FREQUENCY OF CERVICAL INTRAEPITHELIAL NEOPLASIA IN WOMEN ATTENDING LIAQAT MEMORIAL HOSPITAL KOHAT

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ABSTRACT

OBJECTIVE: To find out the frequency of cervical intraepithelial neoplasia (CIN) and to identify the associated risk factors in women attending outpatient department of Liaqat Memorial Hospital Kohat, Pakistan.

METHODOLOGY: This descriptive study was conducted at department of obstetrics and gynaecology, Liaqat memorial hospital Kohat from 30-10-2010 to 30-10-2011. Three hundred and sixty women, ranging in age from 20-65 years were enrolled by non-probability purposive sampling technique. Patients presenting with complaints of vaginal discharge, backache, pain hypogastrium, dyspareunia and post-coital bleeding were included. Those with diagnosed cervical cancer, visible cervical lesion/ulcer, active bleeding from the genital tract and pregnancy were excluded. Detailed history was taken. Risk factors studied were multiparity, age at first intercourse (marriage), oral contraceptive (OCP) usage, smoking, socioeconomic status and history of sexually transmitted infections. Pap smears were taken with Ayer's spatula. Data was analyzed by SPSS version 16.0.

RESULTS: Out of 360 cases, 12 (3.33%) had CIN with 95% CI ± 1.85(1.48%-5.18%). In this study the mean age for the diagnosis of CIN was 35.66±6.678 years. Increased parity (75%), low socioeconomic status (58.33%), history of genital tract infection (50%) and age at marriage <18 years (41.66%) were the common risk factors in patients with CIN.

CONCLUSION: Cervical Intra-epithelial lesions are not uncommon. All the women above 30 years should have regular cervical screening. High parity, early marriages and poverty should be highlighted in this connection.

KEY WORDS: Pap Smear, Cervical Intraepithelial Neoplasia, Human Papiloma Virus.

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INTRODUCTION

Cervical cancer is the most common form of cancer in women in developing countries and the 3rd most common form of cancer in the world as a whole.[1] Eighty six percent of affected women of cervical carcinoma are living in the developing countries.[1-3]

Luckily, cervix is the genital organ which is easily accessible to the screening; cervical pre-cancer has a long natural history, which is one of the reasons why it is suitable to screen for it. If a cancer is going to develop at all, it will take several years to do so, even for CIN3 lesion[1]. Three different systems are used to classify cervical intra epithelial abnormalities[4].

The WHO system involves histologic classification of cervical dysplasia as mild, moderate or severe, in addition to a separate category for carcinoma in situ (CIS). Cervical intraepithelial neoplasia (CIN) was introduced by Richart[4] to classify cervical lesions into 3 stages;

CIN-1: Mild dysplasia

CIN-2: Moderate dysplasia

CIN-3: Severe dysplasia

The Bethesda system from the United States (1988)[5] which is based on cytology and Pap smear readings, where low-grade squamous intraepithelial lesion (LSIL) corresponds to CIN1 and high grade SIL (HSIL) includes CIN2 and CIN3.

Cervical cancer is an aggressive malignancy that may spread to vagina, bladder, rectum, vulva, lungs, bones and lymph nodes. Majority of the cervical cancers are caused by a human papilloma virus.[6] Other risk factors are smoking, abnormal sexual behavior/multiple sexual partners, and genital tract infection[7]. Frequency of abnormal cervical cytology is 6% in women with high parity and low socio

economic status[8]. It is 9% in women aged 41-60 and para3 and above.[9] The value of cytological screening for cervical cancers has been found effective in countries where the disease is more common. The average age of prevalence of positive cytology is reported to be around 34 years,[10] while another study showed its prevalence in younger age.[11] Population based cytological screening and early treatment reduces morbidity and mortality associated with cervical cancers.[12] Papanicolou smear detects cervical cancer in its early stage[13] and a premalignant cervical lesion can be treated effectively.[14]

The technique of cervical smear has been introduced in 1943 by Papanicolou with the recommendation that all sexually active women should have 3-yearly cervical smear between the age of 20-60 years[15]. Despite of long natural history of the disease, with mild to moderate dyskariosis there are 50-75% chance while for severe dyskariosis 80-90% chances of invasive carcinoma are there[8]. There is a strong association between HPV and cervical cancer.

The prevalence of cervical cancer with HPV-16 is 46%-63% and HPV-18 is 10-14% and the sexual behavior of the male (multiple sexual partners and sexual relations with other woman/ women suffering from CIN) plays an important role in determining of the risk of cervical cancer in female partner.[16] In developed countries with effective screening program in place, awareness is created regarding screening for cervical cancer and associated risk factors.[17]

There is a dramatic reduction in the incidence of cervical cancer in united states and other developed countries, but in developing country like ours there is still high frequency due to lack of proper screening by pap smear.[18]

A lack of effective screening programs aimed at detecting and treating precancerous conditions is a key reason for the much higher cervical cancer incidence in developing countries. Although screening efforts based on Pap smears have been introduced in several developing countries, many have achieved only limited success, for a number of reasons, including limited cytological services and lack of follow-up diagnosis and treatment.[19]

Pap smear has been proved by various studies mentioned above as an effective and acceptable screening technique for the early detection of CIN. In Pakistan no systematic cervical screening schedule has been planned for this simple and cost effective technique.

To find out the frequency of CIN in women attending outpatient department of Liaqat Memorial Hospital Kohat, Pakistan and to identify the associated risk factors for this condition in our set up, so to prevent invasive disease.

METHODOLOGY

This descriptive study was conducted at the department of obstetrics and gynaecology, Liaqat memorial hospital Kohat from 30.10.2010 to 30/10/ 2011. Three hundred and sixty women were enrolled from the gynecological outpatient department by non-probability purposive sampling.

Married women, ranging in age from 20-65 years, presenting with complaints of vaginal discharge, backache, pain hypogastrium, dyspareunia and post-coital bleeding were included in the study. Those with diagnosed cervical cancer, visible cervical lesion/ulcer, active bleeding from the genital tract and pregnancy were excluded.

Informed consent was taken from all the patients after assuring confidentiality. Detailed history was taken including demographic details (address, age, parity, socioeconomic status, marital status, duration of marriage), and history regarding patient's and husband's marriages, menstrual history, coital history (frequency, postcoital bleeding, dyspareunia), family history of gynaecological malignancy, history of vaginal discharge, smoking and oral contraceptive pill (OCP) intake. Smears were collected by an Ayre's spatula after exposing the cervix by a Cusco's speculum. The samples collected were transferred to glass slides. Two slides were prepared for each patient. The slide fixation was done by 95% ethanol. Relevant information was obtained from the patient and recorded on a specially designed proforma. After proper numbering, the slides were then sent to cytopathologist at Peshawar. A cytotechnologist stained the slides with Papanicolaou stain. Each slide was then carefully examined by a cytopathologist. The outcome of cervical smear was reported as inflammatory smear, negative for malignancy (normal), infective, CIN I-III, squamous metaplasia, inadequate sample, atrophic smear and invasive disease. All the Inadequate smears were repeated. Risk factors studied were multiparity, age at first intercourse (marriage), OCP usage, smoking, socioeconomic status and history of sexually transmitted infections. Data was analyzed by SPSS version 16.0. The variables analyzed were demographics, risk factors, presenting symptoms and cervical smear outcome. Quantitative data is presented as mean and standard deviation. Qualitative variable like outcome of smear, socioeconomic status, parity, smoking and oral contraceptive pills is presented as frequency and percentages.

RESULTS

A total of 360 patients were included in the study with the mean age of 35.81±11.143 years. Among these 126 (35%) were below and 234 (65%) were above the age of 30 years. One hundred and fifteen patients (31.9%) presented with backache, 89 (24.7%) had dyspareunia, 44 (12.2%) had pain hypogastrium, 24 (6.7%) had post coital bleeding,

TABLE 1: FINDINGS OF CERVICAL SMEAR

Findings	Frequency	%age
Normal	224	62.2
Inflammatory	57	15.8
Infections (trichomoniasis and candidiasis)	33	9.2
Squamous metaplasia	14	3.9
Inadequate	13	3.6
Atrophic smear	7	1.9
Cervical intra-epithelial neoplasia (mild) CIN1	6	1.7
Cervical intra epithelial neoplasia (moderate) CIN2	3	0.8
Cervical intra epithelial neoplasia (severe) CIN3	3	0.8
Invasive lesion	0	0

TABLE II: FREQUENCY OF RISK FACTORS IN CERVICAL INTRAEPITHELIAL NEOPLASIA (CIN) POSITIVE GROUP (n=12)

Risk factors in CIN positive patients	Frequency (n=12)	%age
Low socio economic status	7	58.33
Middle class	5	41.66
Multiparity	5	41.66
Grand multiparity	4	33.33
History of genital tract infection	6	50
Age at marriage<18 years	5	41.66
Use of oral combined pills for contraception	2	16.66

TABLE III: FREQUENCY OF RISK FACTORS IN OVERALL STUDY POPULATION (n=360)

Risk factors in overall study population	Frequency (n=360)	%age
Increase parity>3	259	71.944
Low socioeconomic status (monthly income Rs >10000)	223	61.9
Early marriage (<18 years)	199	55.27
History of genital tract infection	94	26.1
Combined oral contraceptives use	67	18.6
Multiple sexual partners	19	5.27

while 88 (24.44%) patients complained of multiple symptoms.

Out of 360 cases, 12(3.33%) smears were positive for CIN with 95% CI ± 1.85% ranging from 1.48%-5.18%. Smear reports were normal in 224 (62.2%) cases. Thirteen (3.6%) smears were inadequate while 14 (3.9%) patients showed squamous metaplasia (Table 1).

Majority patients of CIN (n=7/12, 58.33%) were between the age group of 31-40 years. Three (25%) patients were between 20-30 years and 2(16.66%) were above 40 years of age with mean age of CIN patients of 35.6667 ±6.678 years.

Frequency of risk factors in CIN positive group is shown in Table II. Age at marriage in the CIN positive group was less than 18 years in 5(41.66%) women. Seven (58.33%) cases of CIN positive group belonged to low socio economic status. High parity was seen in 75% of cases. No case of smoking could be found in this study population.

Regarding risk factors in total study population, increase parity (>3) was the most common risk factor present in 259 (71.944%) patients followed by low socioeconomic condition 223 (61.9%) cases (Table III). Of all the patients 19(5.27%) were married twice because of divorce or after became widow. Smoking was totally absent in this study population.

Regarding contraception, 67(18.6%) patients of this study population were using pills, 25(6.9%) had condoms use by husbands, 21(5.8%) had contraceptive injections; while one patient (0.277%) had tubal ligation and 246(68.3%) were not practicing any contraceptive. The overall contraceptive use was 33.33% in this study.

DISCUSSION

Screening by cervical smear remains simple, non invasive and effective method for the detection of pre invasive lesions though recently it has been found that other screening methods like HPV DNA testing and visual inspection of the cervix are better options as these are rapid test than smearing 6. Cervical carcinoma which is serious and aggressive disease has been very effectively controlled by regular screening in developed countries but unfortunately developing countries like Pakistan have not yet implemented this simple screening technique.

Frequency of the CIN in our study is 3.33% which further supports the findings of other local studies showing the frequency of CIN as 2.6%[20] and 4.75%[14]. Our results are also comparable with work of others.[11,21] While our work contradicts the high frequency reported

by Saleem S, et a[17] from Faisalabad and Sohail R8 from Lahore. Though the frequency of CIN in our work is greater than the findings of Wasti S, et al[22] and Rasul S, et al[23] from Aga Khan University. They reported frequency of 0.5% and 1.3% cases of CIN in their work respectively. Similar low incidence (0.28%) of CIN has been reported from USA[24] as well. In fact the studies of Aga Khan and USA were conducted mainly upon high socioeconomic group; this might be the reason for the low frequency of CIN in their studies.

As evident from our work the peak frequency of CIN (58.33%) in this study occur at the age group of 30-40 years and majority of the patients (31.9%) presented with backache while only 6.7% patients presented with post coital bleeding which further supports the work of other researcher.[7]

Frequency of contraceptive use in our CIN group is only 16.66% which is much lesser than the frequency mentioned by international collaboration of epidemiological studies of cervical, cancer[25] and reported by Norma McFarlane-Anderson et al.[26] In fact the overall use of contraceptives in our study population is only 33.33% which also support our previous work.[27]

Regarding risk factors, increased parity and low income group were the common associated risk factors supporting the work of others.[8,9] Similar data from a longitudinal study, representing 1% of the England and Wales population, indicates that cervical cancer incidence is considerably higher among women of working age in manual than in non-manual classes.[28] Almost all the patients who were positive for CIN in our study belonged to lower/middle social class supporting the above findings.

A study[29] published in December 2011 estimated that around 7% of cervical cancer cases in 2010 (around 200 cases) were linked to smoking. In our study, no case of tobacco smoking has been found in our study population, because traditionally and by religion the women of this area are not involved in smoking.

Early age at first sexual intercourse has long been associated with an increased risk of invasive cervical carcinoma. In our study, 55.27% patients were married at the age of <18 years and out of the total CIN positive cases, 41.66% were less than the age of 18 years at their marriages. This is in the confirmation of another study from Europe.[30] The frequency of sexually transmitted infections (STI) in CIN positive group was 50% which is in agreement to the previous studies.[1,31]

Out of 360 total study population, only 19 (5.27%) were married twice either because of divorce or after becoming widow. None of these had CIN which does not mean that multiple sexual partners are not the risk factor or this well established risk factor has been excluded by this study. It may be that other risk factors like early marriage, multiparity, smoking and oral contraceptive use may not be present in these women. Another important point regarding them was, that they remained alone (not remarried) for several years of the termination of 1st marriage. This prolonged sex free period may have some protective effect.

Limitations of the study: As this study was conducted in hospital and on patients with some gynecological problems, the results are not representative of the whole population. To find out the exact burden of CIN in our society proper population based study and to find out their risk factors a large cohort study is needed because this condition has been found quite common in our set up. Therefore a well planned and widely applicable screening program should be implemented at local and national level.

CONCLUSION

Cervical Intra epithelial Lesions are not uncommon. All the women above 30 years should be screened regularly. High parity, early marriages and poverty should be highlighted in this connection

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

MJ: Conception and design, acquisition and analysis of data, drafting the manuscript, final approval of the version to be published

FG: acquisition of data, critical revision & drafting the manuscript, final approval of the version to be published

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CONFLICT OF INTEREST

Author declares no conflict of interest

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