



Gynaecology

“COMPARATIVE STUDY OF PAP SMEAR V/S VISUAL INSPECTION WITH ACETIC ACID AND LUGOL'S IODINE IN SCREENING OF CERVICAL CANCER”

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ABSTRACT **Aims and objectives:** To compare VIA and VILI with Pap smear examination , to establish VIA and VILI as an alternate method for cervical cancer screening. And to establish the diagnostic accuracy of VIA and VILI directed biopsy in abnormal Pap smears and VIA, VILI positive lesions in our setup.

Methods: It is a Prospective study of 250 Women who meet inclusion criteria, in the age group of 21-65 years. All underwent Pap smear, VIA and VILI examination. Cervical biopsy taken from cases positive for any of the three tests and histopathological evaluation done. Sensitivity, specificity, PPV, NPV calculated for each test and compared.

Results: Among 250 patients, 17 were positive for Pap smear, 37 were positive for VIA, 31 were positive for VILI. Total of 46 biopsies were taken, among them 19 were positive on histopathological examination. Four cases were missed by Pap smear, 5 cases were missed by VIA and 6 cases were missed by VILI examination.

Conclusion: VIA and VILI can be used as an alternative to Pap smear examination in the screening of cervical cancer in a low resource setting.

KEYWORDS :

cancer, followed by breast cancer¹. In India every year 122,844 women are diagnosed with cervical cancer and 67,477 die from the disease. In India the peak age for cervical cancer incidence is 55-59 years². The Cervical Cancer Crisis Card Death Count, reveals the huge number of women dying in Asia. India alone represents 26.4% of all women dying of cervical cancer globally³. As cervical cancer is preventable, it is imperative that gynecologists and other primary health care providers be familiar with screening techniques, diagnostic procedures, and risk factors for cervical cancer as well as management of preinvasive disease⁴. A well-organized screening by cytology has substantially reduced the incidence of morbidity and mortality from cervical cancer in developed countries. Many developing countries do not have ample resources to implement cytology-based prevention programs, which necessitates well-organized laboratories to collect materials and specialized personnel apt to render a diagnosis⁶. Simple low-cost screening tests, namely visual inspection with acetic acid (VIA), visual inspection with lugol's iodine (VILI) which are based on the ability of the trained health care personnel to detect abnormal uptake areas in the cervical transformation zone, is currently being evaluated in the experimental setting as a potential alternative to Pap smear test⁵. The present study is aimed to assess the sensitivity, specificity and predictive values of VIA and VILI as a tool for early detection of premalignant and malignant cervical lesions in comparison to Pap smear.

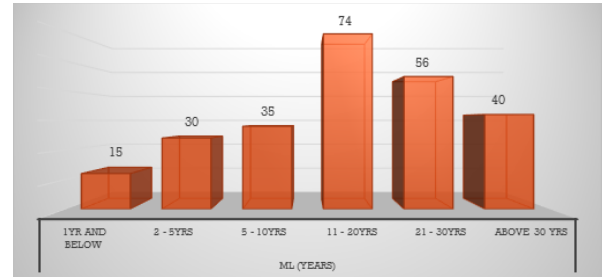
MATERIALS AND METHODS:

This is a prospective study of 250 women between the age group of 21-65 years attending Gynaecology OPD, AJIMS, Mangalore. Unmarried women, post hysterectomy patients were not included in the study. Women with bleeding PV, active infection at the time of examination were excluded. Women who were screened with Pap smear in the preceding three years were also not included in the study. After detailed history and examination, informed consent was taken from those willing to be a part of the study. These women were subjected for per speculum examination. First Pap smear was taken from the transitional zone. On the same sitting, VIA and VILI examination was done on the same patient. Then, 2% acetic acid was applied to the cervix and appearance of any distinct acetoacetate areas was considered as VIA positive. Later after 1-2mins, normal saline was applied to cervix and acetic acid cleared off the cervix. Again Lugol's iodine was applied to the cervix and iodine uptake was interpreted as, brown: positive uptake, yellow brown: partial uptake, mustard yellow: no uptake. Areas of no uptake was considered as VILI positive, while partial and positive uptake were considered VILI negative. Pap smear reports showing CIN-I (LSIL) or CIN-II/CIN-III (HSIL) or invasive carcinoma were considered positive. Cervical biopsy was taken from cases positive for any of the three tests and histopathological

evaluation was done. Sensitivity, specificity, PPV, NPV was calculated for each test and compared.

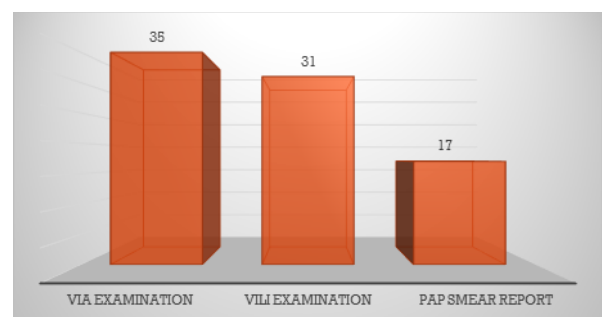
Results: Total of 250 subjects were included in the study! There were 56 patients in 21-30 years age group, 80 patients in 31-40 years age group, 74 patients in 41-50 years age group and 40 patients in 51-65 years age group!

Figure 1: Duration of married life among study subjects



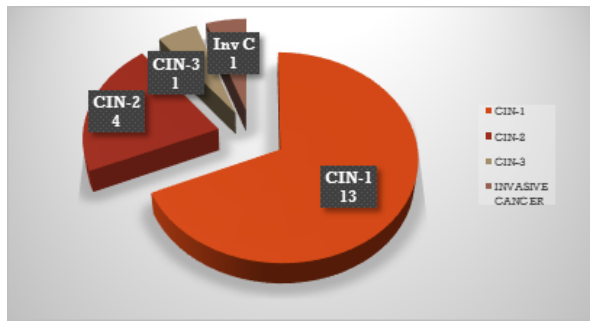
Highest number of patients (74) were in the group of 11-20 years of married life! There were 25 nulliparous women, 34 P1L1 women, 76 P2L2 women and more than 115 P2L2 women among the study subjects! Among 250 study subjects, 194 subjects had not attained menopause and 56 subjects had attained menopause!

Figure 2: Test result among study subjects



Total of 250 subjects underwent VIA, VILI, Pap smear examination out of which there were 47 positive cases on VIA or VILI or Pap smear tests individually or in combination! We found 35 VIA positive, 31 VILI positive and 17 Pap smear positive cases!

Figure 3: Distribution of cervical lesion among study subjects



Total of 47 positive cases underwent cervical biopsy, 19 cases were true positives on histopathology examination! There were 13 CIN-1 cases, 4 CIN-2 cases, 1 CIN-3 case and 1 invasive carcinoma!

Table 1: VIA result

HISTOPATHOLOGY REPORT			
VIA Examination	ABNORMAL	NORMAL	TOTAL
POSITIVE	14	21	35
NEGATIVE	5	7	12
TOTAL	19	28	47

Among 35 VIA positive cases, biopsy came positive for only 14 cases and negative for the rest 21 cases!

Table 2: VILI result

HISTOPATHOLOGY REPORT			
VILI Examination	ABNORMAL	NORMAL	TOTAL
POSITIVE	13	18	31
NEGATIVE	6	10	16
TOTAL	19	28	47

Among 31 VILI positive cases, biopsy came positive for only 13 cases and negative for the rest 18 cases!

Table 3: Pap smear test result

HISTOPATHOLOGY REPORT			
PAP Smear test	ABNORMAL	NORMAL	TOTAL
ABNORMAL	15	2	17
NORMAL	4	26	30
TOTAL	19	28	47

Among 17 abnormal Pap smear cases, biopsy came positive for 15 cases and negative for only 2 cases!

Table 4: comparing VIA, VILI, Pap smear

	VIA	VILI	PAP Smear
Sensitivity	73.7	68.4	78.9
Specificity	25	35.7	92.7
PPV	40	41.9	88.2
NPV	58.3	62.5	86.7

In our study we found Pap smear tests having highest specificity, positive predictive value and better negative predictive value in comparison to VIA, VILI tests! Though sensitivity of detecting cervical lesion is slightly higher for Pap smear compared to VIA, VILI, the sensitivities of all the three tests are comparable!

Discussion: In our study we found incidence of cervical lesions (pre malignant and malignant) more in the age group of 51- 60 years (9 cases) and 41-50 years (8 cases). Incidence was more in women who were married for > 30 years (9 cases), multiparous women (18 cases)! Incidence of cervical lesions were more in post menopausal women (11 cases) compared to pre menopausal women (8 cases).

Shuchi Consul, Avinash Agarwal et al¹ study done in 2012 involving 210 patients showed that the sensitivity of VIA was 84!2%, which was similar to that of Pap smear (84!2%), but had a lesser specificity than the Pap smear (Pap smear 62% vs! VIA 55!2%), similar to our study! In the same study, sensitivity of VILI was 89!5% comparable to Pap smear but better specificity (75!9%) than the Pap smear! It also showed 100% sensitivity for combination of Pap smear+ VIA+ VILI tests with poor specificity of 27!6%!

Sensitivity and specificity for Pap smear in Samira et al study were 52!6% and 72!1% as compared to Hend S Saleh et al¹ study done in 2016 which showed 78!57% sensitivity and 96!75% specificity for Pap smear! Our study showed sensitivity of 78.9% and specificity of 92.7% for Pap smear!

Ashish kumar Bhattacharyya et al² study done in 2015 involving 300 women showed higher sensitivity for VIA(89%) compared to Pap smear(52%) whereas specificity of VIA(87%) was lower compared to Pap smear(95%)!

Conclusion: As the sensitivity of all the three tests are comparable with each other, in low resource settings screening of cervical cancer can be done by cheaper methods like VIA, VILI instead of Pap smear. And also VIA, VILI examination and directed biopsy can be done in place of Pap smear if follow up of the patient is doubtful. VIA and VILI examination can be added with Pap smear to increase the detection rates.

Limitations: Small sample size, therefore larger study has to be done for further confirmation of the results.

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