

Cytological detection of Carcinoma Cervix and Sexually transmitted Diseases in Urban and Rural Community of Lucknow

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Summary

The present study was carried out under National Cervical and Breast Cancer Control Programme to find out the difference in the prevalence rate of cervical dysplasia, carcinoma and sexually transmitted diseases (STDs) in urban and rural population of Lucknow. The rural group of 1605 women were derived from 3 Primary Health Centres while urban cohort of 1732 women were registered at 8 Govt. Maternity Homes and 2 women's hospitals of the city. The prevalence rate of dysplasia was found much higher in urban women viz. 7.1% as against 2.1% in the rural group. This may be due to sampling error as the smears were taken by auxiliary nurse midwives (ANMs) in rural areas. The dysplasia showed significant odd ratio with high age and parity in both groups. All the 4 cases of carcinoma cervix (3 in urban and 1 rural) were seen in older women with high parity. There was no statistically significant difference in prevalence rate of trichomonas vaginalis, Condyloma and Candida in the two cohorts.

The study emphasizes need for undertaking extensive cytological screening in rural population to find out more early cases of cervical cancer to improve the prognosis of the disease. Further elaborate training programme is essential for the paramedical personnel prior to embarking upon such strategy.

Introduction

Morbidity due to carcinoma cervix still remains a major threat to women of our country inspite of great emphasis laid on Cancer Control Programme by Government in the last decade. Cytological screening has proved to be efficient mode of detecting carcinoma cervix in its preinvasive stage and has contributed immensely in minimizing the incidence of the disease world over. In fact, creating awareness regarding hazards of cervical cancer particularly in rural women and cytological evaluation of women belonging to the "High Risk" group may help great deal in detecting large number of early cases of cervical cancer and thereby improving the prognosis of the disease. An attempt has been made in this direction by this centre under national

Cervical and Breast Cancer Control Programme to screen 'High Risk' women in three Primary Health Centres of Lucknow and 12 subcentres of one of these PHCs. A similar cytological study has also been undertaken in urban area in 8 Govt. Maternity Homes and two women's Hospitals of the city. The period of study was 5 years (1991-95). In the present paper, cytological findings obtained in the two cohorts of urban (1732 cases) and rural women (1605 cases) have been presented in detail to find out whether there was any difference in the prevalence rate of cervical dysplasia, carcinoma and STDs in the two groups.

Materials and Methods

For rural cytological screening, 3 primary health

centres namely Gosainganj, Mohanlalganj and Sarojini Nagar of Lucknow and 12 subscentres of Gosainganj PHC participated in the study and a total of 1605 women, were registered during the observation period of 5 years (Jan. 1991 to Dec. 1995). The urban screening involved 8 Govt. Maternity Homes and 2 women's Hospitals of the city and a total of 1732 women were enrolled in a similar period of time. The ages of women ranged from 18 to 60 years and parities from 0 to 10.

For rural screening, Auxillary Nurse Midwives (ANMs) of the PHC Gosainganj were adequately trained for identifying the different cervical lesions and taking satisfactory cervical smears. In addition, many camps were held at subscentres involving rural women to apprise them of the hazards of cervical cancer and role of early detection of the disease as well as primary and secondary prevention factors. Since it was not possible to screen all women due to paucity of manpower in cytology, emphasis was laid on screening "High Risk" group which comprised of following:-

1. Women above 35 years of age
2. Women with more than two children
3. Symptomatic women especially those complaining of contact bleeding, menorrhagia and leucorrhea.
4. Women showing clinical lesions on the cervix.
5. Women inserted with CuT 200 device.

In each case, prior to bimanual examination, a scrap smear was taken from the squamacolumnar junction of cervix. The smears were immediately fixed in absolute alcohol and taken out after 24 hours, dried and transported monthly to the Lucknow HRRRC, where they were stained according to the Papanicalaou's technique and were graded into normal, inflammatory, three grades of dysplasia (mild, moderate and severe) and frank cancer according to the classification laid down by WHO study group (1973). The two viral STDs namely condylomas and herpes simplex were diagnosed on the basis of

cytomorphological changes produced by them in the cervical squames while another two STDs Trichomonas vaginals and Candida albicans were detected on findings of their individual presence in the smears.

Matching of the findings in the urban and rural women in relation to different parameters have been carried out according to the stratified analysis.

Results

The prevalence rate of cervical dysplasia and carcinoma in the two cohorts of 1732 urban and 1605 rural women are given in Table I:-

Table I: Prevalence of Cervical Dysplasia and Carcinoma

	Urban Women	Rural women
Cervical Dysplasia	123 (7.1%)	43 (2.1%)
Mild Dysplasia	105	35
Moderate Dysplasia	18	8
Severe Dysplasia	Nil	Nil
Frank Cervical Cancer	3 (0.1%)	1 (0.06%)

Contrary to expectations, the prevalence rate of the cervical cytopathologies was quite higher in the urban women. The details of four cases of carcinoma cervix detected in the present study are given in Table II.

The noteworthy findings from the above Table are that a) one case clinically revealed cervix which bled on touch, b) postmenopausal bleeding complained by second patient and lastly c) all the four women had three children or more. Hence women of such category need special attention for cytological evaluation. All these four patients had histologically proven carcinoma and subsequently had radiation treatment.

Table II: Cases of Carcinoma Cervix

Subject	Age	Parity	Clinical status Of cervix	Gynaecological Symptom
Urban				
1,	50 yrs	P6	cervix bleeds on touch	Nil
2.	60 yrs	P5	Atrophic cervix	Postmenopausal bleeding
3.	40 yr	P3	Clinically carcinoma cervix	Discharge
Rural				
1.	50 yrs	P5	Bad Cervix	Blood stained discharge

Prevalence rate of four types of STDs in the present series in the two cohorts is given in Table III:-

Table III: Prevalence of STD

Type of STD	Urban Women (1732)	Rural women (1606)
Trichomonas vaginals	35 (2.1%)	30 (1.8%)
Candida albicans	4 (0.2%)	10 (0.5%)
Condyloma	9 (0.5%)	5 (0.3%)
Herpes simplex	Nil	Nil
Severe Dysplasia	Nil	Nil
Frank Cervical Cancer	3 (0.1%)	1 (0.06%)

There was statistically no significant differences in prevalence rate of the three STDs detected in the two cohorts ($P < 0.05$).

Prevalence rate of cervical dysplasia and STDs were investigated in detail in relation to different parameters such as clinical lesions, gynaecological symptoms, age and parity. The different clinical lesions found on clinical examination in the two cohorts are shown in Table IV. The overall adjusted Mental Haenszel

odd ratio between urban-rural status and dysplasia was 5.04 (95% confidence limits - 2.30, 11.96). The major contribution to the odd ratio was from the category of women showing erosion cervix. The odd ratio was insignificant between two cohorts and three types of STD infection. It should be emphasized here that individually the prevalence rate of dysplasia was found very high (26.6%) in urban women whose cervix bled on touch. Further all the three STDs were mostly associated with erosion cervix.

Different gynaecological symptoms complained by women of the two cohorts are shown in Table V. The adjusted Mental Haenszel odds ratio between urban-rural status and dysplasia was found to be 2.26 (95% CL-1.27,3.98). The main contribution to the odd ratio was from the category of women complaining of different kinds of vaginal discharge. The odd ratio was insignificant between two cohorts and three types of STD infection. It should be pointed out here that individually the prevalence rate of dysplasia was maximum in women complaining of menorrhagia and pain in lower abdomen. Further all the three STDs were found mostly associated with different kinds of vaginal discharge.

Table IV - Relation of Cervical Dysplasia and STDs. With Clinical Lesions

Clinical Lesions	No. of women Examined		Dysplasia	T. vaginalis	Candida	Condyloma
	Urb	Rur	OR (95% CL)	OR (95% CL)	OR (95% CL)	OR (95% CL)
Erosion Cervix	425	307	5.33 (2.25, 13.24)	1.03 (0.41, 9.3)	Undefined	0.91 (0.02, 33.3)
Hypertrophied Cervix	115	18	2.36 (0.29, 51.06)	0.77 (0.08, 18.56)	Undefined	Undefined
Cervix Bleeds on Touch	15	3	Undefined	Undefined	Undefined	Undefined
Endocervicitis	20	-	Undefined	Undefined	Undefined	Undefined
P.I.D.	8	5	Undefined	Undefined	Undefined	Undefined
Vaginitis	14	5	Undefined	Undefined	Undefined	Undefined
Overall adjusted M.H. O.R.			5.04 (2.3, 11.96)	1.57 (0.44, 6.32) Insignificant	Insignificant	Insignificant

M.H.O.R.=Mental Haenszel odd ratio; Ch=Confidential Limits

Urb=Urban

Rur=Rural

Table V: Relation of Cervical dysplasia and STDs with Gynaecological symptoms.

Symptoms	No. of women Examined		Dysplasia	T. Vaginalis	Candida	Condyloma
	Urb	Rur	OR (95% CL)	OR (95% CL)	OR (95% CL)	OR (95% CL)
Different kinds of Vaginal Discharge	435	930	2.06 (1.10, 3.05)	1.10 (0.56, 2.14)	Undefined	8.81 (0.93, 20.4)
Menorrhagia	37	16	2.34 (0.22, 57.84)	Undefined	Undefined	Undefined
Contact Bleeding	27	12	Undefined	Undefined	Undefined	Undefined
Pain in Lower Abdomen	26	51	4.45 (0.63-38.34)	Undefined	Undefined	Undefined
Postmenopausal	18	3	Undefined	Undefined	Undefined	Undefined
Overall adjusted MHOR			2.26 (1.27, 3.98)	Insignificant	Insignificant	Insignificant

Agewise distribution of women belonging to the two cohorts are presented in Table VI. The adjusted Mentel Haenszel Odd ratio between urban rural status and dysplasia was 2.47 (95% CL-1.63, 3.5). The major contribution to the odd ratio was from the age category of 21-40 years. The odd ratio was insignificant for three types of STD infection. However, T.vaginalis and Candida were commonly seen in younger age of 21-30 years in both the groups. This may be related to the active sexual life.

The relation of cervical dysplasia and STDs with parity is depicted in Table VII. The adjusted Mentel Haenszel odd ratio between two cohorts and dysplasia was 2.27 (95% CL-1.61, 3.25). The major contribution to the odd ratio was from the multiparous women having three or more children. Similar relation was also found between trichomonal infection and high partity.

Discussion

The present study which was aimed at finding out difference in the prevalence rates of cervical cytopathologies and STDs in urban and rural population surprisingly revealed a higher rate of cervical dysplasia and carcinoma in urban women. A low dysplasia rate in rural women may be due to the fact that they are ill informed of hazards of cervical cancer and less exposed to the frequent hospital visits. Since collection of adequate cervical smears from the diagnosed lesion is of paramount importance in the cytodiagnosis of carcinoma cervix, it may be that the higher detection rate

of cervical dysplasia in urban cohort may be attributed to the smears taken by the gynecologists of maternity homes of city. On the contrary, in rural screening, majority of smears were collected by ANMs who were though adequately trained for smear collection and identification of different cervical lesions, appear to have been still not well conversant with the job and hence require periodical extensive training in this field. They have reported only erosion cervix in majority of cases and other cervical lesions were scantily diagnosed. Moreover, it seems that they were not taking smears from the lesion which has resulted in lower detection rate of dysplasia. The smears taken by ANMs were found by the cytologist to contain adequate sample which were normal though the clinical data revealed some lesion on the cervix. The study thus highlights need of well organized extensive training to the paramedical staff before embarking upon initiating a rural cytological screening programme. In addition, creating awareness among rural folk regarding hazards of cervical cancer and role of early detection of the disease is very essential so that large number of women from 'High Risk' group visit the subcentres for Pap smear check up.

There was statistically no significant differences in the prevalence rates of three STDs (T.vaginalis, Candida and Condyloma) in urban and rural women screened. This allays the apprehension that the rural women have comparatively poor sense of personal genital hygiene. Another reason for low incidence of STDs in villages may be that promiscuity is too rare as compared to that prevalent in the city.

Table VI: Agewise Distribution of 1732 Urban and 1605 Rural Women

Age Group	No. of Women examined		Dysplasia	T. Vaginalis OR (95% CL)	Candida OR (95% CL)	Condyloma OR (95% CL)
	Urb.	Rur				
Upto 20 years	22	132	6.24 (0-2.3)	Undefined	Undefined	Undefined
21-30 years	715	1005	2.63 (1.19-3.46)	1.28 (0.65, 2.2)	Undefined	Undefined
31-40 years	785	356	3.07 (1.57, 6.43)	0.45 (0.10-2.15)	Undefined	Undefined
Above 40 years	210	115	2.25 (0.77-7.07)	1.29 (0.65-2.5)	Undefined	2.10 (0.25-52.25)
Overall age adjusted MHOR			2.42 (1.63, 3.57)	0.75 (0.43, 1.29) Insignificant	0.43 (0.10, 1.64) Insignificant	0.64 (0.17, 2.5) Insignificant

Table VII: Paritywise Distribution of Women of two cohorts

Parity	No. of Women examined		Dysplasia OR (95% CL)	T. Vaginalis OR (95% CL)	Candida OR (95% CL)	Condyloma OR (95% CL)
	Urb	Rur				
Nulliparous	15	103	Undefined	Undefined	Undefined	Undefined
Para 1	226	239	0.79 (0.14, 4.22)	0.52 (0.07, 3.36)	Undefined	Undefined
Para 2	546	401	1.16 (0.86, 2.42)	0.49 (0.17, 1.32)	Undefined	1.47 (0.10, 41.07)
Para 3 and above	945	862	3.10 (2.01, 4.80)	2.00 (0.96, 4.22)	Undefined	3.21 (0.61, 22.35)
Overall parity adjusted MHOR			2.27 (1.61, 3.25)	1.11 (0.66, 1.87) Insignificant	Insignificant	1.87 (0.54, 6.60) Insignificant

The stratified analysis of the findings in the two cohorts in relation to different clinical lesions and dysplasia revealed significant odd ratio only in women showing erosion cervix. A high dysplasia rate in erosion cervix cases has also been reported by Garud et al (1983) in a mass screening programme conducted in urban and rural community of Bombay. Since the erosion cervix, in all probability, predisposes to the premalignancy and ultimately malignant changes in the cervix, (Rein and Chapel 1975), cytological evaluation is mandatory for this category which may yield large number of early neoplasm. This may also help to detect presence of any STD association because all the three STDs in the present study were mostly seen in erosion cervix cases. Further it should be pointed out that the prevalence rate of cervical dysplasia was found to be highest in women whose cervix bled on touch. Since erosion cervix is the precursor of such advanced lesions, the suggested strategy and adequate treatment may also help in checking the clinical progression of the disease.

As regards gynaecological symptoms, the odds ratio in relation to dysplasia was significant only in women complaining of different kinds of vaginal discharge. Though the odds ratio was insignificant for all three STD infections for any symptom but all the three were found mostly associated with vaginal discharges. The cytological investigation is considered essential in women complaining of any type of vaginal discharge to rule out presence of any STD or precancerous changes in the cervix. Further as already stated, the prevalence rate of cervical dysplasia was found highest in women

of both the groups who were complaining of menorrhagia or pain in lower abdomen. Hence awareness has to be created in women for risk of developing malignancy if they show persistence of bleeding episodes or vague pain in lower abdomen.

The Mentel Haenszel Odd Ratio was significant when the cohorts were matched for age in relation to dysplasia but this was mainly due to raised value in 21-40 years age category. Similar findings were also obtained with high parity in relation to dysplasia as well as trichomonal infection. Cytological screening should therefore, be advocated as madatory in women above 20 years with high parity (with 3 or more children).

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