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Original Article

SCREENING OF CERVICAL CANCER BY PAP SMEAR- A CROSS-SECTIONAL STUDY

Dilip Kumar Dutta[1], Indranil Dutta[2], Ranita Roy Chowdhury[3], Gairik Bera[4]✉

ABSTRACT

BACKGROUND: Cancer of uterine cervix is a leading cause of mortality and morbidity among women worldwide. In developing countries this is the most common gynaecological cancer. The simplicity, effectiveness and versatility of Pap test have made it an integral part of routine clinical practice. Pap smear is a simple, safe, non-invasive and cost-effective method for the detection of pre-cancerous, cancerous and benign lesions of cervix. The use of Pap smear as a screening tool has reduced morbidity and mortality of cancer cervix patients.

OBJECTIVE: Timely detection of cervical cancer by clinical examination and Pap smear is one of the most important steps to prevent mortality and morbidity at low reserve set up.

METHOD: This is a cross-sectional study of women attending GICE nursing home Gynaecology OPD, Kalyani, India from 1st January 2018 to 1st December 2020.

RESULTS: Pap smear result shows about 61% women have nonspecific cervicitis, hyperplasia and dysplasia was found in 18% and 14% women respectively. Our study found LSIL in 11 women, HSIL in 16 and carcinoma in situ in 8 women.

CONCLUSION: Cervical carcinoma is a preventable disease, but there is no perfect screening test that has 100% sensitivity and specificity. Pap smear test can help early detection of cervical pathology.

KEY WORDS: Pap smear, HSIL, Cervical cancer

INTRODUCTION

Cancer of uterine cervix is a leading cause of mortality and morbidity among women worldwide. In developing countries this is the most common gynaecological cancer. According to National Cancer Registry Program of India, cancers of uterine cervix and breast are leading malignancies seen in Indian women[1]. According to WHO 80% deaths from cervical cancer were from developing countries and India accounts for 1/5th of the burden of cervical cancer[2]. As per the GLOBOCAN 2018, there are 96,922 new cervical cancer cases in India, this year with an age-standardized incidence rate of 14.7/10^5 and 60,078 cervical cancer deaths with a mortality rate of 9.2/10^5.[3]

Unlike most other malignancies, cancer of cervix

is readily preventable as it is easy to detect and treat its precursor lesions. Cervical cancers in their early stage of development are treatable as the cancer cells are confined to the surface of the cervix and have not spread into the deeper tissues. Screening programmes have reduced the incidence and mortality due to cervical cancer significantly, for which sensitization of women is required through community-based approach.

The test was first suggested by Papanicolaou in 1928 but it took almost 15 years before it was generally accepted by the medical community. The Papanicolaou (Pap) smear was introduced in 1941 and became the standard screening test for cervical cancer and premalignant lesions[4] .This is because the Pap test detects cervical epithelial cell abnormalities which represent a spectrum of intraepithelial lesions, from mild-to-severe dysplasia to invasive cancer and facilitates early diagnosis.[5] Pap test not only plays a crucial role in detection of cervical cancer and its precursor lesions, but also aids in the diagnosis of infective and inflammatory conditions including the identification of causative organism, hormone related benign epithelial changes and changes due to therapeutic agents.[6]

The simplicity, effectiveness and versatility of Pap test have made it an integral part of routine clinical examination and large chunk of workload in gynaecological and pathological practice is due to this test. Pap smear is a simple, safe, non-invasive and cost-effective method for the detection of pre-cancerous, cancerous and benign lesions of cervix. Pap smear screening has sensitivity of 50-75% and specificity of 98-99%.[2, 6] With the use of Pap smear as a screening tool for the detection of abnormal epithelial lesions in cervix, more cases can be diagnosed early and thus the morbidity and mortality of patients can be decreased.

MATERIALS AND METHODS

In this study Pap smears were obtained from women examined and analysed at GICE NH cytology section from January'18 to December'20. Informed consent was obtained.

Inclusion criteria:

- Age between 25 to 70 years
- Sexually active women

Exclusion criteria:

- Known case of cancer cervix
- Pregnancy

Procedure: Detailed history including menstrual history, sexual history, obstetric history, marital history and educational history was taken. It was ensured that no local douche, antiseptic cream and no local internal examination was done on day of test. Pap smears are taken by using Ayres Spatula in dorsal lithotomy position.

- The broad end of spatula was placed on the Cervix and rotated through 360˚ and the collected material was spread over a glass slide.
- The oblong relabelled narrow end of spatula was used to take smear from posterior vaginal fornix and spread over a second glass slide.
- The Endo cervical sample was collected using a Cytobrush and was spread over labelled third glass slide.

All the slides were labelled and immediately transferred to 95% Ethyl alcohol (Transport Medium) and sent to Pathology Department for Cytological study.

Statistical Analysis

Microsoft Excel software was used for data entry and analysis.

RESULTS

Total 500 cases were analysed, age of women ranged from 25 to 70 with average age of 48.6 Years. Most of the women were less than 40 Years age group (Table 1). Women with Para >4 (n = 266) and poor socioeconomic status (n = 300) had maximum participation. About 60% of the women were from Muslim community.

Socio demographic Characteristics		Number	Percentage
Age	< 40 Years	200	40
	41-50 ears	195	39
	> 50 Years	105	21
Parity	<2	54	10.8
	2-4	180	36
	>4	266	53.2
Socioeconomic Status	Good	80	16
	Average	120	24
	Poor	300	60
Age of Marriage	< 18 Years	226	52
	19-25 Years	180	36
	>25 Years	60	12
Religion	Hindu	180	36
	Muslim	300	60
	Christian	10	2
	Others	10	2

Table 1: Socio demographic characteristics among women

Among 500 women, 394 women had menarche at age more than 14years. Most of the women have regular menstruation cycle (n = 335) and 65 post-menopausal women participated in this study.

Menstrual History		**Number**	**Percentage**
Age of Menarche	<14 Years	106	21.2
	>14 Years	394	78.8
Menstrual History	Regular	335	67
	Irregular	100	20
	Menopause	65	13

Table 2: Distribution of women according to menstrual history

In our study 1% (n = 5) of women have positive history of cervical cancer in first degree relatives (Mother of 4 women and sister of 1 woman have history of Cervical carcinoma).

Family History		**Number**	**Percentage**
History of Carcinoma Cervix	Mother	4	0.8
	Sister	1	0.2
	Other Relatives	0	0

Table 3: Distribution according to family history of cervical carcinoma

About 79.2 % women gave history of continuous OC pill intake for 5 years or more.

Contraception History		Number	Percentage
OC Pill	Yes	396	79.2
	No	104	20.8

Table 4: Distribution according to OC Pill intake history

Among 500 women, 65 women (13%) had multiple sexual partners.

Sexual History		Number	Percentage
H/O Multiple Partner	Yes	65	13%
	No	435	87%

Table 5: Distribution according to H/O multiple partners

Distribution of Pap smear result shows about 61% (n = 305) women have nonspecific cervicitis, NILM and ASCUS was found in 79% (n = 395) and 14% (n = 70) women respectively. Our study found LSIL in 11(2.1%) women, HSIL in 24(4.9%) and carcinoma in situ in 8 (1.6%) women.

PAP Smear Test Result	Number	Percentage
NILM	395	79
ASCUS	70	14
LSIL	11	2.1
HSIL	24	4.9

Table 6: Distribution of Pap smear analysis report

DISCUSSION

The incidence of cervical cancer is quite high because prevention programs are either non-existent or poorly implemented. It is a well-known fact that the burden of cervical cancer has been reduced dramatically after the introduction of screening programmes, but awareness within the community about the Pap smear test is very low. According to the American Cancer Society (2012), the Pap smear test is a routine cancer screening method that should be done every 3 years, and a Pap smear with an HPV DNA test is recommended as a screening method every 5 years.[7]

In our study most, women are below 40 years age group, similar result was found by Sachan PL et al[8] and Shashidhar M R et al[9], may be younger women are more aware of cervical cancer. In our study 60% women was from Muslim community contrary to Sachan PL[8], they had 70% Hindu in the study. About 60% of women were from poor socioeconomic status as government runs the cervical cancer screening awareness program mostly in rural areas.

In our study 13% women were post-menopausal, Kannan A[10] done a study on 978 women where 41% women were postmenopausal. In our hospital number of postmenopausal women were less may be due to their shyness, or they were unaware of the cervical cancer screening program.

We found 13% women had multiple sexual partners but a study done by Pragati Sharma et al[11] and L N Biswas et al[12] found 4.5% and 17% respectively.

Our study showed that there were 79% benign and inflammatory and 21% were premalignant

and malignant lesion whereas Mandakini M Patel[13] et al found 94.5% and 5.5% respectively. Our analysed 61% smear was nonspecific cervicitis similar to P.R Kulkarni et all[14] study 73.7% but Lawley et all[15] found significantly lower rate of 14.3%. In the new Bethesda systems, CIN I is known as LSIL, and CIN II and III known as HSIL. We found LSIL 2.1%, HSIL 4.9 % and Z.S Nayani[16] in her study found CIN I 8.6%, CIN II 3.8% and CIS 0.9% another study by C.P Padmini[17] shows CIN I 5%, CIN II 3%, and CIS 1%.

CONCLUSION

Cervical carcinoma is a preventable disease, but there is no perfect screening test that has 100% sensitivity and specificity. Pap smear testing is a very useful, simple, economical, and safe tool to detect pre-invasive cervical epithelial lesion. Pap test has been regarded as the gold standard for cervical screening programs. All medical professionals such as doctors, nurses, anganwadi workers, midwives, and other health-care workers should be trained to reach out to these women so as to improve their knowledge and awareness regarding Pap smear examination.

Conflicts of interest - none
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REFERENCE

1. 1. National Cancer Registry Program. Annual Report. IC New Delhi; 1990-1996
2. Rani A et al. A survey of awareness of Pap smear and cervical cancer vaccine among women at tertiary care centre in Eastern Uttar Pradesh India International Journal of Reproduction, Contraception, Obstetrics and Gynaecology pISSN 2320-1770 | eISSN 2320-1789 2015 Apr;4(2):439-441
3. International Agency for Research on Cancer. In: GLOBOCAN 2018 Database. Available from: http://www.gco.iarc.fr [Last accessed on 2020 Jul 02] Lyon, France: International Agency for Research on Cancer; 2018.
4. IARC Cancer Base No. 5, version 2.0. Http: // www - depdb. Iarc. Fr / globocan / GLOBOframe. Htm. 2004 Oct. Farlay J. (GLOBOCAN 2002) Cancer incidence, mortality and prevalence worldwide.
5. Banik U, Bhattacharjee P, Ahamad SU, Rahman Z. Pattern of epithelial cell abnormality in Pap smear: A clinicopathological and demographic correlation. Cytojournal 2011; 8:8.
6. Anderson and Jones: false positive cervicovaginal cytology. acta cytol 41(6):267,1997.
7. Saslow D, Solomon D, Lawson HW, Killackey M, Kulasingam SL, Cain J, Garcia FA, Moriarty AT, Waxman AG, Wilbur DC, Wentzensen N, Downs LS Jr, Spitzer M, Moscicki AB, Franco EL, Stoler MH, Schiffman M, Castle PE, Myers ER; ACS-ASCCP-ASCP Cervical Cancer Guideline Committee. American Cancer Society, American Society for Colposcopy and Cervical Pathology, and American Society for Clinical Pathology screening guidelines for the prevention and early detection of cervical cancer. CA Cancer J Clin. 2012 May-Jun; 62(3):147-72. doi: 10.3322/caac.21139. Epub 2012 Mar 14. PMID: 22422631; PMCID: PMC3801360.
8. Sachan PL, Singh M, Patel ML, Sachan R. A Study on Cervical Cancer Screening Using Pap Smear Test and Clinical Correlation. Asia Pac J Oncol Nurs. 2018;5(3):337-341. doi: 10.4103/apjon.apjon_15_18
9. Lertcharernrit J, Sananpanichkul P, Suknikhom W, Bhamarapravatana K, Suwannarurk K, Leaungsomnapa Y. Prevalence and Risk Assessment of Cervical Cancer Screening by Papanicolaou Smear and Visual Inspection with Acetic Acid for Pregnant Women at a Thai Provincial Hospital. Asian Pac J Cancer Prev. 2016; 17(8):4163-7. PMID: 27644678.
10. Kannan A, Kiyam W, Bupesh G, Bhaskar M, Prasaad PR, Rao B. Comparative analyses of PAP smear data in pre and postmenopause Indian women. Bioinformation. 2020; 16(6):452-457. Published 2020 Jun 30. doi:10.6026/97320630016452
11. Sachan PL, Singh M, Patel ML, Sachan R. A Study on Cervical Cancer Screening Using Pap Smear Test and Clinical Correlation. Asia Pac J Oncol Nurs. 2018 Jul-Sep; 5(3):337-341. doi: 10.4103/apjon.apjon_15_18. PMID: 29963597; PMCID: PMC5996593.
12. Litan N B, Manna B, Maiti P K, Sengupta S Sexual Risk Factors for Cervical Cancer among Rural Indian Women: A Case-Control Study.

International Epidemiological Association 1997 Vol. 26, No. 3 491–495
13. Mandakini M Patel, Amrish N Pandya, Jigna Modi. Cervical Pap Smear Study and Its Utility in Cancer Screening, to Specify the Strategy for Cervical Cancer Control. National Journal of Community Medicine 2011 Vol2 Issue 1 49 ISSN 0976 3325
14. P.R. Kulkarni, H. Rani, M.G. Vimalambike, S. Ravishankar Opportunistic screening for cervical cancer in tertiary hospital in Karnataka, India Asian Pac J cancer Prev, 14 (2013), pp. 101-105
15. T.B. Lawley, R.B. Lee, R. Kapela The significance of moderate and severe inflammation on class I Papanicolaou smear Obstet Gynecol, 76 (1990), pp. 997-999
16. Z.S. Nayani, P.C. Hendre Comparison and correlation of Pap smear with colposcopy and histopathology in evaluation of cervix J Evol Med Dental Sci, 4 (2015), pp. 9236-9247
17. C.P. Padmini, N. Indira, R. Chaitra, P. Das, B.C. Girish, K.M. Nanda, S.N. Basu Cytological and colposcopic evaluation of unhealthy cervix J Evid Med Healthcare, 2 (2015), pp. 6920-6927

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1. Consultant Gynaecologist & Obstetrician, Gice Hospital, Kalyani
2. Professor, Dept. of G & O, IQ City Medical College, Durgapur
3. Associate Professor, Dept. of G & O, COMJNMH, Kalyani
4. Post graduate Trainee, Dept. of G & O, COMJNMH, Kalyani
✉ Email: gairikbera10@gmail.com