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ASSESSMENT OF THE DIFFERENT RISK FACTORS OF CARCINOMA CERVIX IN RURAL WOMEN POPULATION OF INDIA

Pathology

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ABSTRACT

Background- There is lack of awareness of risk factors of carcinoma cervix in rural women of India. These should be evaluated and disseminated to them.

Methods: The findings obtained during cervical cancer screening in rural women in the villages of Lucknow West (May 2013- february 2019) have been analyzed to find out the risk factors of cervical cancer.

Results: The findings reveal vaginal discharge very common in the young and sexually active women between 21-30 years. The SIL and STD infections were also higher in this group. The SIL rate showed rise with increasing parity.

Conclusions: The gynaecological symptoms especially vaginal discharge in the younger women, poor genital hygiene due to illiteracy and high parity played important role in development of cervical cancer in rural Indian women and should be considered as major risk factors of the disease.

KEYWORDS

Risk factors, Cervical cancer, Rural women, Vaginal discharge

INTRODUCTION

Carcinoma cervix is the major health problem faced by the Indian women and though its incidence has declined in urban population in recent years but the situation is grim in Rural India where 70% of the Indian population resides and the cervical cancer still remains no. 01 cancer in either sex. This is because the most of the Rural women are illiterate and are not aware of the factors contributing to the development of carcinoma cervix. These women are socioeconomically weak, have poor hygienic conditions especially personal genital hygiene and most of them have risk factors like marriage at early age, multiparity and high age. Further awareness programs and medical facilities are almost lacking and there is urgent need of creating awareness of hazards of cervical cancer among them and apprising them about the immense utility of early detection of the disease.

Cervical cancer screening program is in progress in Malihabad and Kakori blocks of Lucknow West under the auspices of Era's Lucknow Medical College and Hospital, Lucknow since May 2013 and till February 2019, a total of 2752 women have been cytologically examined. As we have detailed information of the women attending the camp as regards age, parity, gynaecological symptoms complained by them, we have extensively evaluated and analyzed all the risk factors related to cervical cancer in these women which have been presented in this paper.

MATERIALS AND METHODS

During cervical cancer screening carried out from May, 2013, in the villages of Lucknow West, a total of 140 villages have been covered and 170 camps have been organized for early detection of carcinoma cervix. A total of 4954 women have been registered from these camps (29.3% attendance) and 2752 of these (55.5%) have undergone Pap smear examination. Prior to holding the camp, in these villages 100 houses are visited by the nurses and Principal Investigator of the project and women are counseled and motivated and pamphlets containing the significant information regarding the cervical cancer are distributed. These women are told about the utility of the holding camps and they are requested to attend it in large number. At the camp the Principal Investigator fills the Pap smear form asking each woman about their age, parity and gynaecological symptoms. They were told about hazards of cervical cancer and usefulness of its early detection. They were extensively motivated for undergoing Pap smear examination and were sent to the Examination Room where the attending gynaecologist again motivated them for Pap smear if not willing. Informed consent of these women were taken on the Pap smear form as signature if educated or thumb impression if illiterate. All the Pap smear collected at the camp were stained according to the Papaniacolou's technique in the cytology lab of the Pathology department of the college and were screened by the cytologist. The cytopathological changes in the cervical smears were graded according to the Bethesda classification of reporting cervical smears. [1] The cytology reports of the camp were distributed to each woman after 10 days indicating the line of treatment according to the cytological diagnosis which were explained to the each patient thoroughly.

All the collected data was extensively evaluated to find out the possible risk factors contributing to the development of cervical carcinoma and were also statistically analyzed using Chi-square test and p value for obtaining the significance.

The ethical clearance was also obtained from the Ethical Committee of the college prior to starting the cervical cancer screening program.

RESULTS

Different factors contributing to the development of cervical carcinoma under Rural conditions have been extensively analyzed from the accumulated cytological data and following observations have been made.

a) Gynaecological symptoms

Three major gynaecological symptoms namely vaginal discharge, vague pain in lower abdomen and menstrual disorders were complained by the Rural women. All these three symptoms have been investigated in different age groups and the findings are shown in Table 1.

Table 1: Gynaecological symptoms in relation to different age groups

Age group	Vaginal discharge (1056 cases)	Pain in lower abdomen (681 cases)	Menstrual disorders (255 cases)
20-30 years	576(54.5%)	311(47.7%)	169(66.2%)
31-40 years	363(34.3%)	259(39.7%)	83(32.9%)
<40 years	117(11.1%)	114(16.7%)	13(5.1%)

All these three symptoms were found in large number in women of young age between 21-30 years followed by middle aged women (31-40) years and were lowest in the old age group beyond 40 years. The difference in the incidence of different symptoms in the three age group was statistically significant with all symptoms (vaginal discharge- χ^2=375.16; p<0.001, pain in lower abdomen- χ^2=87.96; p<0.001, menstrual disorders- χ^2=122.25; p<0.001) Hence the younger women between 21-30 years complaining of different symptoms specially vaginal discharge are at high risk for developing cervical cancer and should be definitely investigated for any onset of premalignancy.

Symptomwise, the vaginal discharge was commonest symptom followed by vague pain in lower abdomen and menstrual disorders. However, in the younger women between 21-30 years, the menstrual disorder was reported to be as high as 66.1%. It might be due to the fact

that the menstrual irregularity is common in the younger age. Moreover, the younger women were found more literate and most of them did not hesitate to tell their problems than older category of women.

Incidence of SIL detected with these three symptoms is shown in Table 2.

Table 2: SIL and STD incidence in relation to different gynaecological symptoms

Gyanecological symptoms	SIL incidence	Candida	Trichomonas vaginilis
Vaginal discharge	19.1% (201/1056)	8.8% (93/1056)	2.5% (27/1056)
Pain in lower abdomen	16.3% (110/681)	1.7% (11/681)	0.1% (1/681)
Menstrual disorders	16.6% (42/255)	0.3% (1/255)	-

The SIL changes were prominent in women complaining of vaginal discharge than with vague pain in lower abdomen and menstrual disorders. Though the difference in the incidence of SIL with different symptoms was insignificant (χ^2=4.35; p<0.114), the women complaining of vaginal discharge should be taken as at high risk of developing SIL.

Incidence of Candida albicans and trichomonal infection has also been investigated with these three symptoms (Table 2). As expected, the incidence of both these STDs was found higher in women complaining of vaginal discharge. The difference in the incidence of the two STDs was highly significant (χ^2=19.45; p<0.001).

b. Literacy status

The illiteracy which has indirect influence has also been analyzed with these three different gynaecological symptoms (Table 3).

Table 3: Literacy status in symptomatic women

Gynaecological symptoms	Literate	Illiterate
Vaginal discharge	39.3% (416/1056)	58.2% (615/1056)
Pain in lower abdomen	41.2% (281/681)	58.8% (401/681)
Menstrual disorders	58.8% (150/255)	41.2% (105/255)

Vaginal discharge was found higher with illiteracy (58.2%) than in women with literacy (39.3%). This was also found with vague pain in lower abdomen 58.8% in the illiterate than 41.2% with literacy. The difference in the two groups was highly significant (χ2=44.1; p<0.001). It appears that illiterate women are ignorant of personal genital hygiene which leads to development of vaginal infection which remains undetected and untreated.

However, the trend was reverse with menstrual disorders where 58.8% of women were from literate group than 41.2% seen with illiteracy. It can be explained by the fact that the literate women are not so reluctant to tell their problems than illiterate women who feel shy to reveal their complaints.

c. Age

The incidence of SIL has also been analyzed in relation to age (Table 04).

Table 4: SIL incidence in relation to age

Age group	No. of cases (2752)	SIL incidence (487 cases)
21-30	1164(42.2%)	218(18.7%)
31-40	910(33.1%)	166(18.2%)
>40 years	678(24.6%)	103(15.3%)

The younger and sexually active women were found the major component of the population screened (42.2%). Middle age women have 33.1% of share while older women beyond 40 years were only 24.6%. The reason for high attendance of young women might be due to the fact that majority of them were literate and the incidence of different gynaecological symptoms was very high in this group. However, the SIL incidence was statistically insignificant in these three age groups (χ^2=2.51; p=0.284) Hence the age factor was found to have no bearing on the development of cervical cancer in Rural women.

d. Parity

The SIL incidence has also been investigated in relation to parity (Table 5).

Table 5: SIL incidence in relation to parity

Parity group	No. of cases (2752)	SIL incidence (487 cases)
Nulliparity	167(6.1%)	10 (5.9%)
Para 1-2	696 (25.2%)	116(16.8%)
Para >3	1789(65.1%)	361(20.2%)

As expected, the percentage of multiparous women with three or more children was very high (65.1%) than 25.2% seen with low parity. The SIL incidence also showed statistical significant difference between these two groups (χ^2=17.0; p<0.001). As the SIL incidence was higher with multiparity (29.2%), it appears high parity plays some role in development of cervical cancer and is a great high risk factor in Rural women considering that majority of women screened were multiparous.

DISCUSSION

Our screening experience with camp approach revealed the younger and sexually active women between 21-30 years being the largest participants followed by middle aged women between 31-40 years and older age groups beyond 40 years. The literacy rate was also higher in these women and they appear to be more enthusiastic to get the Pap smear done to rule out any onset of premalignancy. Moreover, the study has pointed out a high incidence of gynaecological symptoms especially vaginal discharge in these women and this has also prompted them to attend the camp for treatment. Infact 42% of the total women attending the camps were from this younger group. Nikumbh et al. have also found 81% of the women belonging to the age group of 21-30 years attending the camp in a rural screening program in Maharashtra.[2]

A high SIL incidence was found with all gynaecological symptoms especially vaginal discharge. Since majority of the younger women attending the camp have reported vaginal discharge, their cytological evaluation is mandatory to find out any onset of premalignancy as well as any individual presence of the causative organism like Candida or T. vaginilis. The adequate treatment of these STDs may help them to get rid of this complaint. A high SIL rate with gynaecological symptoms have also been reported in rural women by Srivastava et al[3], Nikumbh et al and Rajput et al [4].

A high incidence of STDs was also found with vaginal discharge, Candida (8.8%) being more common than trichomonal infections (2.5%). Srivastava et al, Nikumbh et al and Arora et al[5] have, on the other hand reported a high incidence of trichomonal infection in rural women than Candida.

Dasari et al have found occurrence of cervical cancer mainly due to HPV infection followed by bacterial and fungal infection [6]. We have also found a high prevalence of cocobacilli infection in the cervical smears of rural women especially those complaining of vaginal discharge. Behbakht et al have reported elevated level of microbial flora especially bacterial infection in cervical cancer patients.[7] Most of these bacterial infection produce an anaerobic environment which increases the normal pH of vagina 4 to above 18 (Subramanyum et al).[8]The anaerobic bacteria present in the vagina produce mucin degrading enzymes which are responsible for the HPV entry causing pre-cancer. These workers have also reported that nitrosamines produced by the bacteria play a major role in the onset of precancerous changes in the cervix.

Illiteracy coupled with poverty was found to be associated with high percentage of gynaecological symptoms in rural women. The lack of knowledge regarding the genital hygiene might be a reason for such a high incidence of vaginal discharge and pain in lower abdomen in the illiterate women. This point has also been highlighted by Zhang et al in Chinese women. Many workers (Thuleseedharan et al, Roychaudhary et al and Wang et al) have also emphasized illiteracy as a contributory factor in the development of cervical cancer in the rural women. [9,10,11,12]

When the incidence of SIL was analyzed in the literate and illiterate group, this was found to be almost identical. A high incidence of SIL also seen in the literate women may be attributed to the fact that majority of these women received only primary level education and there was no difference in the social attitude between them and those who were totally uneducated.

There was no relation seen between high age and SIL incidence. The SIL incidence was found high in women of young and sexually active

age between 21-30 years. On contrary, many workers have reported the SIL incidence rising with increasing age in the rural women (Thuleseedharan et al). The SIL incidence showed progressive rise with increasing parity and was maximum in the multiparous women with three or more children. Ganeshan et al, Thuleseedharan et al, Makuza et al and Dasari et al have also reported similar findings. [13,14,15]

The present study has highlighted vaginal discharge in the younger women as a main risk factor for development of cervical cancer in rural women. Poor personal genital hygiene caused by illiteracy also leads to the persistent vaginal infections. High parity was also found a major risk factor of carcinoma cervix in these women. There is an urgent need of increasing the awareness of these different risk factors of cervical cancer in rural women. This can be achieved by introducing health education about cervical cancer as integral part of different levels of health care system. The educated women in the villages could be given educational sessions on the risk factors of cervical cancer which they can disseminate among the younger illiterate women in the village.

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