensitivity and positive predictive values between present studies and between studies by Bhatla et al and Samira Khan et al are because in present study VILI test is done by resident doctors. The studies done by Bhatla et al and Samira Khan et al are conducted in general hospital by health workers so the incidence of false positive results increases giving lower values of specificity and positive predictive values in studies done by Bhatla et al and Samira Khan et al.

Above table shows that present study is comparable with this studies done by Bhatla et al and Samira Khan et al except positive predictive value and specificity.

TABLE-8: COMPARISON OF VILI AND PAP TEST RESULTS

TEST	SENSITIVITY (%)	SPECIFICITY (%)	POSITIVE PREDICTIVE VALUE (%)	NEGATIVE PREDICTIVE VALUE (%)
PAP TEST	80	97	80	97
VILI TEST	80	91.11	50	97.6

Above table shows that VILI test was same sensitive to cytology results but cytology results was more specific.

Conclusion

Carcinoma cervix is the most common gynecological malignancy with long latent period. It nearly takes a decade or two for the pre invasive cervical carcinoma to develop into frank malignancy.

Carcinoma cervix is 100% curable when detected in pre invasive stage. Pap smear is a gold standard screening process. Pap smear test has been effective in reducing the incidence of cervical cancer by 80% and the mortality by 70%.

Visual inspection techniques like visual inspection of cervix after application of Lugol's iodine (VILI) is preferable to VIA test as color contrast is better in VILI, shelf life is more for Lugol's iodine which is considerably lower for acetic acid. Also VILI is easy to teach even to paramedical, results are available immediately and recall period for patients is 5 years which is very important in countries like India where most of the patients are lost to follow up. Reading of VILI test is dependent upon the clinical acumen of the clinician.

Thus, VILI and Pap smear can be used effectively for detection of pre cancerous lesion of cervix at hospital set up as well as at community level.

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