Visual Inspection of the Cervix (VIA) Versus Colposcopy for Evaluation of Suspicious Cervix

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Abstract: Background: Globally, the cancer cervix is represent 1/4 of the dominate tumors in the women, and the 1/7 of the whole cancers, where at 2012, it discovered nearly 528 000 novel cases and the mortality was more than 250 000 case. The high incidence of morbidity and mortality mainly referred primarily to the lack of valued screening methods and deprived organized means. Secondary prevention of cervical cancer through early diagnosis and treatment of precancerous disorders in the cervix is concomitant with an overall decrease in both morbidity and mortality caused by cervical tumors. **Objective:** The goal of the present work was to evaluate the Efficacy and Accuracy of visualization of the cervix using acetic acid (VIA) versus Colposcopic examination for evaluation of suspicious cervix & early detection of cancer cervix. **Design** Prospective cohort study. **Setting**: Obstetrics and Gynecology Department, Faculty of Medicine, Al-Azhar University Hospital, (Assiut), Egypt. **Methodology:** This study included 400 women. The study participants were recruited from Obstetrics & Gynecology outpatient clinic at Obstetrics and Gynecology Department, of Al-Azhar University Hospital (Assuit) Egypt. Visual inspection of cervix after acetic acid application (VIA) and Colposcopic examination, women with positive report on either test were referred for biopsy histopathological evaluation. **Results:** Our study showed that VIA test has 79.06% sensitivity, 92.54% specificity, 87.2% positive predictive value, 87.3% negative predictive value and 87.3% accuracy. Colposcopy had 80.6% sensitivity, 99.1% specificity, 96.7% positive predictive value, 94.2% negative predictive value and accuracy 94.7%. So, colposcopy was more sensitive and more specific than VIA. The results of this study revealed that women with positive SIL are significantly older, more parus and with longer duration of marriage than women with negative SIL. This is in agreement with some of the risk factors of cervical cancer including advanced age, multiparity, and young age at first intercourse. **Conclusion:** Colposcopy is a promising alternative to visual inspection of the cervix because colposcopy shows negligible overlap, optimum preservation of cells and decreased inflammatory cells, blood and debris, thus screening and interpretation of cervical smears is easy and simple.
[M. A. Samie, Abd Elhalim Mohammed, Ahmed Abd Elhamid, Shaimaa Adel Abosadah Abd Ellahand Hussien A.H. Gadallah**. Visual Inspection of the Cervix (VIA) Versus Colposcopy for Evaluation of Suspicious Cervix.** *Life Sci J* 2019;16(6):43-52]. ISSN: 1097-8135 (Print) / ISSN: 2372-613X (Online). http://www.lifesciencesite.com. X. doi:10.7537/marslsj160619.08.

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1. Introduction:

Worldwide, annually about 500,000 new cases are diagnosed as cervical tumors. The proven strategy for the control and prevention of cervical tumor is by screening of the cervix via examination of cervical cell smears and suitable therapies with continuous follow up [(1)].

For several years, Pap smears have formed the basis of cervical tumor screening and detection programs in more advanced countries. The countries which applying the National programs of cytology-based screening technique have donated markedly to the obvious decrease in mortalities from cervical tumors [(2)].

Nowadays, in developing countries, there are public health concern for the importance of cervical cancer screening in developing countries as a tool to increase the general health condition of women. The problem of cervical tumors in the developing countries represent about80%oftheworld problem due to the deficiency in the screening programs for cervical tumor which may applied in small scale or not applied in many developing countries. [(3)].

Accordingly, for diagnosis of precancerous disease is still limited, and most of the admitted subjects are in advanced stages of disease [(1)].

Pap smear-based screening is available in certain less developed countries mainly in the orban areas or in the private health sectors that cover small numbers of women. Generally, screening programs based on Pap smears usually need skillful personnel and systems for communication, transportation and follow up the cases, and also required training courses on the technique which are coasty and are outside the capability of healthcare infrastructure in most of developing countries. Therefore, other screening methods for detection of cervical tumors have been studied [(4)].

Visual inspection of the cervix with acetic acid (VIA) is the other methods used for detection of cervical tumor. In this method, the cervix is washed with 3-5% acetic acid and inspected by the naked eye for the presence of illness, similarly identified as direct visual inspection or cervicoscopy [(5)].

The advantages of this method than traditional screening methods in poorly- resourced locations- where the result can be obtained immediately and also the treatment can be given to the patient in short time post-examination or post-the test finished [(2)].

Visual inspection of the cervix with using acetic acid (VIA) appears to be a favorable screening test, with a sensitivity similar to that of cytological method, but the specificity is less [(6)].

Now, it is being appraised for its cost-effectiveness in decreasing cervical tumor frequency and death in randomized trials [(7)].

Aim of this work:

The goal of this work was to evaluate the Efficacy and Accuracy of visualization of the cervix using acetic acid (VIA) versus Colposcopic examination for evaluation of suspicious cervix & early detection of cancer cervix.

2. Patients and Methods:

Study design:

A cross-sectional study.

The local ethics committee at Department of obstetrics and gynecology of Al-Azhar University Hospital (Assuit) Egypt had approved this study from February 2018 till July 2018.

Participants:

This study included 400 women. The study participants were recruited from Obstetrics & Gynecology outpatient clinic at Department of obstetrics and gynecology of Al-Azhar University Hospital (Assuit) Egypt.

Visual inspection of cervix after acetic acid application (VIA) and Colposcopic examination, women with positive report on either test were referred for biopsy histopathological evaluation.

Inclusion criteria:

- Non-pregnant women aged 20-65 years. - Intactuterus.
- No past history of cervicalneoplasm.
- Calculation of the sample size is based on the prevalence of the disease or the number of the population at risk.

Exclusion criteria:

- Pregnant women, women with active vaginal bleeding,
- Anyone had undergone management for pre cancer or cancer of cervix.
- History was taken after full information about the study and reassurance that the process was painless were given to all participants.

Data collection:

The details and purpose of the study were explained to participants attending the outpatient clinics and oral consents were taken. Information on socio-demographic and reproductive variables were collected during an interview using a patient sheet.

Screening of women:

- The screening tests were conducted at the outpatient clinic at Department of obstetrics and gynecology of Al-Azhar University Hospital (Assuit), the participant was placed in a lithotomy position and the cervix was examined by inserting an un lubricated bivalve vaginal speculum, with the help of side lamp (100 watt). pass the speculum comfortably and position it so that the cervix is fully visible in a plane perpendicular to the line of vision. followed by inspection of cervix by naked eye.
- The patients will be subdivided into two groups each group has 200patients.

The patients of group 1:.

Sterile piece of cotton with good emersion by ace to acetic acid 5% for 1 minutes and wait till detection of any colour changes of suspected case VIA findings were recorded 1 minute after application of the acetic acid.

The patients of group II:

Colposcopic examination after Application of 5% ace to acetic acid. Scan entire cervix with white light. Start with low power and move to higher magnification to document abnormal vascular patterns.

After that, all women who with (abnormal smear & those with clinical indications) were examined by punch biopsies were obtained from areas on the cervix that were assessed to be abnormal.

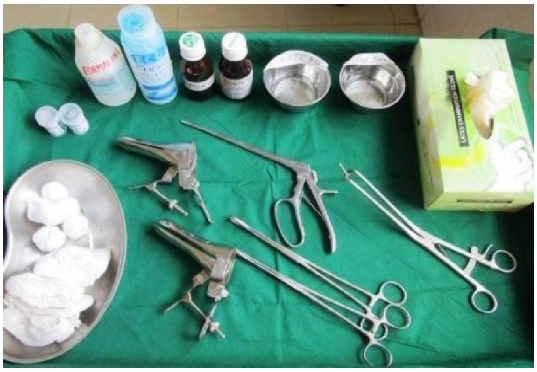

Figure (1): Instruments of VIA test Definition of a positive result

Cytology results were reported according to the Bethesda System. Cytology was considered to be positive at the LSIL threshold. The reporting

categories under the 2001 Bethesda System are summarized as follows:

I. Adequacy of the specimen:

i. Satisfactory for evaluation.

ii. Satisfactory for evaluation but limited by (specify reason).

iii. Unsatisfactory for evaluation (specify reason)

II- General categorization:

iv. Within normal changes. v. Benign cellular changes.

vi. Epithelial cell abnormalities.

II. Description diagnosis:

a. Benign cellular changes.

1. Infection.
2. Reactive changes.

b. Epithelial cell abnormalities.

1. Squamous cell.
2. Glandular cell.

i. Atypical glandular cells (AGC) specify.

ii. Atypical glandular cells favor neoplastic (specify or NOS).

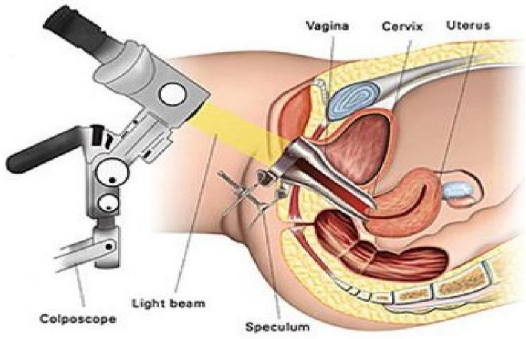

Figure (2): Colposcopic examination

Statistical analysis:

Recorded data were analyzed using the statistical package for social sciences, version 20.0 (SPSS Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean± standard deviation (SD). Qualitative data were expressed as frequency and percentage.

The following tests were done:

- Independent-samples t-test of significance was used when comparing between two means.
- Chi-square (x2) test of significance was used in order to compare proportions between two qualitative parameters.
- The confidence interval was set to 95% and the margin of error accepted was set to 5%. The p-value was considered significant as the following:
- Probability (P-value)
- P-value <0.05 was considered significant.
- P-value <0.001 was considered as highly significant.
- P-value >0.05 was considered insignificant.

3. Results:

Analysis of data of this study revealed that the ages of the participant women ranged from 20 – 65 years with a mean age of 39.8 (SD + 1.5 years) in VIA group and 40.1 (SD ±12.9 years) in colposcopy group. Their ages at marriage ranged from 18-36 years with a mean age at marriage of 24.6 (SD + 8.3 years) in VIA group and 23.9 (SD ± 9.1 years) in colposcopy group. Statistically, there were no significant differences between the two groups regarding demographic data ($p > 0.05$).

Table (1): Demographic data of the studied groups

	VIA (n= 200)	Colposcopy (n= 200)	P- value
Age: (years) Mean ± SD Range	39.8 ± 13.5 20-65	40.1 ± 12.9 20-65	0.822
Age at marriage: Mean ± SD Range	24.6 ± 8.3 18-36	23.9 ± 9.1 18-36	0.421
Duration of marriage: Mean ± SD Range	15.1 ± 7.4 1-30	14.9 ± 6.5 1-30	0.774
Parity: Nullipara Multipara	45 (22.5%) 155 (77.5%)	39 (19.5%) 161 (80.5%)	0.461

Table (2) shows the results of visual inspection of the cervix with acetic acid (VIA) test. Aceto white epithelium was visualized in 60 women (30%). Infection was visualized in 97 women (48.5%) and

normal epithelium was visualized in 43 women (21.5%).

Table (2): Results of Visual Inspection of the cervix with Acetic acid (VIA) of the participant women in the study

	No. (200)	%
Normal	43	**21.5**
Abnormal	**157**	**78.5**
Aceto_white area	**60**	**30**
Infection	**97**	**48.5**

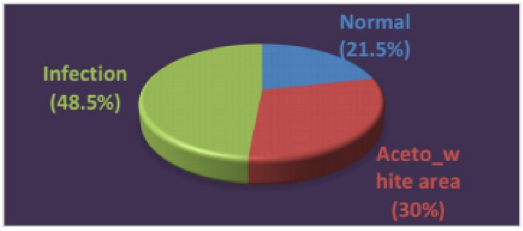

Figure (1): Results of Visual Inspection of the cervix with Acetic acid

Table (3): Results of colposcopic examination of the cervix of the participant women in the study

	No. (200)	%
ormal	**32**	**16.0**
Abnormal	**168**	**84.0**
Aceto-white epithelium	21	10.5
Mosaic	5	2.5
Punctuation	7	3.5
Atypical vessels	4	2
Infection:	**131**	**65.5**
Inflammation	76	38
Atrophy	39	19.5
Cervical polyp	16	8

Table (3) shows that **32** women (16%) had normal colposcopic findings;. Abnormal colposcopic findings were seen in 168 women (84%) 21 women (10.5%) of them had aceto- white epithelium, 5women (2.5%) had mosaic pattern, punctuation was reported in 7 women (3.5%) and atypical vessels were reported in 4 patient (2%). Infected findings were found in 131 women (65.5%); 76 women (38%) of them had inflammatory changes, atrophic changes were seen in 39 women (19.5%) and cervical polyp were reported in 16 women (8%).

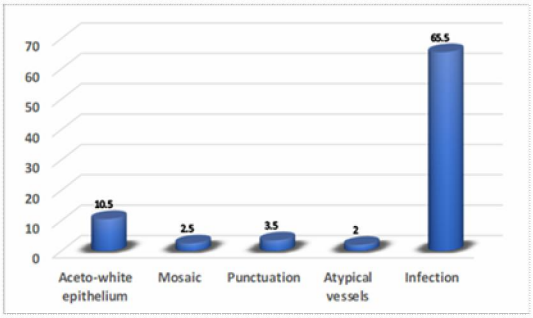

Fig. 2 Type of abnormal findings

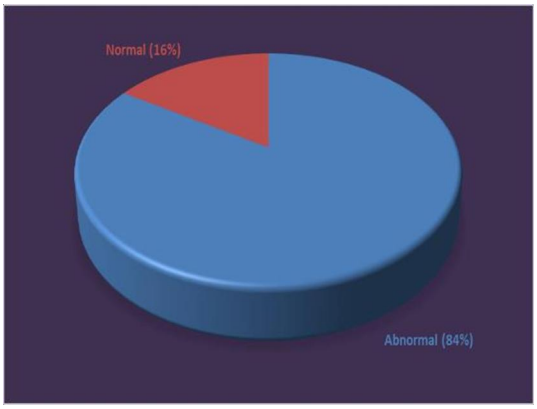

Figure (3): Results of colposcopic examination of the cervix

Table (4) displays the results of histopathologic examination of 110 cases but histopathological examination was made to 157cases with dropout 47 cases. The histopathological finding of cervical biopsy was LGSIL in 41 women (37.2%), HGSIL in 2 women (1.8%). 67 women (60.9%) had negative findings on cervicalbiopsy.

Table (4): Histopathological findings of the VIA directed biopsies

Pathology	**VIA (n= 110)**				**P-value**
	Positive (n= 39)		**Negative (n= 71)**		
	No.	**%**	**No.**	**%**	
Positive	34	87.2	9	12.7	0.000*
Negative	5	12.8	62	87.3	

Table (5) displays the results of histopathologic examination of 151cases but histopathological examination was made to 168 cases with dropout 17 cases. The histopathological finding of cervical biopsy was LGSIL in 32 women (21.2%), HGSIL in 4 women (2.6%). 115 women (69.5%) had negative findings on

cervical biopsy.

VIA:

Table (6): displays the results of VIA test. VIA has 79.06% sensitivity, 92.54% specificity, 87.2% positive predictive value, 87.3% negative predictive value and 87.3% accuracy.

Table (5): Histopathological findings of the colposcopically directed biopsies

Pathology	Colposcope (151)				P-value
	Positive (30)		Negative (121)		
	No.	%	No.	%	
Positive	29	96.7	7	5.8	0.000*
Negative	1	3.3	114	94.2	

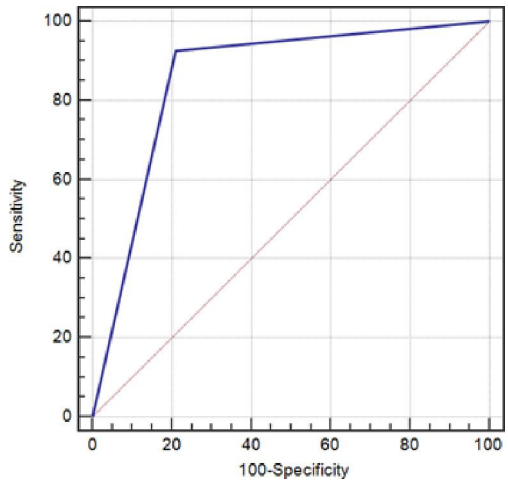

Figure (4): The relation between sensitivity and specificity of VIA test

Table (6): results of VIA test

Sensitivity	Specificity	+PV	-PV	Accuracy
79.06	92.54	87.2	87.3	87.3

Colposcopy:

Table (7): displays the results of colposcopic examination, Colposcopy had 80.6% sensitivity, 99.1 % specificity, 96.7%positivepredictive value 94.2 % negative predictive value and accuracy 94.7%

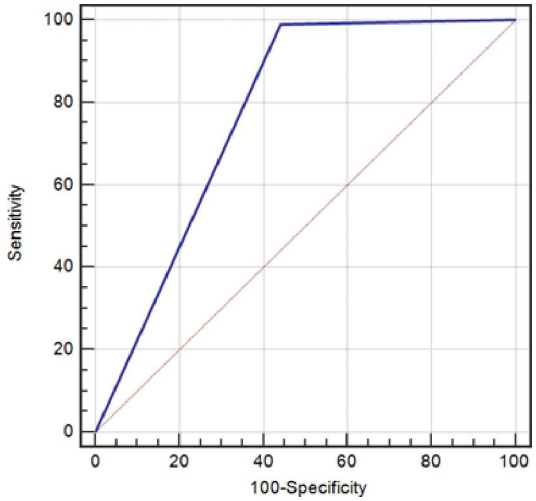

Figure (5): The relation between sensitivity and specificity of Colposcopy

Table (7): results of Colposcopic examination

Sensitivity	Specificity	+PV	-PV	Accuracy
80.6	99.1	96.7	94.2	94. 7

Table (8) shows the results of biopsy, in relation to age, duration of marriage, and parity among participant women. Women with positive SIL are significantly older, more parus and with longer duration of marriage than women with negative SIL.

Table (8): Relation between age, parity and duration of marriage with biopsy results

	Biopsy		**P-value**
	SIL +ve (n= 166)	**SIL –ve (n= 95)**	
Age: (years)	43.51 ± 9.57	36.75 ± 8.85	**< 0.001***
Duration of marriage: (years)	20.5 ± 7.39	12.1 ± 7.65	**< 0.001***
Parity:			
Nullipara	39 (23.5%)	35 (36.8%)	**0.021***
Multipara	**127 (76.5%)**	**60 (63.2%)**	

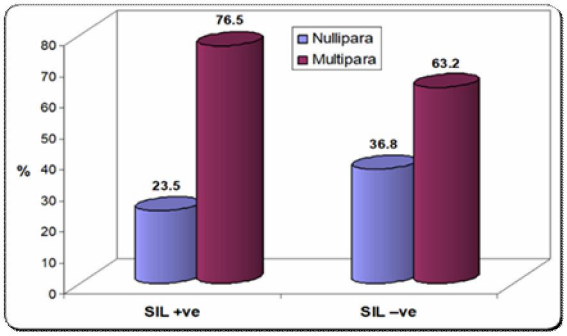

Fig. 6: Parity according to Biopsy

Table (9): displays comparing the results of VIA test and Colposcopic examination after confirmation by histopathological results. by VIA test True+ve 34, True-ve 62, False+ve 5, False-ve 9. by Colposcopy True+ve 29, True- ve 114, False+ve 1, False-ve 7.

Table (9): **Summary of the outcome of all diagnostic tests**

Methods of screening	True +ve	True – ve	False +ve	False – ve
VIA	34	62	5	**9**
Colposcopy	**29**	**114**	**1**	**7**

4. Discussion:

In this study, The wide range of age (31-40 years), parity, occupation, levels of education and residence of the women included in this study made them more or less represented the general population.

Analysis of data of this study revealed that the ages of the participant women ranged from 20 – 65 years with a mean age of 39.8 (SD + 13.5 years) in VIA group and 40.1 (SD± 12.9 years) in colposcopy group. Their ages at marriage ranged from 18-36 years with a mean age at marriage of 24.6 (SD + 8.3 years) in VIA group and 23.9 (SD ± 9.1 years) in colposcopy group. Regarding demographic data, there were no statistical significant variations ($p > 0.05$) among the two groups.

The two most common symptoms reported by participant women were vaginal discharge [78 women (39%) in VIA group and 74 women (37%) in colposcopy group] and contact bleeding [46 women (23%) in VIA group and 46 women (23%) in colposcopy group]. Regarding symptoms, there were no Statistical significant variations ($p > 0.05$) among the two studied groups.

The naked eye examination of the cervix of

women revealed vaginal discharge in 22 women (11%) in VIA group and 34 women (17%) in colposcopy group and cervical erosion in 29 women (14.5%) in VIA group and 28 women (14%) in colposcopy group. Statistically, there were no significant differences between the two groups regarding signs on examination of the cervix ($p > 0.05$).

We compare our study to others to assess the effect of surrounding factors & geographical distribution effects on the end results of the efficacy of VIA test and Colposcopic examination.

Colposcopy helps in the diagnosis and detection of precancerous cervical disease, evaluation of abnormal or inconclusive cervical cancer screening tests, in addition to the capability to control, conserve and management of abnormalities suspected to be progressed. The prospected disadvantages of colposcopy are the psychological distress, pain and adverse side effects of the practice. A complete examination of the cervix by using colposcopy should involving records of presence of aceto-whitening, squamocolumnar junction visibility, cervixvisibility, presence of a lesion (s), vascular changes, size and location of lesions, lesion (s) visibility, colposcopic impression and other structures of lesion (s). Lowest data which can be obtained during colpopscopic examination should involve at least, presence of a lesion (s), presence of aceto-whitening, visibility of squamocolumnar junction, in addition to colposcopicimpress [8].

Today, new alternatives to PAP test represent a breakthrough in our ability to deliver effective cervical cancer prevention even in low resource settings. The Alliance for Cervical Cancer Prevention (ACCP) has proved that VIA and VILI are as effective or even more effective than the PAP test at identifying precancerous lesions and when these techniques are combined and correlated with colposcopy their efficacy doubles for screening purposes [9].

Wright *et al.* [10] studied 200 women (100 cases and 100 controls), their ages were averaged 47 years in both two groups, (97%) of women were Muslims and about 1/3 of cases had been born in Bamako. They found that there was no statistical difference as regard the result of cervical lesions and age (p value = 0.95).

On the other hand, **Mount and Papillo** [11] found that cervical cancer is higher between women their ages were higher than 19 years compared with those younger than 19 years old. The incidence of Squamous Intraepithelial Lesions (SIL) was averaged (3.77%) and 18% of cases were of high grade detected during examination of 10,296 histological cervical smears from 10 to 19 years subjects.

Ries *et al.* [12] surveyed the frequency of invasive cervical tumor at the period from 1995 to 1999, they found that the incidence was reached 0/100,000 at either ages 10-14 or 15 -19 years, where it averaged 1.7/100,000 for ages 20 to 24 years.

Those studies similar to our one with close results but different number of examined women comparison to our study cases number.

Our study showed the results of cervical examination by naked eye after washing with acetic acid (VIA) test. Acetowhite epithelium was visualized in 60 women (30%). Infection was visualized in 97 women (48.5). and normal epithelium was visualized in 43 women (21.5%). Colposcopy showed that 32 women (16%) had normal colposcopic findings. Abnormal colposcopic findings were seen in 168 women (84%); 131 women (65.5%) of them had infection. 76 women (38%) of them had inflammatory changes, atrophic changes were seen in 39 women (19.5) and cervicalpolypwerereportedin16women (8%).; 21women (10.5%) had aceto-white epithelium,5women (2.5%) had mosaic pattern, punctuation was reported in 7 women (3.5%) and atypical vessels were reported in 4 women (2%). The histopathological finding of cervical biopsy was LGSIL in 32 women (21.2%), HGSIL in4women (2.6%). 99 women (65.5%) had negative findings on cervical biopsy.

VIA test has 79.06% sensitivity, 92.54% specificity, 87.2% positive predictive value, 87.3 negative predictive value and 87.3% accuracy. Colposcopy had 80.6% sensitivity, 99.1%specificity, 96.7% positive predictive value, 94.2% negative predictive value and 94.7% accuracy.

In 2001, some authors in rural China in 1997 during screening of women using VIA method in which every women examined by colposcopy and had 5 cervical smears to assist direct calculation of test performance. The sensitivity and specificity for both CIN II and VIA was 71 & 74% and 81 & 77%, respectively for colposcopy [13].

This study similar to our one with close results but different number of examined women comparison to our study cases number.

Many investigators collected a data from a total of 2466 women subjected for examination by colposcopy and adequatecervical biopsy. The results revealed that the correlation between colposcopy and cytological classification of cervical tumors was very low (kappa = 0.17). The association was high when colposcopy was done on HPV-positive women in comparison with VIA-positive patients. The sensitivity of colposcopy to was reached 84.8% during detection of high-grade squamous intraepithelial lesions (HSIL) at referral threshold of grade 1 abnormality. The specificity of colposcopy for detection of non-neoplastic conditions was poor and non-accurate frequently met in VIA- and/or HPV- positive cases.

colposcopic impression was grade 1 and above was 68.8% of women with normal histology. Colposcopy was misjudged sternness of illness in 52.6% of women with HSIL diagnosed by cervical biopsy. Over detection of severity of disease examined by colposcopy was more predominate in VIA-positive women. The application of colposcopy for the purpose of discovery of cervical tumors and the degree of abnormalities was poor [14].

This study used (VIA) test, Colposcope and HPV test so its different results and accuracy and different number of examined women comparison to our study cases number.

In Egypt, a similar study was conducted and involved 2049 case, where cervical cytological smears were collected from all women, then washed by 5% acetic acid and followed by direct visual inspection (VIA) of the cervix. Colposcopy was indicated in case of the presence of abnormal cells during histological examination as an indicator for human papillomavirus (HPV) infection or squamous intraepithelial lesion (SIL) or showing aceto-white spots after washing with acetic acid or presence of abnormalities during inspection by naked eye. Also, colposcopy was indicated for women with negative smears and negative VIA if they complain from chronic vaginal secretions or contact hemorrhage. In the mentioned study, the age of women was averaged 39.9 years and the parity was 2.9. VIA inspection was normal in (93.4%) and (6.6%) abnormal aceto-white areas. Also, the colposcopic and cervical smears was performed in 458 (22,4%) and 130 (6.34%), respectively. Premalignant lesions were 80 HPV/CIN 1 and 3 CIN 2,3. Direct naked eye inspection discovered 71/83 premalignant lesions (specificity, 96.8% and sensitivity, 85.5%and 52.6% was positive predictive value [15].

This study used (VIA), colposcopy used VIA only & the number of cases is different than our cases so its different results and accuracy as our examined women.

In Egypt, in the Dakahlia Governorate, conducted a screening test for early detection of cervical carcinomain a large number of population during routine gynecologic examination to evaluate the performance of naked eye inspection, prewashed the cervix with 5% acetic acid (VIA). Individuals showing positive results were examined by colposcopy, while that giving negative results were referred for the 5000 cases who were examined by VIA, 409 were examined by colposcopy.151 (60%) of cases (253) with positive screening results was diagnosed as cervical intraepithelial neoplasia (CIN), whereas, 4/156 of cases with negative screening results. In addition, a total of 116 and 39 diagnosed with low-grade and high grade CIN, respectively. The sensitivity of the VIA screening test and negative predictive value reached 97%. Whereas, the positive predictive value was averaged 90% for high-grade of CIN and 60% for all grades CIN [16].

This study used (VIA), colposcopy used VIA only & the number of cases is 10 times of our cases so its different results and accuracy as our examined women.

In Egypt, in the Dakahlia Governorate similar study which included 200 women. The cervix was washed with 5% acetic acid and examined by direct naked eye inspection (VIA), cytological evaluation and Colposcopic examination. Compared to colposcopy, VIA test had 46.15% sensitivity, 99.38% specificity, 94.74.

% positive predictive value, 88.40% negative predictive value and accuracy 89%[17].

This study used (VIA), colposcopy and cytology the number of cases is different than our cases so its different results and accuracy as our examined women.

The women are subjected for the precancerous lesions at age < 40 years, while at age 50-55 years are subjected for maximum invasive tumor. Therefore, the goal from any screening test is to discover precursor lesions and not invasive neoplasia, it is necessary to start screening program before age 40 year [18].

This study similar to our one as their main age group of examined pts. also below age of 40 years.

Patients with abnormal Pap smear should be evaluated with colposcopy and directed biopsy to determine the severity of cervical intraepithelial neoplasia (CIN) and exclude invasive cancer. The purpose is to detect the utmost abnormal regions (atypical vessels, punctation, mosaicism and aceto-white epithelium), of the TZ to direct cervical biopsies [19].

Compared to biopsy, VIA test had a positive predictive value of 85.7%. Statistically, there was a non-significant relation between results of VIA and biopsy of the cervix ($p > 0.05$). Also, cytology had a positive predictive value of 88.2%. Statistically, there was a non-significant relation between cytological results of colposcopy and histopathology of the cervix ($p > 0.05$). **El-Nashar *et al.*** [20]reported positive predictive value of 66.7% for acetic test and 84% for cytology in their prospective study of 405women.

This study similar to our one with close results but different in using cytology and different number of examined women comparison to our study cases number.

Conducted a cross-sectional prospective pilot study enrolling 100 asymptomatic women, to estimate the risk factors in a primary health center in Khartoum, Sudan of cervical tumor and the suitability and feasibility of a naked eye examination prewashed

with 5% acetic acid (VIA) screening test. Women with a positive test were referred for colposcopy and treatment. The authors concluded that there are an increased risk of cervical cancer in individuals suffering from episiotomy, assisted vaginal delivery, female genital mutilation or uterine cervical laceration. They concluded that VIA is acceptable and feasible as cervical cancer screening program in a primary health care setting that resulted in a sensitivity of 92.0% and a specificity of 79.9%[21].

This study used VIA test only so its different results, accuracy and different examined number of cases & different geographical distribution of this study in comparison to our one.

Ries *et al.* [12]found that the frequency rate of squamous cell carcinoma are decreased from 1970-1972 to 1994-1996 by at least 51% (13.39/100,000 to 6.56/100,000 women, respectively. On the contrary, in women aging 20-49 years, the frequency rates of adenocarcinoma are elevated significantly at years 1970-1972 to 1994 -1996 by 1.3 to 1.83/100,000 women, whereas, the rate of adenosquamous carcinoma are elevated from 0.15to 0.41/100,000 women at years 1970-1972 to 1994 -1996, respectively. The health risk factor of increasing the frequency of invasive carcinomas of the cervix in groups of age 20- 34 and 35-49 years tripled or doubled, respectively, during this time. The frequency rates in older women was decreased slightly regarding cervical adenocarcinoma.

Liu *et al.* [22]studied 2131 women with AIDS (1661 HIV-positive and 470 HIV-negative) and observed that 62.7% of the HIV-positive and 31.7% of the HIV-negative women had indication of HPV infection; 13.6% and 3.6%, respectively, had oncogenic HPV strains associated with cervical cancer. At baseline, 37.7% of the HIV positive women and 17.3% of the HIV negative women had abnormal cervical cytology of any grade, mostly ASCUS (19.5% and 10.8%), AGCUS (1.9% and 2.7%), or low-grade SIL (14.1%and2.5%). High-grade SILwasseenin32.

(2.1%) of the HIV-positive and 6 (1.4%) of the HIV-negative women, while only one HIV- positive woman and no HIV-negative women had cervical carcinoma.

This study used VIA, HIV test, HPV test, cytology, and so its different results and accuracy & and different examined number of cases & different geographical distribution of this study in comparison to our one.

Thanapprapasr *et al.* [23]assessed the effectiveness of misoprostol in overcoming an unsatisfactory colposcopy in the patients with an abnormal cervical cytology and stated that four hundred micrograms of vaginal misoprostol were not proved to be effective in converting an unsatisfactory to a satisfactory colposcopy.

The non-invasive nature and the easy applicability of the test coupled with the immediate availability of the results facilitating colposcopy and treatment of pre-invasive lesions at the time of examination make VIA an attractive screening test. The usefulness of VIA, both in screening for cervical cancer in developing countries and as a case-finding tool in actual practice settings, certainly merits further evaluation [24]

Conclusion:

Colposcopy is a promising alternative to visual inspection of the cervix because colposcopy shows optimal cell preservation, minimal overlap and reduced debris, inflammatory cells and blood, thus simplifying screening and interpretation of cervical smears.

Visual inspection of the cervix (VIA) is difficult to predict suspicious cases. Thus, there is no definite clinical impression to suspect cases of dysplasia. It is necessary for all sexually active women to undergo colposcopy to evaluate whether the cervix looks healthy or not.

Recommendations:

1- Mass media must explain the magnitude of cervical cancer to the Egyptian ladies and encourage them to participate and followed up by screening programs. Doctor's and patient's awareness to the magnitude of the problem together with patient compliance are essential to control pecancerous cervical lesions and invasive carcinoma of the cervix. Health authorities also in coordination with the government should explain the magnitude of the problem and encourage all sexually active women to be examined and screened to detect precancerous cervical lesions.

2- Large multicentric screening programs should be established to screen large number of women and there by accurately identifying an Egyptian registry of precancerous cervical lesions among Egyptian women.

3- Colposcopy fills the gap between cytology and histopathology. So, we recommend the widespread use of colposcopy in all university hospitals and general hospitals to detect cervical lesions. As cytology detects a crime, the colposcopy locate the culprit. Workshops and training programs for colposcopy are also recommended.

4- Lastly, since the majority of cases showed inflammatory changes, effort must be made to look for specific infections especially C. trachomatis and appropriate therapy instituted.

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