Original Research Paper

Volume - 13 | Issue - 07 | July - 2023 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Obstetrics & Gynaecology

A CROSS-SECTIONAL STUDY COMPARING PAP SMEAR AND COLPOSCOPY IN DETECTION OF PREMALIGNANT LESION OF CERVIX

Dr. Sweta Pathak	Senior Resident, Dept. of OBGY, COM & JNMH, WBUHS, Kalyani.
Dr. Nayan Chandra Sarkar	Associate Professor, Dept. of OBGY, COM & JNMH, WBUHS, Kalyani.
Dr. Prof. Manidip Pal	Professor and Head, Dept. of OBGY, COM & JNMH, WBUHS, Kalyani.
Dr. Anindita Jana*	Post Graduate Trainee, Dept. of OBGY, COM & JNMH, WBUHS, Kalyani. *Corresponding Author

ABSTRACT **Introduction –** Cervical cancer is one of the leading cause of cancer mortality, accounting for 17% of all cancer deaths among women of 30-69 years age. As sustaining with high-quality cytology based Pap smear programs are difficult in low-resource settings of India, screening efforts should be directed towards cost-effective strategies that are more affordable and quality-assured. **Aim -** to identify better screening method of premalignant cervical lesion in sexually active women using Pap smear and Colposcopy. **Materials And Methods –** cross-sectional study upon 100 women of 21-65 years age attending GOPD at tertiary medical center of West Bengal with C/O irregular bleeding p/v, white discharge, post-coital bleeding, dyspareunia. Pap smear and colposcopy done for all of them. **Results –** PAP smear is abnormal for 6.1% cases and colposcopy is abnormal in 7.6% cases. Association of Pap smear and colposcopy has been found as statistically significant. The association of biopsy and PAP report found as statistically insignificant. In all CIN cases, biopsy become abnormal. Statistical analysis revealed that colposcopy has a sensitivity of 83.3, specificity: 100.0, PPV : 100.0, NPV: 98.4 and accuracy of 98.48% . Pap smear has sensitivity 66.7, Specificity: 100.0, Positive Predictive Value: 100.0, Negative Predictive Value: 96.8 and Accuracy: 96.96%. **Conclusion –** Colposcopy has been found to have better sensitivity than Pap smear as a screening method for CIN and micro-invasive CA cervix to decrease the disease specific morbidity and mortality in India.

KEYWORDS : Screening, Pap smear, Colposcopy

INTRODUCTION

Cervical cancer is the fourth most common cancer in women.[1] It is a major public health problem in developing countries and India alone accounts for one-quarter of the worldwide burden of cervical cancers.[2,3] It is the one of the leading cause of cancer mortality, accounting for 17% of all cancer deaths among women aged between 30 and 69 years.[3] Screening for cancer is known to reduce mortality by early detection and treatment with following criteria. It must advance the time of diagnosis of cancers and early treatment of these cancers must confer some advantage over treatment at clinical presentation.[4,5] CA cervix can be subjected to screening for early diagnosis and treatment.

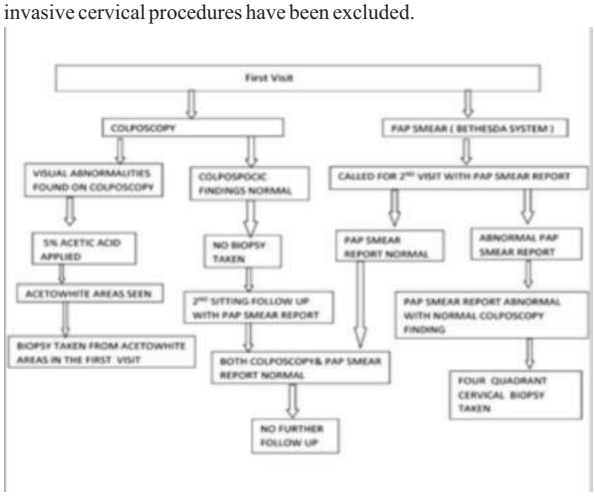
The Papanicolaou (Pap) smear is the primary screening tool for cervical intraepithelial neoplasia (CIN) and invasive cervical carcinoma. Recently, the assumed accuracy of the Pap smear is 80-95%. It is effective in the United States and other developed countries, but sustaining high-quality cytology- based programs is difficult in low-resource countries like India.[10] Hence, screening methods in India should be directed towards cost-effective strategies that are more affordable and quality-assured.[6]

VIA (Visual inspection with acetic acid) is an attractive alternative to Pap smear for its easy use, low cost, and fewer physician visits.[7,8,9] Any trained personnel who is able to use a speculum, can do the test.[8,9,10] If the test is negative, the patients can be told immediately without having to return to the doctor for result. In rural areas where people travel hours for a doctor's visit, a screening method requiring fewer visits will have a much higher success rate in preventing cervical cancer.[8,9,10] Also simultaneous use of cytological studies and colposcopy has been shown to increase the detection rate.

The main objective of the study is to screen sexually active women for premalignant cervical lesion using Pap smear and Colposcopy.

MATERIALS AND METHODS –

A total 66 women of 21-65 years attending GOPD of a tertiary medical center of West Bengal over last 6 months with complaints of irregular bleeding p/v, post-coital bleeding, post-menopausal bleeding, white discharge, itching in vulva/vagina, dyspareunia has been recruited randomly for this cross sectional study. Patients with ongoing pregnancy, obvious cervical growth, previous hysterectomy, previous invasive cervical procedures have been excluded.



RESULTS

In the current study, total participants are 66. The distribution of various parameters of the study are shown in the tables below.

Table 1: Demographic Characteristics Of Participants

Characters		Frequency	Percentage (%)
Age	</= 50 yrs	38	57.6
	> 50 yrs	28	42.4
Menarche	</= 12 yrs	51	77.3
	> 12 yrs	15	22.7
First Intercourse	</= 18 yrs	56	84.8
	> 18 yrs	10	15.2
First child birth	</= 18 yrs	46	69.7
	> 18 yrs	20	30.3
Parity	</= 4	49	74.2
	> 4	17	25.8
Menopause	YES	52	63.6
	NO	24	36.4
Sexuality	Monogamous	62	93.9
	Polygamous	4	6.1

Table 1 shows that most participants are </= 50 years (57.6%), had early menarche (77.3%), early age at first intercourse (84.8%), early age at first childbirth (69.7%). 25.8% cases are grand multiparous (parity >/= 4) and 6.1% have polygamous relationships. Most of the participants are menopausal (63.6%).

Table 2: Presenting Complain Of Participants

Characters		Frequency	Percentage
Menstrual pattern	Normal	20	30.3
	Abnormal	26	39.4
	Post coital bleed	8	12.1
	Post menopausal bleed	12	18.2
White discharge	Yes	8	12.1
	No	58	87.9
Dyspareunia	Yes	42	63.6
	No	24	36.4
Itching	Yes	37	56.1
	No	29	43.9

Table 2 shows that 39.4% patients have abnormal menstrual bleeding, 12.1% have post coital bleeding, 18.2% have post-menopausal bleeding. Only 12.1% have white discharge. Most frequent complaint is dyspareunia (63.6%) followed by itching p/v (56.1%).

Table 3: Distribution & Association Of Pap Smear And Colposcopy

Colposcopy			
Pap Smear	**Abnormal**	**Normal**	**Total**
Abnormal	4	0	4
Row %	100.0	0.0	100.0
Col %	80.0	0.0	6.1
Normal	1	61	62
Row %	1.6	98.4	100.0
Col %	20.0	100.0	93.9
TOTAL	5	61	66
Row %	7.6	92.4	100.0
Col %	100.0	100.0	100.0

Chi-square value: 51.9484; **p-value:**<0.0001

In colposcopy abnormal, 4(80.0%) patients are pap smear abnormal and 1(20.0%) patient is pap smear normal.

In colposcopy normal, 61(100.0%) patients are pap smear normal.

Association of pap smear vs colposcopy is statistically significant (p<0.0001).

Table 4: Distribution & Association Of Pap Smear And Colposcopy Reports

Colposcopy				
Pap Smear	**CIN 1**	**CIN 2**	**CIN 3**	**TOTAL**
Abnormal	1	2	1	4
Row %	25.0	50.0	25.0	100.0
Col %	100.0	66.7	100.0	80.0
Normal	0	1	0	1
Row %	0.0	100.0	0.0	100.0
Col %	0.0	33.3	0.0	20.0
TOTAL	1	3	1	5
Row %	20.0	60.0	20.0	100.0
Col %	100.0	100.0	100.0	100.0

Chi-square value: 0.8333; **p-value:** 0.6592

In CIN 1, 1(100.0%) patients is pap smear abnormal.

In CIN 2, 2(66.7%) patients are pap smear abnormal and 1(33.3%) patient is smear normal.

In CIN 3, 1(100.0%) patient is pap smear normal.

Association of pap smear vs colposcopy is not statistically significant (p=0.6592).

Table 5: Distribution of Biopsy and Association with Pap smear

BIOPSY			
Pap Smear	**Abnormal**	**Normal**	**Total**
Abnormal	4	0	4
Row %	100.0	0.0	100.0
Col %	66.7	0.0	6.1
Normal	2	60	62
Row %	3.2	96.8	100.0
Col %	33.3	100.0	93.9
Total	6	60	66
Row %	9.1	90.9	100.0
Col %	100.0	100.0	100.0

Chi-square value: 42.5806; **p-value:**<0.0001

In abnormal biopsy, 4(66.7%) patients are pap smear abnormal and 2(33.3%) patients are pap smear normal.

In biopsy normal, 60(100.0%) patients are pap smear normal.

Association of pap smear vs biopsy was statistically significant (p<0.0001).

Sensitivity: 66.7
Specificity: 100.0

Positive Predictive Value: 100.0

Negative Predictive Value: 96.8

Accuracy: 96.96% **(TP+TN/Total).**

Table 6: Association Between Colposcopy And Biopsy

BIOPSY			
Colposcopy	**Abnormal**	**Normal**	**Total**
Abnormal	5	0	5
Row %	100.0	0.0	100.0
Col %	83.3	0.0	7.6
Normal	1	60	61
Row %	1.6	98.4	100.0
Col %	16.7	100.0	92.4
Total	6	60	66
Row %	9.1	90.9	100.0
Col %	100.0	100.0	100.0

Chi-square value: 54.0984; **p-value:**<0.0001

In biopsy abnormal, 5(83.3%) patients are colposcopy abnormal and 1(16.7%) patient is colposcopy normal.

In biopsy normal, 60(100.0%) patients are colposcopy normal.

Association of colposcopy vs biopsy was statistically significant (p<0.0001).

Sensitivity: 83.3

Specificity: 100.0

Positive Predictive Value: 100.0

Negative Predictive Value: 98.4

Accuracy: 98.4. **(TP+TN/Total) X100**

Table 7: Association Between Pap Smear And Biopsy Report

	Colposcopy			
Pap Smear	**CIN1**	**CIN2**	**Invasive Carcinoma**	**Total**
Abnormal	1	2	1	4
Row%	25	50	25	100
Col%	33.3	100	100	66.7
Normal	2	0	0	2
Row%	100	0	0	100
Col%	66.7	0	0	33.3
Total	3	2	1	6
Row%	50	33.3	16.7	100
Col%	100	100	100	100

Chi-square value: 3.0000; **p-value:** 0.2231

In CIN 1, 1(33.3%) patient is Pap sear abnormal and 2(66.7%) patients are Pap smear normal.

In CIN 2, 2(100.0%) patients are Pap smear abnormal.

In Invasive Carcinoma, 1(100.0%) patient is Pap smear abnormal.

Association of Pap smear vs. biopsy group is not statistically significant (p=0.2231).

Table 8: Association Between BIOPSY And COLPOSCOPY Report

COLPOSCOPY report				
BIOPSY	**CIN 1**	**CIN 2**	**CIN 3**	**TOTAL**
Abnormal	1	3	1	5
Row %	20.0	60.0	20.0	100.0
Col %	100.0	100.0	100.0	100.0
TOTAL	1	3	1	5
Row %	20.0	60.0	20.0	100.0
Col %	100.0	100.0	100.0	100.0

In CIN 1, 1(100.0%) patient is biopsy abnormal.
In CIN 2, 3(100.0%) patients are biopsy abnormal.
In CIN 3, 1(100.0%) patient is biopsy abnormal.

DISCUSSION

In our study, majority of patients 38(57.6%) are below 50 years of age and 17(27.8%) are grand multiparous. The study conducted by Bahar Kohli et. Al[13] also had the same finding regarding the commonest age group being 30-49 years and the majority of participants being para 3. Most women 42(87.6%) presented with white discharge which correlates with the study of Sukhpreet L. Singh et. al.[11] 51(77.3%) patients have early menarche (</= 12 years) and 56(84.8%) patients have early age of first intercourse(</= 18 years) ; while in the study by Sayyah Melli M et. al.[17] , mean(SD) age of menarche and first intercourse age were 19(4) and 26(7) respectively. We have 6 abnormal biopsy cases with 5 cases abnormal on colposcopy and 4 cases abnormal on pap smear. The sensitivity of colposcopy being 83.3, specificity: 100.0, PPV : 100.0, NPV: 98.4 and accuracy of 98.48% . Pap smear sensitivity is 66.7, Specificity: 100.0, Positive Predictive Value: 100.0, Negative Predictive Value: 96.8 and Accuracy: 96.96%. Mojgan Karimi Zarchiqet et. al.[12] showed that the accuracy, sensitivity, specificity, and negative predictive values of colposcopy were higher than Pap smear in detecting high-grade cervical premalignant lesions (CIN ≥ 2) which is in accordance with our study. Chandrakala Joshi et. al.[15] observed that in cytology and colposcopy-directed biopsy; sensitivity was 65.38%, specificity was 95.83%. PPV 94.4%, NPV 71.8% and accuracy were 80%. Hossam, Hassan Aly, Hassan El, Sokkary et. al.[14] showed that the sensitivity of Pap test was 83.3%, specificity 90.7%, positive predictive value 50.8%, negative predictive value 97.9% and accuracy 90% . The findings of our study are in accordance to these references. Due to ethical constrains, cervical biopsy could not be taken on those symptomatic patients who are negative on both Pap test and colposcopy having chances to become positive for any pre-malignant lesions in further evaluation.

CONCLUSION

Cervical cancer is the most common cancer among women in India and other developing countries. Invasive cervical cancer is preceded by pre-invasive disease in most women. There is a lag time of 10-20 years before the disease progresses from pre-invasive to invasive form. Prevention of invasive cancer is desirable by screening, early diagnosis and prompt treatment of pre-invasive diseases. Recently pap smear and colposcopy are the common tests used to detect early cervical changes. Our study concludes that colposcopy and guided biopsy seems to be a better option than Pap smear for early diagnosis of pre-invasive lesion in symptomatic women. So use of single visit approach in which cytology, colposcopy and guided biopsy all are done in one sitting and treated accordingly will enable maximal utilization of scarce medical resources. The Pap smear though has been the basis for screening of cervical cancer, has a low sensitivity and a high false negative rates. Colposcopy has a higher sensitivity than Pap smear and the results are immediate, aids in prompt management of early lesions.

REFERENCES

1. WHO, I. (2010). WHO/ICO Information Centre on HPV and Cervical Cancer (HPV Information Centre). *Human Papillomavirus and Related Cancers in Kenya. Summary Report*, *2010*.
2. Cancer Incidence and Mortality Worldwide in 2012. Lyon, France: International Agency for Research on Cancer: 2012. (task accessed on 2015 Dec 03). Available from: http//www.globocan.are.fr.
3. Institute for Health Metrics and Evaluation. The Challenge Ahead: Progress in Breast and Cervical Cancer Institute of Health Metrics and Evaluation. 2011. [Last accessed on 2016 Jan 21]. Available from: http //www. hralthmetticsandevaluation.ors/ publications/ policyreport/challenge:head progress und- sethacks breast and.cervical cancer
4. Morrison, A. S. (1992). *Screening in chronic disease* (No. 19). Oxford University Press, USA.
5. Welch, H. G., & Black, W. C. (1997). Evaluating randomized trials of screening. *Journal of general internal medicine*, *12*(2), 118.
6. Miller, A. B., Nazeer, S., Fonn, S., Brandup-Lukanow, A., Rehman, R., Cronje, H., ... & Onsrud, M. (2000). Report on consensus conference on cervical cancer screening and management. *International Journal of Cancer*, *86*(3), 440-447.
7. Zimbabwe, U., & Project, J. C. C. (1999). Visual inspection with acetic acid for cervical-cancer screening: test qualities in a primary-care setting. *The Lancet*, *353*(9156), 869-873.
8. Doh, A. S., Nkele, N. N., Achu, P., Essimbi, F., Essame, O., & Nkegoum, B. (2005). Visual inspection with acetic acid and cytology as screening methods for cervical lesions in Cameroon. *International journal of gynecology & obstetrics*, *89*(2), 167-173.
9. Sankaranarayanan, R., Wesley, R., Thara, S., Dhakad, N., Chandralekha, B., Sebastian, P., ... & Nair, M. K. (2003). Test characteristics of visual inspection with 4% acetic acid (VIA) and Lugol's iodine (VILI) in cervical cancer screening in Kerala, India. *International Journal of Cancer*, *106*(3), 404-408.
10. Akinola, O. I., Fabamwo, A. O., Oshodi, Y. A., Banjo, A. A., Odusanya, O., Gbadegesin, A., & Tayo, A. (2007). Efficacy of visual inspection of the cervix using acetic acid in cervical cancer screening: a comparison with cervical cytology. *Journal of Obstetrics and Gynaecology*, *27*(7), 703-705.
11. Ramadevi, E., Mamata, N., Madhavi, G. B., Sudha Rani, V., Padmalatha, R., & Shamili, G. IJIMS. 2017.105.
12. Karimi-Zarchi, M., Zanbagh, L., Shafii, A., Taghipour-Zahir, S., Teimoori, S., & Yazdian-Anari, P. (2015). Comparison of pap smear and colposcopy in screening for cervical cancer in patients with secondary immunodeficiency. *Electronic physician*, *7*(7), 1542.
13. Sinha, M., Goel, J. K., Arya, S. B., Kar, J., Kohli, B., & Tapasvi, I. (2014). Comparison of pap smear and colposcopy in detection of premalignant lesions of cervix. *Journal of SAFOMS*, *2*(1), 5-8.
14. El Sokkary, H. H. A. H. (2017). Comparison between Pap smear and visual inspection with acetic acid in screening of premalignant cervical intraepithelial lesion and subclinical early cancer cervix. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, *6*(1), 54-60.
15. Joshi, C., Kujur, P., & Thakur, N. (2015). Correlation of Pap smear and colposcopy in relation to histopathological findings in detection of premalignant lesions of cervix in a tertiary care centre. *International Journal of Scientific Study*, *3*(8), 55-60.
16. Pourasad-Shahrak, S., Salehi-Pourmehr, H., Mostafa-Garebaghi, P., Asghari-Jafarabadi, M., Malakouti, J., & Haghsay, M. (2015). Comparing the results of Pap smear and Direct Visual Inspection (DVI) with 5% acetic acid in cervical cancer screening. *Nigerian medical journal: journal of the Nigeria Medical Association*, *56*(1), 35.