EPIDEMIOLOGICAL STUDY OF THE CANCER OF THE UTERINE CERVIX IN ADIVASI PEOPLE OF FIVE DIFFERENT STATES OF INDIA

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SUMMARY

The cytological screening of carcinoma of the uterine cervix is sporadically done in India and there is paucity of authentic epidemiological features in our country. Under the auspicies of Gujarat Cancer and Research Institute cytologic smears were obtained and eipdemiological data collected in different urban and rural population groups and different general hospitals. Alongwith this, with the help of "Girivanavasi Pragati Mandal and Gujarat Cancer and Research Institute" huge medical camps were organised in remote Adivasi (Tribal) areas of our country.

The results of the cytological screening and epidemiological data of this unique population group is compared with the results obtained from the women attending the general hospitals of Ahmedabad. Striking results are obtained.

Introduction

The cytological screening of carcinoma of the uterine cervix is done sporadically in our country and there is paucity of authentic epidemiological features. Earlier it was thought that cervical cancer is a disease of pregnancy and child birth trauma. But recent observations have changed the outlook on its aetiology and epidemiology. Now it has been agreed upon that cervical cancer is a desease of coital origin and early marriage.

Under the auspices of Guarat Cancer and Research Institute Cytological smears were obtained and epidemiological data collected in urban and rural population groups and different general Hospitals of Ahmedabad. With the help of "Girivanavasi Pragati Mandal" and "Gujarat Cancer and Research Institute" huge medical camps were organised in remote Adivasi Tribal areas and cervical cytologic smears were obtained at the camps. These smears of female popula-

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tion of Adivasi groups are compared with the results obtained from screening of female population of different general hospitals of Ahmedabad.

Material and Methods

Carcinoma of the uterine cervix is the commonest malignancy among women in India. Its frequency varies according to certain enviornmental factors and socio-economical patterns. Therefore this study includes six different undeveloped regions of India.

The cytologic smears of Adivasi females were collected from camps from different regions of India. These include:

(1) Amarkantak (Madhya Pradesh).
(2) Ranchi—Messara (Bihar).
(3) Bagidora (Rajasthan).
(4) J.K. Puram (Orissa).
(5) Shamalajee (Gujarat).
(6) Bhuj (Kutch, Gujarat).

Swears of Urban females were collected from general hospitals of Ahmedabad in one year, for comparative studies with the results of Adivasi females:

1. L.G. General Hospital.
2. Shardabai Municipal Gen. Hospital.
3. Parvatibai Maternity Hospital.

Total 2998 smears of Adivasi women and 2671 smears of Urban women population were analysed.

The smears from Adivasi population were stained and analysed at the camps only while smears taken from Urban Population were stained and studied at Gujarat Cancer and Research Institute Ahmedabad. Usual Papanicolau technique was used for staining procedure. The data was analysed according to I.C.M.R. classification.

Results

With the analysis of different regions of Adivasi groups, Amarkantak (Madhya Pradesh) has highest incidence i.e. 51/1000 of invasive cancer and 11/1000 of preinvasive cancer of the uterine cervix. The least incidence was in Adivasi of Bhuj i.e. 7/1000 of invasive cancer and 2/1000 of carcinoma in situ of the uterine cervix. The incidence in urban population is lower compared to Adivasi groups i.e. 5/1000 in invasive carcinoma of the uterin cervix and 7/1000 in carcinoma in situ.

With the average of incidence of invasive carcinoma of the uterine cervix in Adivasi groups is 18/1000 and in preinvasive carcinoma the average comes to 5/1000. While in Urban population the average comes to 3/1000 in invasive carcinoma and 2.4/1000 in preinvasive carcinoma of the uterine cervix. (Table I).

Considering the age in relation to suspicious and positive cases of the cancer of the uterine cervix the most common age of occurance is between 30 years to 50 years of life in both different groups. (Table II).

Considering the rate of infection out of 2998 cases of Adivasi group 2387 smears showed evidence of infection. Similarly from 2671 smears of urban population the infection was present in 1936 cases. On comparison it is found that the incidence of infection is nearly the same in both the groups.

In Adivasi group 2.0 per cent of dysplasia was associated with infection and in Urban population 1.6 per cent of dysplasia was associated with infection (Table III).

The most common infection in both the groups was non-specific infection and second common infection was Trichomonas vaginalis infection. Majority of cases of mild dysplasia were associated with non-specific infection but, overall incidence of displasia is not different

TABLE I

Incidence of Dysplasia, Preinvasive and Invasive Carcinoma in Both the Groups

Place	Total No. of cases	Unsatisfactory	Normal	Infection without days	Infection with days	Mild.	Mod.	Severe	In situ	Invasive
Amarkantak (M.P.)	373	5	21	187 +	137	101	33	3	4 10.8/1000	19 50.9/1000
J. K. Puram (Orissa)	351	24	34	168 +	107	77	26	4	4 11.4/1000	14 39.8/1000
Ranchi (Bihar)	572	38	109	332 +	83	66	16	1	2	8
Bagidora	760	39	105	472 +	138	124	13	1	00	6
Shamalji (Guj)	504	20	18	362 +	100	76	18	6	00	4
Bhuj (Kutch)	438	19	114	261 +	40	37	3	—	01 2.2/1000	3 6.8/1000
	2998	145	401	1782 +	605	481	109	15	11	54
L.G. Hospital	628	46	113	339 +	127	113	11	3	00	3
Shardabai Hospital	1895	117	417	1062 +	293	255	35	3	1	5
Parvatibai Hospital	148	14	18	89 +	26	19	7	0	1	nil
	2671	177	548	1490 +	446	387	53	6	2	8

Invasive Carcinoma:
Average Incidence—Adivasi Pop. 18/1000
Average Incidence—Urban Pop. 3/1000

Preinvasive Carcinoma:
Average incidence 4.6/1000
Average incidence 2.4/10000

TABLE II

Total No. of Suspicious and Positive Case in Different Age

Place	Age in years 21-30	31-40	41-50	51-60	Above 60
1. Amarkantak	7	7	8	—	1
2. Orissa	4	6	7	1	—
3. Ranchi	1	5	2	1	—
4. Baghidora	—	3	2	1	—
5. Shamlajee	2	1	1	—	—
6. Bhuj	1	1	1	1	—
	15	23	21	4	1
7. L.G. Hospital	1	2	—	—	—
8. Shardabai Hospital	—	2	2	1	—
9. Parvatibai Hospital	—	1	—	—	—
	1	5	2	1	—

TABLE III

Total Cases of Infection With and Without Dysplasia

Place	Without days	With days	Mild	Moderate	Severe
Amarkantak (M.P.)	187	137	101	33	3
J. K. Puram (Orissa)	168	107	77	26	4
Ranchi (Bihar)	332	83	66	16	1
Bagidhora (Rajasthan)	472	138	124	13	1
Shamlaji (Guj)	362	100	76	18	6
Bhuj (Kutch)	261	40	37	3	—
	1782	605	481	109	15
		2 per cent			
L.G. Hospital	339	127	113	11	3
Sardabai Hospital	1062	293	255	35	3
Parvatibai Hospital	89	26	19	7	—
	1490	446	387	53	6
		1.6 per cent			

Adivasi population—Total cases with infection: 2387
Urban population—Total cases with infection: 1936

with different type of infection, in both the groups. (Table IV).

Discussion

Much controversy as well as research is still going on for cancer of the different parts of the body. Yet in majority of cancers no single aetiological agent has been documented. Same is true for cervical cancer also. Hence workers in

TABLE IV

Incidence of Nonspecific Infection and Trichomenas Vaginalis Infection in Both the Groups with Dysplasia

Nonspecific infection	Cases	Dys I	Dys II	Dys III	Total
Adivasi group	605	312	60	13	385
Urban group	446	201	20	3	224
Trichomonas V. Infection					
Adivasi Group	605	172	46	2	220
Urban Group	446	183	36	3	222

cancer research have to rely on epidemiological data to understand the aetiopathology of different cancers.

In India, the most common cancer of the female is carcinoma cervix and then comes the breast. Different workers have done epidemiological studies for cancer cervix sporadically in different community. Though no authentic data are obtained, therefore the attempt is made for comparative study by screening Adivasi population with Urban population. The results very well support the theory of many authors as carcinoma cervix to be a disease of coital origin.

With the above results, it is clearly evident that adivasi women definitely have higher incidence of carcinoma of the uterine cervix which falls between 51/1000 to 7/1000 in Amarkantak, (M.P.) and Bhuj (Gujarat) respectively with an average of 18/1000 of invasive carcinoma and 4.6/1000 of carcinoma in situ in adivasi population. While is Urban population the incidence of invasive carcinoma on an average comes to 3/1000 and of preinvasive carcinoma it is 2.4/1000 population.

The rate of carcinoma cervix at Bagidora, Shamalajee and Bhuj is comparatively less than other three adivasi groups. The reasons might be their social customs of having early marriage but usually these groups of adivasi do not constantly stay with the husbands immediately after marriage suggesting less frequent sexual activity. Shamalajee and Bhuj are little better equipped for medical aid than other adivasi places.

The recent study on this fascinating topic has been discussed by Tombasingh in 1982. Tombasingh has stated that the real contribution of epidemiology has been discovery that carcinoma of the uterine cervix is a disease of coital origin.

The factors predisposing the cancer cervix are early age of marriage with the emphasis on early age of first coitus, absence of circumcision in the male partner, poor sexual hygeine and lower socio-economical status.

Fisher in 1953, Lancet (1961), Wahi, Mali and Luthara in (1969) have discussed the possible role of smegma as a carcinogenic agent. Coppleson and Reid (1967) have postulated that the possibility of sperm penetration to cervical epithelium may have mutagenic properties. The parts played by the male partner and possible correlation between penile carcinoma and cervical carcinoma has been discussed by Martinez (1969).

Chakrabarti and coworkers have observed that carcinoma of the uterine cervix is not entirely related to the male circumcision but it has direct relationship to sexual activity and sex higenine.

Even though the role of human smegma cannot be ruled out entirely on aetiopathogenesis of cervical cancer.

There is no definite racial immunity to carvical cancer but the incidence of course varies with social habits and customs. Wahi *et al* in 1969 and W.H.O. Technical reports series 1964 have stated that there is no clear evidence that circumcision has a definite value as a prophylactic measure in the prevention of carcinoma cervix, though they have stated in their study that rate of carcinoma cervix is higher in Hindus than Muslims supporting the routine practice of circumcision playing the significant role. However circumcision indirectly might contribute to the diminution of cancer of the uterine cervix and penis by promoting sexual higeine.

Among all above predisposing factors, many authors Ramakanta Das (1970) and Ahuja and Reddy have observed that early coitus is believed to have some relationship to the incidence of carcinoma cervix. Coitus at the younger age doubles the risk of cancer of the uterine cervix than coitus at the later age.

It is a known fact that cancer of the uterine cervix is very rare in virgins and nuns suggests direct relationship with sexual activity. Also Kessler in (1976) showed that there is increase incidence of the disease in women with more than one sexual partner with increased sexual activity.

Our study showed the higher incidence of carcinoma and preinvasive carcinoma of the uterine cervix in adivasi groups compared to urban population. The incidence reported from Gujarat is 4/1000, Bombay is about 6/1000 and 18/1000 in Columbia and South America while 1/1000 in Israel.

The age at marriage falls between 15 to 19 years in about 78 per cent of adivasi women while age at 1st pregnancy falls between 15 to 19 in 70 per cent of adivasi population while in urban population the age at marriage falls between 20 to 24 in 72 per cent and age at first pregnancy falls between 20 to 24 years in—65 per cent which is higher than the adivasi group studied.

So from this, it is very evident that the early age of marriage with the emphasis on early age of first coitus plays the most important role in increase incidence of carcinoma of the uterine cervix in adivasi poplation. Rotkin also have stated that sexual initiation before the age of 17 years was the most significant in all the studies reviewed by him.

Our Team of Doctors and social workers attending the Adivasi camps had taken interviews and personal histories regarding their life styles, socio-economic status and social customs. Over and above the early marriages with the result of coitus at younger age other important informations were obtained. In certain Adivasi population Polygamy is practiced and majority of this community live below the poverty line with the income less than Rs. 300 per month while in urban population the income is between Rs. 300 to Rs. 1000 per month. In addition to above factors, lack of availability of medical aid, lack of health education, poor sexual hygeine and no practice of circumcision favours the predisposition of carcinoma of the uterine cervix in this population.

Considering the rate of infection studied in both the groups, the difference is not remarkable. This emphasises that cervical infection has no direct correlation to predisposition of carcinoma cervix. Also Tomabasingh (1982) has mentioned that chronic cervicitis with or

without injury has no clear correlation to carcinoma cervix.

Conclusion

Adivasi population showed considerably higher incidence of carcinoma of the uterine cervix than urman population.

The age at marriage and age at first pregnancy fall in the early age group of 15 to 19 years in majority of Adivasi women, while in urban population the age at marriage and age at first pregnancy falls between 20 to 24 years in majority of women.

The socio-economic status is lower in Adivasi population than urban population.

Circumcision is not practiced in Adivasi population and they have no medical aid available. Also they live with poor hygenic conditions and illiteracy.

Cervical infection has no direct correlation to predisposition of the cancer of the uterin cervix while Herpes virus studies were not done because of lack of facilities.

The risk of development of carcinoma of the uterine cervix varies with the life style of an individual, social customs, community and geographical distribution. However all women must be considered to be the likely candidates for the disease and they all should be included in the screening programme of an early detection of cancer cervix as cancer of the uterine cervix is the disease of multi factorial aetiology.

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