

ORIGINAL ARTICLE

'PAP SMEAR' FOR SCREENING OF PRECANCEROUS CONDITIONS OF CERVIX**Rubia Noreen, Huma Qudussi**

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Background: Cervical intra-epithelial neoplasia (CIN) and cervical cancer remain important health problems for women worldwide. It is largely a preventable disease that is characterised by a long lead time. The objective of this study was to determine the frequency of precancerous conditions of cervix (CIN I-III) in women with chronic vaginal discharge by Pap smear screening. **Methods:** The study was conducted at the outpatient department of Obstetric and Gynaecology, Nishtar Hospital Multan, and Multan Institute of Nuclear Medicine & Radiotherapy (MINAR) from February 2009 to February 2010. Two hundred and eighty patients with complaint of chronic vaginal discharge were selected. Their detailed history was documented on a Proforma, Pap smear taken at MINAR, and samples sent to pathology department of Nishtar Hospital Multan for cytological examination. All mild dyskaryosis or CIN I cases were advised follow-up with repeat Pap smear in 6–12 months and those with moderate to severe neoplasia (CIN II-III) were further investigated by cervical biopsy and managed accordingly.

Results: Of the total, 100 patients were between 25–30 years of age, and 180 between 31–35 years of age. Mean age of patients was 31.6 years, mean age at marriage 21.7 years, and mean parity was 3.6. Most of the patients (67.9%) belonged to low socioeconomic status. The cytological examination of the smears showed no changes (normal) in 100 (35.7%) cases, while 156 (55.7%) cases showed inflammatory changes, 10 (3.6%) showed dysplastic changes, of whom 8 cases had CIN-I (2.8%) and one case was of CIN-II (0.4%). One was having CIN-III/severe dysplasia (0.4%). Inadequate sample was reported in 14 (5%) cases. **Conclusion:** Pap smear should be used as a routine test for all sexually active, young females presented to the gynaecology outpatient department, for early detection of cervical pre cancer (CIN) as it is not uncommon in our set up.

Keywords: Pap smear, Cervical Intraepithelial Neoplasia, CIN, cervical, Screening Program

INTRODUCTION

Cervical carcinoma is the most common malignancy among women worldwide. Its high mortality makes cervical cancer an important public health problem. Epidemiological and molecular biological studies have shown that persistent infection with high risk HPV is necessary in the pathogenesis of cervical cancer at present. Most cervical carcinomas are considered to harbour oncogenic types of HPV type 16, 18, 45, 31 and 33 being the most frequently identified viruses in these lesions.¹ Other risk factors for CIN include, early age at marriage, multiple marriages of self or spouse, multiparity, prolonged use of contraceptives, and smoking.² The peak age of incidence of precancerous lesions of cervix peaks with the occurrence of pregnancies in the age ranges 25–35 years.³ Black women have a higher incidence of cervical cancer than white women and are 2.5 times more likely to die of this disease. The death rate from cervical cancer for Hispanic, American Indian and Asian woman also is higher than for white women.⁴

Most of the cancer causing virus infection clear within two years, however for every one million women who are infected with cancer causing virus types, approximately 10% (100,000) will develop abnormal and precancerous cervical changes, known as cervical dysplasia. About 8% of women (8,000) with

abnormal and precancerous cervical cells will develop early cancer confined to the outer layers of cervical cells and 1,600 of these women will go on to develop invasive cervical cancer.⁵

Cervical cancer progresses slowly (10–20 years) from preinvasive CIN to invasive cancer, and therefore, screening for dysplasia is an important public health effort worldwide. It is widely accepted that detection and treatment of HPV related dysplastic epithelial changes in the form of CIN-II and CIN-III can prevent the development of invasive cervical cancer in individual patients.⁶

The incidence of cervical cancer has decreased more than 50% in the past 30 years because of widespread screening with cervical cytology. Mortality from the disease has undergone a similar decrease.⁷

Screening coverage in developing countries is extremely low, resulting in high morbidity and mortality due to cervical cancer. In developing countries, barriers to cervical cancer screening uptake include absence of knowledge about the disease, lack of familiarity with the concept of preventive health care, geographic and economic inaccessibility of services, poor quality of services, and lack of support from families and communities.⁸

All women of reproductive age, peri- and postmenopausal age groups, para 5 and above, low

socioeconomic status and teenage married should undergo regular screening by Pap smear for carcinoma cervix every 3 years in age 25–49 years, and every 5 years in age 50–64 years.^{9,10}

The aim of study was to screen sexually active women by Pap smear and to find frequency of precancerous conditions of cervix in a hospital based population.

MATERIAL AND METHODS

Sexually active patients attending Gynaecology OPD of Nishtar Hospital Multan with complaint of chronic vaginal discharge were selected. Those with pregnancy and diagnosed cervical malignancy were excluded from study. The patients were referred to MINAR for Pap smear where, their detailed history especially about age, age of marriage, parity, use of oral contraceptives, habit of smoking, number of marriages/sexual partners, socioeconomic status and date of last menstrual period was documented on a Proforma. Per speculum examination of cervix was carried out before Pap smear and findings reported on the Proforma. Pap smear was taken with a disposable wooden spatula. Scrapings from squamo-columnar junction of cervix, were spread on a glass slide and dipped in methanol spirit container. The sample was sent to pathology department of Nishtar Hospital Multan for cytological examination. The slides were stained with Papanicolaou stain, screened and reported by a consultant pathologist. The result of cervical smear was reported as inflammatory smear, negative for malignancy, or CIN I-III.

RESULTS

During the study period, 280 patients underwent cervical smear screening. The ages of the patients ranged from 25 to 35 years. Of the total, 100 (35.7%) patients were between 25–30 years of age, 180 patients were between 31–35 years of age. Mean age of patients was 31.6 years, mean age at marriage was 21.7 years, and 168 patients were married at age <20 years. Mean parity was 3.6. All the patients were having complaint of chronic vaginal discharge. Twenty were taking oral contraceptives, and 5 were smokers.

Most (190, 67.9%) of the patients, belonged to low socioeconomic class. Ninety (32.1%) patients belonged to middle socioeconomic class. Five patients (1.78%) were having history of ≥2 marriages.

The cytological examination of the smears showed no changes (normal) in 100 (35.7%) cases, while 156 (55.7%) cases showed inflammatory changes, 10 (3.6%) showed dysplastic changes, of whom 8 cases had CIN-I (2.8%) and one case was of CIN-II (0.4%). One was having CIN-III/severe dysplasia (0.4%). Inadequate sample was reported in 14 (5%) cases (Table-1, 2).

Regarding, distribution of CIN according to age of patients, all cases were found in patients between 29–35 years of age.

As most of the patients in the study were multiparous had parity >2, dysplastic smears were found in these multipara, 6 cases (60%) in patients with a parity of 4, two cases (20%) with parity 3, and remaining two cases (20%) with parity 5. Most (190, 67.9%) of the patients, belonged to low socioeconomic status, 90 (32.1%) patients belonged to an average socioeconomic class. Ninety percent of CIN cases detected in women with low socioeconomic class and 10% in middle class. Age at marriage was <20 years in 168 patients and 6 (60%) cases of dysplastic smears were found in this group. Four cases (40%) in women had >20 year age at marriage. Out of 280 patients, 20 were pill users and out of these, 4 (40%) patients had CIN. Out of 280 patients, 5 (1.78%) gave history of ≥2 marriages (exposure to multiple male partners), 3 of these were having mild dysplasia (CIN-I). Five patients (1.78%) were smokers with no dysplastic smears. Out of 280 patients' smears, 100 (35.7%) smears were normal, 156 (55.7%) showed inflammatory changes, 10 (3.6%) smears showed dysplastic changes, 14 (5%) smears were inadequate. (Table-1)

Out of 280 patients, 10 (3.6%) showed dysplastic changes, of whom 8 (2.9%) cases were of CIN I and 1 (0.4%) case was of CIN-II, and 1 (0.4%) was having CIN-III/severe dysplasia. (Table-2)

Table-1: Frequency of Pap smear (n=280)

	Frequency	Percentage
Normal	100	35.7
Inflammatory	156	55.7
CIN	10	3.6
Inadequate	14	5.0
Total	280	100.0

Table-2: Frequency of Dysplastic smears (n=280)

CIN Class	Frequency	Percentage
Normal	270	96.4
CIN-I/mild Dysplasia	8	2.9
CIN-II/moderate Dysplasia	1	0.4
CIN-III/severe Dysplasia	1	0.4
Total	280	100.0

DISCUSSION

Cervical cancer is the most common cancer affecting women in developing countries. It has been estimated to have been responsible for almost 260,000 deaths annually, of which about 80% occurring in developing countries. Persistent infection by certain oncogenic HPV types is firmly established as the necessary cause of most premalignant and malignant epithelial lesions of the cervix.¹¹

Most cervical cancers start from an area of dysplastic epithelium which can be detected well by taking good Pap smear.¹² In countries with organised screening programmes for cervical cancer, incidence

rates and mortality have decreased by 60–90%.¹³ Unfortunately, in resource-poor countries, Pap screening has either not been effectively implemented or has failed to reduce cervical cancer rates. Cervical cancer in these countries thus remains a major public health problem.¹⁴

The likelihood of progression to cancer is higher and the time to progression shorter as the grade of dysplasia increases. Yet the average time course from CIN-III to invasive cancer averages between 8.1 and 12.6 years. This means the detection of CIN-II or CIN-III is not a failure of the cervical cancer screening program, but rather a success. The detection of such neoplasia allows intervention to prevent early invasive cervical cancer and to reduce mortality. According to the American College of Obstetrics and Gynaecology, 'Effective cervical cancer prevention requires recognition and treatment of the precursors of invasive cancer'.¹⁵ The false-negative Pap smear rate, reported between 5% and 30%, may be a barrier to detection. To correct this, new regulations and new technology have been introduced. However, to reduce deaths from cervical cancer, lowering the false-negative rate may not be as important as having regular Pap smears.¹⁶

Our study is comparable with Khan's study at National Institute of Health, Islamabad, in which 55.31% cases showed inflammatory changes, 3.12% cases had dysplastic changes, 1.83% had low grade squamous intraepithelial lesion (LSIL), and 1.29% had high grade squamous intraepithelial lesion (HSIL).¹⁷

Similarly, Frequency of dysplastic smears was found to be 4.16% by Nausheen¹⁸ and 6.12% in another study¹⁹. In Khattack's study, frequency was found to be 2.6%.²⁰

We found the most frequent risk factors as multiparity, low socioeconomic status, and early age at marriage.

Oral contraceptive pills use is associated with development of CIN with subsequent development of cervical carcinoma if left undiagnosed. This is in agreement with Solis *et al.*²¹

Cigarette smoking in women is less common in our society. Only 5 (1.78%) patients in our study were smokers with no dysplastic smears noted in these patients. Conversely, a meta-analysis showed that risk of squamous cell cervical cancer was increased by almost 50% in current smokers, although there was no risk increase for adenocarcinomas.²²

The most important factors hindering the use of available cervical cancer screening services were lack of knowledge and the feeling that they had no medical problems. There is very poor knowledge and practice of cervical cancer screening among women. Effective women's education and free mass screening are necessary for a successful cervical cancer screening programme.²³

CONCLUSION

Pap smear should be used as a routine test for all sexually active, young females, especially with complaint of chronic vaginal discharge, for early detection of cervical precancerous conditions.

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