Original Research Article

Clinical characteristics and colposcopy appearance of cervical intraepithelial neoplasia

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ABSTRACT

Background: Cervical cancer ranks as the second most prevalent cancer among women globally, particularly affecting those in economically disadvantaged regions. This study aimed to explore the epidemiology and clinical characteristics of cervical intraepithelial neoplasia (CIN).
Methods: The cross-sectional study was conducted at the Colposcopy Center, Comilla Medical College Hospital, spanning from July 2015 to December 2015. Face-to-face interviews using a preformed questionnaire were employed for data collection. Inclusive criteria were followed for the enrolment of 200 participants, and a simple random sampling technique was utilized. Statistical analysis was planned in the SPSS program. Ethical clearance was obtained from the Comilla Medical College Hospital Ethical Review Committee to ensure confidentiality.
Results: Among the 200 women studied, 15% were aged 20-29, 42% were 30-39, 38% were 40-49, and 5% were >50 years old. Illiteracy was prevalent in 30%, with 50% having primary education. CIN incidence was higher among illiterates and those in poor socioeconomic status (55.56%). Early sexual exposure, longer duration of exposure, and higher parity correlated with increased CIN risk. Non-use of contraception was observed in 30% of women, with 44.44% exhibiting CIN. Clinical features included predominant complaints of P/V discharge and various bleeding patterns.
Conclusions: CIN prevalence was higher among 30-39-year-olds, emphasizing the impact of illiteracy, low socioeconomic status, early marriage, prolonged marital duration, high parity, and limited contraception use. Clinical manifestations primarily comprised P/V discharge and diverse bleeding patterns. This study underscores the need for targeted interventions addressing socio-demographic risk factors for effective cervical cancer prevention.

Keywords: CIN, Epidemiology, Cervical cancer, Colposcopy

INTRODUCTION

Cervical cancer is still the second-most frequent cancer in women worldwide, after only breast cancer in terms of prevalence.[1] Cervical cancer is quite prevalent among women in several poor nations in South and South East Asia, Sub-Saharan Africa, Central America, and South America.[2] Only 14% of cervical cancer cases worldwide are diagnosed in developed nations, compared to 86% in underdeveloped nations. According to an epidemiological study conducted by the Cancer Research Institute of Bangladesh, 26% of all females with cancer in this country had cervical cancer.[3] Cervical dysplasia or cervical intraepithelial neoplasia (CIN) is the precursor of invasive squamous carcinoma of the cervix. Histologically, CIN is

graded into mild dysplasia (CIN 1), moderate dysplasia (CIN 2), or severe dysplasia (CIN 3).[4]

The association between CIS and invasive cervical cancer was subsequently reported. The term dysplasia was introduced in the late 1950s to designate the cervical epithelial atypia that is intermediate between the normal epithelium and CIS.[5] Age ≥35 years and parity ≥5, age at coitarche, first marriage and first childbirth ≤18 years, multiple marriages, divorcees, low educational and socioeconomic statuses, family history of cervical cancer, previous history of excessive vaginal discharge, and Human Immunodeficiency Virus infection (HIV) /Autoimmune Deficiency Syndrome (AIDS) did confer some risk of dysplasia.[6] Virtually all cervical cancers are associated with persistent infection with one of the high-risk types of HPV. Since HPV is predominantly transmitted through sexual contact, HPV infection in women varies greatly with sexual activities and the number of sexual partners.[7] HPV infection is associated with socio-demographic, medical, and behavioral variables including marital status, number of abortions, sexual disease history, use of contraception pills and other medications, age of puberty, and previous gynecologic and obstetric examinations.[8] The risk factors associated with the development of cervical cancer include age at first sexual intercourse, multiple sexual partners, sexually transmitted infections (especially human Papillomavirus), smoking and not taking a Pap test, among others. The incidence of cervical cancer is also highest among poor women in developing countries.[9] So, in the etiology of cervical cancer not only HPV infection is important, but also other factors such as demographic influences and sexual and reproductive health attitudes are responsible.[10] Cervical cancer can be prevented through screening programs, designed to identify and treat the precancerous lesions. Successive mass screening using the Pap test to diagnose premalignant cases can decrease the incidence and mortality from cervical cancer. In situations with abnormal cervical cytology, further evaluation by colposcopy is needed which is generally performed along with colposcopy-directed biopsies. The biopsy is performed to rule out invasive disease and to determine the extent of the pre-invasive lesion.[11] This study aimed to analyze the epidemiology and clinical characteristics of patients with cervical intraepithelial neoplasia.

Objective

The objective of the study was to analyze the epidemiology and clinical characteristics of the patients with cervical intraepithelial neoplasia. The objectives of this study was to (a) know the age distribution of the respondents; (b) to see the duration of the marriage; and (c) to assess the colposcopy appearance of the cervix of the patients.

METHODS

This cross-sectional study was conducted at the Colposcopy Center, Comilla Medical College Hospital, from July 2015 to December 2015. A total of 200 patients (N=200) were enrolled based on specific inclusion criteria. This prospective clinical study, undertaken at the Department of Gynaecology and Obstetrics, Comilla Medical College and Hospital, spanned six months after protocol acceptance. Women meeting the selection criteria, aged between 20 to 60 years, and testing positive for Visual Inspection with Acetic Acid (VIA), were included in the study. Participation required expressed interest in being part of the research. A simple random sampling technique was applied, and written consent was obtained from each participant before recruitment. Data collection involved face-to-face interviews utilizing a preformed questionnaire. Following data collection, meticulous checks were performed, and the information was subjected to analysis using the SPSS program, version 25. The analytical process included the preparation of appropriate tables, graphs, and statistical tests. Ethical clearance was secured from the ethical review committee of Comilla Medical College Hospital, ensuring the confidentiality of information for exclusive use in the study. Exclusion criteria comprised women with cervical growth and pregnant women.

The aim of the study was to provide comprehensive insights into the epidemiology and clinical characteristics of cervical intraepithelial neoplasia, offering valuable contributions to cervical cancer research.

RESULTS

Among 200 women 15% were between 20-29 years, 42% were between 30-39 years, 38% belonged to 40-49 years and 5% were >50 years. In this study majority 42% of the subjects full in the 30-39 years age group, while the age group above 50 years was in the least 5%. Among 200 women studied 30% were illiterate, 50% had primary school education, 15% completed secondary level and 5% had higher secondary or above level of education. Among the CIN patients 66.67% were illiterate, but among those who studied up to primary or secondary level had incidence of CIN up to 25.9% and 7.4% respectively. This showed that a higher incidence of CIN among the illiterates than among literates. The rate of CIN was more in poor socioeconomic status (55.56%). 33.33% in the low mid-class, 11.11% in the high mid-class, and 0% in rich socioeconomic status (Table 1).

In this study, age at marriage has been considered as the age of 1st coitus. The majority of study subjects i.e. 52% were exposed to coitus between the age of 14 to 18 years, 34% were at the age of 13 years or below and 14% are at 19 years or above. Among the CIN patients, 59.26% were exposed sexually at or below the age of 13, 33.33% were at the age of 14-18, and 7.41% were 19 years or above. The highest rate of CIN is among those who had a history of early sexual exposure. Among the 200 women studied 22% were married for <10 years, 70% were married for 10-20 years and 8% had married life >20 years. The rate of CIN was 7.41% in women with 10 years or less married

life, and 81.48% for those with 10-20 years of married life. It is 11.11% for those with >20 years of married life. There was a higher rate of CIN when the duration of sexual exposure is more. The majority i.e. 48% of subjects gave birth to more than four children, 27% had between 1-2 children and only two were nulliparous.

Among the CIN Patients, 59.26% were in the >4 para groups, 33.33% were in the 3-4 para group, and 7.41% were in groups of 1-2 no. of children. It revealed the more parity, the more risk of CIN. Among the 200 women studied 20% used barrier methods and among them none had CIN. 30% were taking OCP, and among them 14.82% had CIN. Among the 15% of permanently sterilized cases, 33.33% had CIN. 30% of women did not practice any form of contraception and 44.44% of them had CIN (Table 2). Most of the study subjects had complaints of P/V discharge other major complaints were bleeding per vagina which was either postcoital, intermenstrual, or post-menopausal type. Out of them, 51% of women who complained of white discharge had CIN among 5% of patients. 12% had irregular P/V bleeding among them 2% had CIN.

Of patients who had no symptoms among them, 1% had CIN (Table 3). 10% of the cases were colposcopic ally normal. Inflammatory changes were found in 20% and CIN III in 2% of cases. Colposcopic examinations were found unsatisfactory as the squamocolumnar junction could not be visualized due to bleeding among 31 subjects and biopsies were taken from the upper and lower lip of the cervix as the clinical symptoms were very much suspicious.

Punctation and mosaic patterns were found in 4% of patients respectively. Erosion cervix was found in 33.5% and polyps were diagnosed in 5% of cases (Table 4).

Table 1: Distribution of the study population based on characteristics (N=200).

Characteristics	No of cases N=200, %	No of CIN N, %
Age in years		
20-29	30, 15.0	4, 14.8
30-39	84, 42.0	15, 55.6
40-49	76, 38.0	6, 22.2
>50	10, 5.0	2, 7.4
Education level		
Illiterate	60, 30.0	18, 66.7
Primary	100, 50.0	7, 25.9
Secondary	30, 15.0	2, 7.4
Higher secondary and above	10, 5.0	0, 0.0
Income per month in Taka		
<3000	50, 25.0	15, 55.6
3000-8000	108, 54.0	9, 33.3
8000-12000	32, 16.0	3, 11.1
>12000	10, 5.0	0, 0.0

Table 2: Distribution of patients according to the age of first coitus, duration of marriage, parity, and contraception method (N=200).

Age of 1st coitus	No. of cases N=200	No. of CIN N=27
13 years or below	68, 34.0	16, 59.3
14-18 years	104, 52.0	9, 33.3
19 years and above	28, 14.0	2, 7.4
Duration of marriage (years)		
10	44, 22.0	2, 7.41
10-20	140, 70.0	22, 81.48
>20	16, 8.0	3, 11.11
Parity		
0	4, 2.0	0, 0.0
1-2	46, 23.0	2, 7.4
3-4	54, 27.0	9, 33.3
>4	96, 48.0	16, 59.3
Contraception		
Nil	60, 30.0	12, 44.4
Barrier	40, 20.0	0, 0.0
OCP	60, 30.0	4, 14.8
IUCD	10, 5.0	2, 7.4
Permanent	30, 15.0	9, 33.3

Table 3: Distribution of the study population based on clinical characteristics (N=200).

Complaints	(N, %)
No symptom	20, 10.0
Vaginal discharge (with itching, without itching, foul smelling and blood-stained)	102, 51.0
Irregular P/V bleeding	24, 12.0
Post-coital bleeding	34, 17.0
Dyspareunia	14, 7.0
Post-menopausal bleeding	6, 3.0

Table 4: Distribution of subjects according to colposcopy appearance of the cervix (N=200).

Appearance	(N, %)
Normal	20, 10.0
Erosion cervix	67, 33.5
Inflammatory changes	40, 20.0
Polyps	10, 5.0
CIN-I	24, 12.0
CIN-II	4, 14.8
CIN-III	4, 14.8
Unsatisfactory	31, 15.5

DISCUSSION

Regarding age distribution high incidence of CIN was found among the age group of 30-49 years with a mean age of 41 years. Khustagi and Fernandes et al in their study, showed the prevalence of CIN was higher in women over

30 years.[12] Vaidya showed in his study that CIN was more prevalent in the age of >35 years. Shalini et al showed the mean age of patients with cancer cervix were 41 VS 32 in patients with benign pathology in the cervix.[13]

Socioeconomic status had always been playing an epidemiological role in the genesis of CIN. In our study, the prevalence of CIN was found to be higher among the low-income group. Vadiya showed that low socioeconomic status had a definite role in the development of dyskaryosis. In his study, 80% of CIN I and 50% of CIN II were from low socio-economic groups. Poor personal hygiene, poor living conditions, unstable marriages and early age at intercourse are factors associated with both low socioeconomic status and cervical cancer.[14]

Regarding parity, our study showed an increased incidence of CIN among multiparous women. 59.26% were in para>4, 33.33% were in the 3-4 para group and 7.41% were in para 1-2 of children. A similar study by Shalini et al showed the mean parity was 4.2 in patients with invasive cancer.[13] Kushtagi and Fernandez showed the prevalence of CIN was significantly higher in parity of more than 2. Vaidya showed more positive cases of CIN was found with a parity of more than 4; this might be attributed to hormonal and nutritional changes that occur in pregnancy, immunosuppression during pregnancy, and cervical trauma during vaginal delivery.[15]

In our study, 66.7% of CIN was found among the illiterates. This was attributed to a lack of awareness of symptoms and failure to seek medical care. Similar result was found in another study conducted by Chankapa et al.[15] Duration of marriage and duration of exposure to sexual intercourse had a distinct role in the genesis of cervical dysphasia. In our study, the prevalence of CIN was 7% in women who were married for <40 years, 81.48% for 10-20 years, and 11.11% among women who were married for >20 years. Kushtagi et al demonstrated the severity of underlying CIN increased with an increase in the duration of marital life and hence the increase in the duration of sexual intercourse.[12] The relationship between oral contraceptives and the development of CIN had been investigated by IARC (International Agency for Research in Cancer) and they concluded that the use of OCP increased the risk of CIN up to 4-fold after 5 or more years among the HPV DNA-positive women. In our study, we found that none of the women who practiced barrier had CIN. Among 30% of OCP users, almost 14.82% showed features of CIN. Out of 15 IUCD users, the prevalence of CIN was 7.41%. Out of 15% of women who had undergone permanent sterilization the incidence of CIN was 33.33%.

Prospective studies by Stern et al suggested an increased risk of progression of cervical dysphasia among the users of hormonal contraceptives. Vaidya et al in their study showed a 40% risk of CIN in women who had depot provera injection.[14] Among the complaint's majority of women (51%) complain of excessive discharge per vagina. Among them, CIN was found in 9.8% of cases. Excessive vaginal discharge playing a role in contributing to the development of CIN was proved to be a risk factor in the study conducted by Vaidya A et al. In their study, 24% had a vaginal discharge.[14] Post-coital bleeding was found in 17% (34/200) of cases. Among them, CIN was found in 20.6% of cases. Shalini et al in their study showed the relationship between post-coital bleeding and CIN. Among the post-coital bleeding, 85.5% had benign findings. 5.6% had CIN I, 3.6% had CIN II or CIN III and 55% had invasive cancer.[13] There was no correlation between the duration of bleeding and pathology. Among those with irregular PV bleeding (1/10) had CIN and those with postmenopausal bleeding (2/6) had CIN.

Limitations

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

This study concluded that CIN was more common in 30-39 years of age. Illiteracy, low socioeconomic background, marriage at an early age, more duration of the marriage, high parity, and no or very less use of contraception methods was much more common in the patients of CIN. Concerning clinical features most of the study subjects had complaints of P/V discharge other major complaints were bleeding per vagina which was either postcoital, intermenstrual, or post-menopausal type.

Recommendation

With early detection, treatment, and close follow-up care, nearly all cervical dysplasia can be cured. If untreated, the mild to moderate stages of dysplasia often grow more severe. Moreover, further studies should be conducted involving a large sample size and multiple centers.

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