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High Fertility: Risk Factor for Carcinoma Cervix

Dr. Radha Y. Aras and Dr. Nalini P. Pai

Introduction

Cancer of the cervix is the most prevalent form of cancer in developing countries, and accounts for 25 to 50 per cent of all cancers occurring in Indian women. It is the second most common type of cancer in women throughout the world, with approximately 500,000 new cases detected each year, many of them fatal.[B]

Early marriage, early coitus, early childbearing and repeated child births have been associated with the increasing risk of carcinoma cervix [A] [C] [D] [E] [F]. The somatic consequences of repeated pregnancies may also be exemplified in the clear association between the incidence of cancer of the cervix and high parity. Moreover, the natural history of cervical cancer is such that it seems to follow a progressive course from epithelial dysplasia to carcinoma *in situ* to invasive carcinoma [G]. Fortunately, it is possible to detect it early during a preinvasive curable stage by the Pap smear test, and to take measures to prevent it from progressing into a life-threatening illness. In view of this, family planning enables women to control the interval between births and limit family size so that close and repeated pregnancies are avoided, and their health is safeguarded.

This study then, attempts to assess the correlation between some fertility related factors and the risk of developing carcinoma cervix, as also the strength of the association if any. The findings are expected to support the health rationale of family planning thereby contributing to the reproductive health, and lives of women besides contributing to fertility decline.

Sample and Methodology

The study was conducted in the Shivajinagar community of Deonar, a peri urban area of Bombay, which has population of about 150,000 belonging predominantly to the lower socio-economic class, staying in authorized houses.

Early marriages (68 percent of girls were already married by the age of 18 years) and early fertility are conspicuous features of the community.

A total of 1,800 women above the age 25 years selected by systematic random sampling were called to the Shivajinagar Urban Health Centre (UHC) for a Pap Smear (PST). Subsequently, the medical worker visited them at home to seek participation in the study. A total of 483 women responded and visited the Health Centre for a Pap smear test. During the visit, information regarding their education, age at marriage, age at first pregnancy, total number of children, whether the husband one a circumcision, type of delivery, and frequency of intercourse were recorded.

The response rate for the Pap smear test was 34.6 per cent, much lower than that observed in developed countries where the response to an initial invitation for screening has been observed to be about 50 to 60 percent, possibly due to the higher female literacy. The response rate has also been reported to be the least in women thought to be most at risk - those who 'are the poorest and the least educated. Women showing potential carcinogenic changes in the form of dysplasia of the cervical epithelium, formed the study group and women having a normal cervical epithelium formed the control group. The study therefore comprised a total of 483 women of whom 52 women exhibited potential carcinogenic changes and formed the study or risk group, and 431 women with a normal epithelium who constituted the control group.

Results and Discussion

According to the descriptive histological classification recommended by the World Health Organization, the prevalence of cervical cancer in the sample was 13 per 1000 Women; in another low income group in a population, the incidence of cancer has been reported as 18 per 1000 [M]

As many as three-fourths of all respondents were illiterate. Illiteracy was significantly related to high parity (table not given, 67.7; $P < 0.001$) as observed in other Indian studies [I] [J] [K]. Similarly, as expected, age first pregnancy was significantly related, high parity. About 68 per cent 292 women) the 428 women who responded, reported to have conceived for the first time before 19 years of age; they had an average of 4.2 children as compared to 3.4 among women exposed to a first pregnancy at 20 or more years of age Table 1, g ^{2}= 23.4; $P < 0.001$).

Table 1: Distribution of Women by Parity and Age at First Pregnancy

Party	Age at First Pregnancy (in years)		
	Less than 19	20 & above	Total
1	16 (48.5)	17 (51.5)	33 (100.0)
2	37 (57.8)	27 (42.2)	64 (100.0)
3	47 (58.0)	34 (42.0)	81 (100.0)
4	74 (74.0)	26 (26.0)	100 (100.0)
5	44 (73.3)	16 (26.7)	60 (100.0)
6	37 (82.2)	8 (17.8)	45 (100.0)
7+	37 (82.2)	8 (17.8)	45 (100.0)
All	292 (68.2)	136 (31.8)	428 (100.0)

As seen from Table 2 which shows the association between the risk factors studied and potential carcinogenicity of the cervix, the prevalence of teenage marriage was 79.2 per cent and the risk of developing cervical carcinogenic changes was 4.19 times higher in women who had been married in their teens as compared to those who had entered matrimony after the age of 20 years (Table 2, relative risk = 3.67, attributable risk 72.8%; $P < 0.001$). Studies conducted in urban areas of India" have reported similar findings.

Table 2: Association of Various Risk Factors with Potential Cervical Carcinogenicity (Severe Cervical Dysplasia)

Risk Factor	Women Showing					
	Cervical Dysplasia	Normal Epithelium	Total Women	Relative Risk	Attributable Risk	Odds Ratio
Teenage Marriage						
Yes	56	291	347	3.67**	72.75	4.19
No	4	87	91			

More than three Children						
Yes	49	196	245	3.53***	71.8	4.16
No	11	183	194			
Frequency of Intecource +						
Yes	5	43	48	1.13**	11.54	1.146
No	34	335	369			
Two or more deliveries by instrument						
Yes	4	28	32	0.9*	-	0.893
No	56	350	406			
Husband Circumcised						
Yes	13	144	157	0.58*	-	0.544
No	39	235	274			

Relative risk was defined as the ratio of the incidence of the disease (or death) among an exposed and an unexposed group. Here, women with 4 or more children constituted the exposed group and those with 3 or fewer children formed the unexposed- group. Attributable risk was the difference in the incidence rates of the disease (or death) between an exposed and an unexposed group.

Multiparity (more than three children) was also observed to be a potential risk factor (Table 2, relative risk = 3.53,1 attributable risk = 71.65%, odds ratio =. 4.16). Similar observations have been reported in studies conducted in Orissa and Kanpur6in India, and in the Jamaican study. Though information regarding the frequency of intercourse was difficult to obtain, coital frequency also seemed to

pose a potential carcinogenic risk in these women. Thus, women who reported a coital frequency of more then twice a week were more likely to run the risk of contracting cervical cancer (Table 2, relative risk = 1.13, attributable risk = 11.54%; odds ratio = 1.15). The fact that cancer of the cervix is very common among prostitutes practically unknown among virgins suggests that the disease could be linked to sexual intercourse.

As believed by some, circumcision of husband does not offer any protection against carcinogenic changes in the cervical epithelium as is evident from our findings (Table2, relative risk=0.58;P>0.01) and as seen in the low income population of Jamaica.' [M] Likewise, the nature of the delivery whether normal or performed with of instruments was not related to carcinogenic risk.

Conclusion

High fertility is commonly observed, in lower socio-economic populations in which the prevalence of cancer cervix has been reported to be high. Hence a prospective study was conducted to find out the association and strength of association between high fertility and carcinoma cervix in its early incipient stage. The prevalence of early carcinoma cervix was 13 per 1000 in the study population, and teenage marriages (79.2%), teenage pregnancies (68.2%), and multi-parity (more than 3 children, 55.8%) were conspicuous risk factors.

All these risk factors are preventable. Awareness and health education regarding' these risk factors are important aspects of a cancer prevention programme for high risk groups in the community. This would further enhance family planning acceptance and promote the reproductive health of women. Such preventive services are part of reproductive health care and are in line with the recommendations of the Programme of Action endorsed by over 180 countries including India at the recent International Conference on Population and Development in Cairo, and should form an important component of our health and family welfare programme.

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