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Socio-demographic, reproductive and clinical profile of women diagnosed with cervical cancer in a tertiary care center in middle Kerala

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ABSTRACT

Background: Cervical cancer is a major health problem in rural India. Barriers to cervical cancer control in our country include a lack of awareness of the disease because of illiteracy, poverty, lack of health education and screening programme. The aim of the study was the clinical profile of women diagnosed with cervical carcinoma in a tertiary care centre in the middle part of Kerala in South India.

Methods: This prospective observational study was conducted in the Department of Obstetrics and Gynecology, Government medical college Thrissur for a period of two years from January 2014 to December 2016. The characteristics of patient (age, age at menarche and at marriage, parity, reproductive history, place of residence, income, education status, contraception, screening details, clinical presentation and tumor histopathology and stage were obtained. Data was entered in Excel and analysed.

Results: Among7224 new patients seeking care from the department, 104 new cases of carcinoma of uterine cervix were identified (0.71%). Mean age was 58.3±8.4 years. 79% women were from rural area. 73% were illiterate, 88.5% belonged to below poverty line (BPL). Post-menopausal bleeding was the commonest clinical presentation (78.8%). Squamous cell carcinoma was the commonest histologic type (88.5%). 50% had first coitus before age of twenty. 94.3% were not aware of any screening procedures and its importance. 67.31% of cases presented in the advanced stage (stage 2B-1V). 75.81% of late stage disease patients were rural population. 96.77% of late stage disease patients were from below poverty line.

Conclusions: Carcinoma cervix is more in the low socioeconomic class and rural elderly presented at an advanced stage. Ignorance about the disease and the lack of awareness of the risk factors, need and availability of screening programmes at low cost in Government health care systems was noteworthy. Government health care policies, health education, effective cancer prevention strategies and early cancer detection programmes are yet to reach the outskirts of rural population in Kerala.

Keywords: Carcinoma cervix, Squamous cell carcinoma, Poverty line, Post-menopausal bleeding

INTRODUCTION

In developing countries Cervical cancer is the commonest cancer causing death among women.^{2,3} One in every five women suffering from cervical cancer belongs to India. Cervical cancer is the 2nd leading female cancer in India with 122,844 new cases diagnosed annually and about

67,477 cervical cancer deaths annually. In the developed countries, successful implementation of prevention and screening programme has decreased both incidence and mortality of cervical cancer. But, in developing countries, over 80% of women with cervical cancer are still diagnosed at an advanced stage, which is significantly associated with poor prognosis. Barriers to effective

screening programme in country like India include a lack of awareness about the disease among the general population coupled with the geographical and economic inaccessibility to medical care. Epidemiologic and clinical data demonstrate that human papillomaviruses (HPV), especially HPV-16 and HPV-18, play a major in the etiology of cervical cancer. However, many investigators acknowledge that HPV is not sufficient to induce cervical cancer and that a multifactorial etiology is likely. Kerala is the twelfth most populated state in India with a population of 33.8 million and 12.7% of them being below poverty line (BPL) according to 2011 census. The overall literacy rate is 93.91% compared to the national average of 74%. In Kerala, Health indices are far better compared to the National data.3 Carcinoma cervix is a preventable disease since it occurs in an accessible part of the body, which is amenable to simple reliable screening and has a long premalignant period. In light of this, one would expect the incidence of carcinoma cervix to be low in Kerala and, even if present, to be detected at an early stage. It is also important to assess how effective is our cancer awareness programme and cancer screening strategies in reducing cervical cancer morbidity and mortality.

So this prospective observational study was undertaken to study socio-demographic, reproductive and clinical profile of women diagnosed with cervical carcinoma.

METHODS

This prospective observational study was conducted in the Department of Obstetrics and Gynecology, Government medical college Thrissur for a period of two years from January 2014 to December 2016.

Among new patients seeking medical care from the department during the study period, newly diagnosed cases of carcinoma uterine cervix confirmed with histopathology were included in the study. Previously diagnosed cases and those who underwent any modality of treatment earlier and those who did not give consent for study were excluded.

Socio-demographic profile, reproductive, menstrual history and clinical profile were assessed with the help of structured. pretested questionnaire. semi demographic profile included age in completed years, education and employment status. Socioeconomic status was assessed using the ration card issued by the Kerala state government based on poverty line. Poverty line is an economic benchmark and poverty threshold used by the government of India to indicate economic disadvantage and to identify individuals and households in need of government assistance and aid. Based on Socio Economic status patients were grouped into APL or BPL. A household with an annual earning of less than Rs. 27,000 is included in the BPL (Below Poverty Line) group. The households that possess a BPL card benefit from various welfare schemes of Government. All others are included

in the APL (above poverty line) group. RSBY (Rashtriya Swasthya Bima Yojna) scheme of Government of India along with Comprehensive Health Insurance Scheme for (CHIS) protect below poverty line (BPL) households from major health shocks that involve hospitalization. Specifically, BPL families are entitled to more than 700 in-patient procedures with a cost of up to 30,000 rupees per annum for a nominal registration fee of 30 rupees. A separate agency "Comprehensive Health Insurance of Kerala" (CHIAK) is created for Agency implementation of the scheme in Kerala where both APL and BPL can register under the scheme to get the benefit. We evaluated how many patients had registered under RSBY scheme. Reproductive profile included number of pregnancies, contraceptive methods used, staying with husband, widowed, divorced, age of marriage, age of first intercourse and age of first delivery. Whether cytology screening (papinicolou smear-pap smear) was done at any time previously was also evaluated. Clinical profile included Presenting symptoms, General physical examination, abdominal examination, speculum examination, bimanual pelvic examination and recto vaginal/ rectal examination. Clinical staging was done based on staging system of the International Federation of Gynecology and Obstetrics (FIGO). Patients in stage 1 to 2A were considered as in early stage disease and those in stage 2B to stage 4 as advanced stage of disease. Diagnosis was confirmed by biopsy.

Statistical analysis was done using excel. Qualitative data was shown as percentage and quantitative data as Mean with SD.

Institutional Ethics Committee approval was obtained from Government Medical College Thrissur prior to initiation of the study and written informed consent was obtained from the patients after detailed explanation about the study. Patient confidentiality was assured and had the right to abstain from participation without affecting the quality of care provided to them.

RESULTS

Out of 104 cases of carcinoma cervix 38 cases (36.5%) belonged to the age group of 50 to 60, 44 cases belonged to age group of 60 to 70 (42.3%). Mean age of presentation was 58.3±8.4 years (Table 1). 92cases (88.5%) of Carcinoma Cervix belonged to BPL category, and only 12cases (11.5%) belonged to APL category. Among BPL category only 44 patients had RSBY card (47.82%), Among APL patients 2 patients had RSBY card (16.6%).

79% of people belonged to rural area and 21% belonged to urban area. 73% were illiterate and another 22% had only lower primary education. 92.3% were manual laborers and 7.7% were semiskilled labourers.86% were Hindus and 13.46% Muslims. Socio-demographic profiles of patients are given in Table 1.

Reproductive profiles of patients are given in Table 2. 50 out of 104 cases of carcinoma cervix (48.07%) had their marriage before 20 years. They also had first coitus

before the age of twenty. Mean age of first child birth was 22.7±3.7 years.58.27% women were para 3 or more. 19.3% were widowed or separated.

Table 1; Socio-demographic features of patients with carcinoma cervix.

Socio-demographic	characteristics	Number	Percentage
Age	<40	4	3.8
	40-50	16	15.5
	50-60	38	36.5
	60-70	44	42.3
	>70	2	1.9
Income	BPL*	92	88.5
	BPL	12	11.5
	RSBY † -BPL	44	47.82
	RSBY-APL ‡	2	16.6
Place	Rural	82	78.8
	Urban	22	21.2
Education	Illiterate	76	73
	Lower primary	22	21.2
	Upper primary	6	5.8
Occupation	Manual labour	96	92.3
	Semiskilled labor	4	7.7
Religion	Hindu	86	82.69
	Muslim	14	13.46
	Christian	4	3.85

^{*}BPL –Below poverty Line, † RSBY (Rashtriya Swasthya Bima Yojna) scheme of Government of India, ‡APL-Above poverty Line. The households that possess a BPL card benefit from various welfare chemes of Government. RSBY (Rashtriya Swasthya Bima Yojna) scheme of Government of India protect below poverty line (BPL) households from major health shocks that involve hospitalization.

Table 2; Reproductive profile of patients with carcinoma cervix.

Parameter	Total=104	Number	Percentage
	<20 year	52	50.0
Age of marriage	20-30 year	50	48.1
	>30 year	2	1.9
Mean±SD	21.1±3.5 year		
A 6 6°4 '4	<20 year	52	50.0
Age of first coitus	20-30 year	50	48.1
	>30 years	2	1.9
Mean±SD	21.1±3.5 year		
Age of first child birth	<20 year	26	25.0
	20-30 year	72	69.2
	>30 year	6	5.8
Mean±SD	22.7±3.7		
Marital status	Staying with Husband	84	80.8
	Widowed	14	13.5
	Separated	6	5.8
Number of childbirth	1-2	43	41.73
	3-4	61	58.27
Contraception use	No contraception	20	19.2
	Condoms/ Nirodh	60	57.7
	OCP'S*	16	15.4
	IUCD†	6	5.8
	Vasectomy of spouse	2	1.9

^{*}Oral contraceptive pill (OCP); † IUCD (intra uterine contraceptive device).

60 cases out of 104 cases of carcinoma cervix had used condoms as the method of contraception. This accounts for 57.7% of cases. 15/104 cases (15.4%) had used oral contraceptive pill (OCP) and 19.2% had not used any sort of contraception at all.

Comorbidities and behavioral risk factors for carcinoma cervix are given in Table 3.

Table 3: Comorbidities and behavioral risk factors for carcinoma cervix*.

Risk factors	Number	Percentage
No	70	67.31
Diabetes	6	5.77
Hypertension	14	13.46
Pan chewing	6	5.77
Smoking	3	2.88
Alcoholism	2	1.92
HPV Warts	3	2.88

Table 4: Cytology screening (pap smear) in patients with carcinoma cervix.

Cytology screening	Number	Percentage
Pap smear done (at least once)	6	5.7%
Pap smear not done	98	94.3%
Total	104	100%

Cytology screening (pap smear) in patients with carcinoma cervix is shown in Table 5. Out of total 104 cases of carcinoma cervix, only 6 cases (5.7%) had pap smear at least once in their life time and the report was normal. The rest 94.3% were not aware of such screening procedures and its necessity.

Table 6: Symptoms at presentation of patients with carcinoma cervix.

Presenting complaints	Number	Percentage
Irregular vaginal bleeding	14	13.5
Post-menopausal bleeding	82	78.8
Post coital bleeding	28	26.9
Vaginal discharge serous/watery/blood stained	50	48.1
Offensive discharge	12	11.5
Loss of appetite	2	1.9
Total	104	100

Symptoms at presentation of patients with carcinoma cervix are given in Table 7. 82 patients out of 104 cases

presented with post-menopausal bleeding (78.8%). Next common presentation was with serous or watery discharge per vaginum in 48.1% (50 out of 104 cases). 26.9% (28 out of 104 cases) presented with post coital bleeding.13.5% had irregular vaginal bleeding and 11.5% had offensive discharge per vaginum.

Table 8: Nutritional status according to BMI in patients with carcinoma cervix.

BMI*	Number	Percentage
Under weight	2	1.9
Normal	86	82.7
Overweight	16	15.4
Mean±SD	21.4±2.1	

^{*}BMI-body mass index.

Nutritional status according to BMI in patients with carcinoma cervix is given in Table 6. Mean BMI was 21.4±2.1. 82.7% had normal BMI (18.5-24.9).Two patients among 104 (1.9%) were under weight (<18.5) and 15.4% were overweight (25-29.9).

Table 9: Histologic subtypes of carcinoma cervix.

Histologic subtypes	Count	Percentage
Large cell keratinizing	52	50%
Large cell non keratinizing	40	38.5%
Small cell carcinoma	2	1.9%
Adenocarcinoma	8	7.7%
Neuroendocrine	2	1.9%
Total	104	100

Stage of carcinoma cervix at diagnosis is given in Table 10.

Table 10: Stage of carcinoma cervix at diagnosis.

Stage	Count	Percentage
1	14	13.46
11A	28	26.92
11B	22	21.15
111 A	18	17.31
111 B	12	11.54
1V	10	9.62
Total	104	100

Histologic Subtypes of carcinoma cervix is given in Table 11. Squamous cell carcinoma was the commonest histology type (88.5%). 52 out of 104 cases (50%) were large cell keratinizing carcinoma, 40 out of 104cases (38.5%) were large cell non keratinizing. 7.7% was adenocarcinoma. 1.9% was of neuroendocrine type.

13.46% was in stage 1 and 48.07% in stage 2. 28.85% of patients were diagnosed in stage 3 and 9.62% in stage 4. Among total of 104 cases, 40.38% cases presented in early stage (stage 1-2A) and 59.62% presented in the advanced stage (stage 2B -1V).

Table 12; Economic status and rural urban distribution of stages of carcinoma cervix.

Character	Number	Percentage
Early stage (Stage 1-2A)	42	40.38
Rural	31	73.80
urban	11	26.19
BPL*	32	76.19
APL†	10	23.81
Late stage (Stage 2B –1V)	62	59.62
Rural	47	75.81
Urban	15	24.19
BPL	60	96.77
APL	2	3.3
Total cases	104	100

Economic status and rural urban distribution of Stages of carcinoma cervix is given in Table 13. 73.80% of early stage and 75.81% of late stage disease patients were rural population. 76.19% of early stage and 96.77% of late stage disease patients were below poverty line.

DISCUSSION

Cervical cancer is an important cause of morbidity and mortality among females worldwide, more so in developing countries. Among 7224 new patients seeking care from the department, 104 new cases of carcinoma of uterine cervix were identified (0.71%). Mean age of patients with carcinoma cervix in our study was 58.3 ± 8.4 years. (36.5%) belonged to the age group of 50 to 60 years and 42.3% to age group of 60 to 70 years. A rise in Cervical Cancer was seen with increasing age and parity and early and prolonged sexual period. As cervical cancer slowly progresses from precancerous conditions to advanced cancer, it reaches a peak in women in their 50s and 60s.

52 patients (50%) got married before the age of 20 years and had first coitus before age of twenty. Mean age of first child birth was 21 years. Early sexual intercourse that results in more frequent and prolonged sexual activity especially in the young cervical tissue is much susceptible to oncogenic change especially by HPV.

Majority of our patients were multiparous (58.27%) and from a rural (78.8%) background. The increased levels of estrogen and progesterone for more prolonged periods during pregnancy in multiparous women may be reason for increased risk of carcinoma cervix in multiparous women.⁵ Grand multiparity featured prominently in a study from Benin City.⁹ High parity has long been suspected of being associated with an increased risk of cervical cancer.¹ Our study is consistent with the study

done by Srivastava et al which showed that carcinoma cervix is a disease of higher parity probably due to the fact that repeated micro trauma and HPV infection leads to carcinoma cervix.

In this study (88.5%) belonged to BPL (below poverty line) category. Poverty, low socioeconomic status, poor genital hygiene, lack of awareness of healthcare and lack of access to health services may be contributing to the high prevalence in rural areas. 10 This emphasizes the need for proper education to women of low socioeconomic class for creating awareness regarding hazards and risk factors of cervical cancer as well as management and cure of the disease. 7,11 Majority (73%) were illiterate. This is consistent with study by Kaverappa et al and Rajarao et al. A lower education level results in lack of awareness regarding the disease and lesser utilization of available health services and presentation at an advanced stage of the disease. Only 47.82% of BPL and 16.6% of APL category had RSBY card (health insurance card). This statistics shows underutilization of benefit of health insurance. So there is urgent need to strengthen the awareness about cervical cancer, screening for the disease and availability and accessibility of treatment facilities at low cost to the illiterate, poor rural population. Periodic auditing is very important to see whether the healthcare policies of government is properly implemented and utilized by the people in low socioeconomic class

Majority of the women diagnosed with cervical cancer were Hindus by religion (82.69%). 13.46% were Muslims. This findings corresponds with the results of a similar studies conducted.^{7,12}

57.7% of women had used condoms as the mode of contraception. But lack of protection may be due to inconsistent use. ¹³ 15.4% had used OCP's for contraception. Long-term use of oral contraceptives could be a cofactor that increases risk of cervical carcinoma by up to four-fold in women who are positive for cervical HPV DNA. In the absence of worldwide information about HPV status, extra effort should be made to include long-term users of oral contraceptives in cervical screening programme. ¹⁴ This is due to the fact that estrogen content in OCP increases proliferation of cells and increases longitivity and reduces the turnover which predisposes to the perpetuation of HPV virus hence progresses to carcinoma cervix

As seen in other studies squamous cell carcinoma (88.5%) was the most common histological types of cervical carcinoma, 50% being large cell keratinizing type amenable to radiotherapy and 7.7% were adenocarcinoma. 8,13

Most common presentation was with post-menopausal bleeding (78.8%; 82 out of 104 cases). 50 out of 104 cases presented with serous or watery discharge per vaginum (48.1%), 26.9% (28 out of 104 cases) complained of post coital bleeding. Abnormal vaginal bleeding, offensive vaginal discharge and post-

coital bleeding were the most common symptoms in a study from Nigeria. ¹⁵

Only 6 cases (5.7%) had done pap smear at least once previously. All of them had negative report. The rest 98 cases (94.3%) did not know about pap smear or any other screening method. More intensive implementation of cytological screening can go a long way in reducing the incidence of carcinoma cervix cases in our rural population. Limitations of pap smear as a screening method are high false-negative rates, low sensitivity, subjective interpretation, and low predictive value, as one-third of women who progressed to cervical cancer had a normal pap smear. The pap smear has lost its dominance in cervical cancer prevention programs in both developed and developing countries and HPV-based screening is more effective than cytology-based screening. If

In our study 96.77% of late stage disease patients were below poverty line. Carcinoma of the cervix is an important cause of avoidable cancer deaths in older women in the developing countries including India. There is an imperative need for identifying prevalence of asymptomatic cervical dysplasia in our population. Effective low cost methods for cervical cancer prevention have a place in reducing the incidence of this deadly disease. A meta-analysis of social inequality and the risk of cervical cancer showed a 100% increased risk in the low-social-class categories for the development of invasive cervical cancer. Although this difference was observed in all countries, it was stronger in low- and middle-income countries.²

CONCLUSION

Illiteracy, low socioeconomic status, early sexual activity and multiparity were associated with cancer cervix. Early diagnosis by screening including HPV-based screening and timely management of cervical cancer is to be stressed for better outcome.

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Ethical approval: The study was approved by the Institutional Ethics Committee of Government Medical College Thrissur

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