Factors Associated with Delayed Reporting of Invasive Carcinoma Cervix in a Rural Tertiary Care Center

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About the Author

Dr. K. R. Radha at present is working as an Associate Professor in the Department of Obstetrics and Gynecology, Government Medical College Thrissur, Kerala, India. She graduated from Government Medical College Kozhikode, Kerala and completed her postgraduation from the same college. She has been accepted as a guide for the postgraduate thesis works and evaluation of the same. Dr. Radha has been a Member of the Institutional Research Board of the Govt Medical College, Thrissur for the last 3 years, evaluating project works of students as well as of faculties in the institution. She has served as External and Internal Examiner for undergraduates and is especially interested in problems of postmenopausal women, and currently involved in the study of Carcinoma Cervix.

Abstract

Background The delay in detection of premalignant and malignant lesions can have an adverse impact on the outcome of carcinoma cervix. In spite of relatively good healthcare facilities, women in Kerala continue to report in advanced stages of cervical malignancy.

Objective To analyze factors associated with delayed reporting and to evaluate awareness about screening and vaccination programs for prevention of carcinoma cervix.

Method A cross-sectional study design was used to evaluate the subjects diagnosed to have carcinoma cervix in the outpatient Department of Obstetrics and Gynecology, Government Medical College, Thrissur, Kerala for a period of two years. One-hundred and fifteen women diagnosed to have invasive carcinoma during the study were evaluated. Data analysis was done and expressed as means and percentages.

Results One-hundred and fifteen women participated in the study. Only 26 (21.7 %) of the subjects were diagnosed in a relatively early stage, i.e., up to stage 2a. Most of them were from families living below poverty line (63.9 %) and were either widowed or divorced (57.3 %). Illiteracy was common (48.9 %) among them, and many (71.3 %) worked as manual laborers. None of the subjects was aware about the availability of screening and vaccination programs for prevention of carcinoma cervix.

Conclusions There is a wide gap between the awareness of availability of healthcare and its proper utilization by the

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poor. Scaling up of public awareness of preventive programs and the availability of healthcare facilities are essential to enable the timely utilization of such services to facilitate early detection of invasive carcinoma cervix.

Keywords Invasive carcinoma cervix · Pap smear · VIA · HPV vaccine

Introduction

Cervical cancer is the fourth commonest cancer in women, seventh in overall cancers, with an estimated 528,000 new cases being reported in 2012 worldwide. There was an estimated 266,000 deaths from cervical cancer worldwide in 2012 accounting for 7.5 % of all female cancer deaths. In India, 123,000 new cases, 67,000 deaths, and 5-year prevalence of 309,000 were reported in 2012 [1].

Invasive carcinoma cervix is a preventable disease since it occurs in an accessible part of the body, has a long premalignant period, and can be detected early with the availability of sufficiently reliable screening methods. Curative treatment for pre-invasive lesions and immunization against the causative agent, namely high-risk Human Papilloma Virus (HPV) is available. In spite of all this, the incidence and mortality for cervical carcinoma are high. Low socioeconomic status, nonaccessibility of healthcare services, and lack of symptoms in early-stage disease leading to late reporting have been cited as causes.

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 %. The difference in literacy rate in urban (94.9 %) and rural (92.9 %) population is negligible. Kerala is one of the Indian states with a very high female-to-male sex ratio (1084 females to 1000 males) and a female literacy rate of 92 % against the national average of 53.7 % [2].

The public health infrastructure of Kerala includes seven medical colleges, 16 general hospitals, 15 district hospitals, 17 TB centers, 77 taluk hospitals, 233 Community Health Centers, 874 Primary Health Centers, and 5403 Sub-centers providing modern medicine. The doctor-to-bed ratio is 7.28, and bed-to-population ratio is 893 [3]. In addition, there are 19 private medical colleges, numerous multispecialty hospitals, and clinics in the private sector. If the other systems of medicine like ayurveda, homeopathy, etc. are included, there is no dearth for healthcare in Kerala.

Health indices are far better compared to the national data, and Kerala has already attained millennium goals in terms of Maternal Mortality Ratio, neonatal mortality, and infant mortality. In light of this, one would expect the incidence of carcinoma cervix to be low and, even if

present, to be detected in early stages. On the contrary, there are a number of subjects with advanced stages of the disease attending public healthcare institutions, and hence we decided to look into the sociodemographic profiles of these women.

Materials and Methods

A cross-sectional study design was used to evaluate factors associated with delayed reporting of invasive carcinoma cervix in the Department of Obstetrics and Gynecology, Government Medical College, Thrissur, Kerala, from January 2012 to December 2013. All women diagnosed to have carcinoma cervix by histopathology and consenting to be part of the study were included. Women having carcinoma cervix due to recurrence or metastasis from other malignancies were excluded. Variables analyzed included presenting symptoms, duration, stage of disease at diagnosis, socioeconomic status, utilization of insurance coverage offered free by the government and education. Making use of facilities for prevention, viz. screening with pap smear/biopsy cervix prior to diagnosis and awareness regarding symptoms of carcinoma cervix; pap smear; and HPV vaccine were also assessed. Results were expressed as means and percentages, and statistical significance was calculated using software EpiInfo.

Results

During the study period of 2 years, 13,411 women attended the outpatient Department of Obstetrics and Gynecology. One-hundred and twenty nine women were detected to have carcinoma cervix. Out of these, 116 women consented to take part in the study (one was excluded as she presented with recurrence of carcinoma cervix).

Out of 115 women, 68 (59.1 %) came directly to our outpatient department, while 47 (40.9 %) were referred from periphery. All were brought to the hospital by close relatives (Table 1).

Average age at incidence of all stages was 61.95. Age varied from 40 to 85 years, with a maximum incidence between 50 and 69 years accounting for 67.8 % of the women. 5.2 % women were aged 80 and above. Most women were in the menopausal age group [(103 women (89.6 %), and only 12 (10.4 %) women were premenopausal at the time of diagnosis. The average age of menopause in those involved was 45.6 years. The ration card issued by the government was taken as the reference for evaluating the socioeconomic status. 73.9 % women were below poverty line, of whom only half of them got the benefit of health insurance (Rashtriya Swasthya Bheema Yojana—RSBY). 49 (42.6 %) of the subjects were living

Table 1 Malignancies among women attending outpatient Department of Obstetrics and Gynecology at Government Medical College, Thrissur, during the years 2012 and 2013

Type of cancer	No of women	Percentage (%)
Carcinoma cervix	129	1
Carcinoma ovary	106	0.8
Carcinoma endometrium	66	0.5
Uterine sarcoma	9	0.1
Total malignancies	310	2.3

with their partners, and 66 (57.3 %) were single. Among the single women, two were unmarried (1.7 %), 57 were widowed (49.5 %), and seven divorced (6.0 %). 82 (71.3 %) women were unskilled labourers working outside

their homes, while 30 (26.0 %) were home makers. Only three women did semiskilled work. Majority of women were Hindus 103 (89.6 %). There were seven Christians and five Muslims. The sociodemographic profiles of women having early-stage disease were compared with women having late-stage disease, and there was no statistical significance (Tables 1, 2).

Reason for reporting was bleeding in 70 women (60 had post menopausal bleeding and 10 had intermenstrual bleeding) and discharge per vaginum in 20 women. Rest of the women had nonspecific symptoms like low backache, abdominal discomfort, vomiting, and loss of appetite.

27.6 % women reported in early stages (stage 2a or lower), and 39.3 % women in late stages after 3 months of onset of symptoms. This was not statistically significant

Table 2 Social demographic features of women having carcinoma cervix

Variables	No ^a			Percentage (%)			
Stage of disease							
1a			1			0.9	
1b ₁			5			4.4	
1b ₂			10			8.7	
2a			10			8.7	
2b			40			34.8	
3a			3			2.6	
3b			35			30.4	
4a			5			4.4	
4b			6			5.2	
Variables	No ^a			Percentage (%)			P value
	Early (no.)	Late (no.)	Total (no.)	Early (%)	Late (%)	Total (%)	
Age group							
40–49	5	8	13	19.2	9	11.3	0.06
50–59	10	25	35	38.5	28.1	30.4	
60–69	7	36	43	26.9	40.4	37.4	
70–79	3	15	18	11.5	16.9	15.7	
80–89	1	5	6	3.8	5.9	5.2	
Socioeconomic status							
No ration card	0	4	4	0	4.5	3.5	0.48
BPL	22	63	85	84.6	70.8	73.9	
APL	4	22	26	15.4	24.7	22.6	
BPL with RSBY	12	34	46	46.2	38.2	54.1	
APL with RSBY	0	3	3	0	3.4	11.5	
Educational status							
Illiterate	12	45	57	46.2	50.6	49.6	0.55
Primary	7	27	34	27	30.3	29.6	
Upper primary	4	10	14	15.4	11.2	12.2	
High school	3	7	10	11.5	7.9	8.7	
Plus two/above	0	0	0	0	0	0	

^a Total no of women 115

Table 3 Distribution of symptoms in women with invasive carcinoma of cervix

Predominant symptoms in women with invasive carcinoma of cervix	No of women ^a	Percentage ^a
Abnormal bleeding	33	28.7
Abnormal discharge	24	20.9
Bleeding + discharge	44	38.3
Abdominal pain	15	13.0
Low back ache	17	14.8
Uremia	6	5.2
Mass per abdomen	1	0.9

^a Some women had multiple symptoms

Table 4 Duration of symptoms in early and late stages

Duration	Early stages		Late stages	
	No of women	%	No of women	%
No symptom	1	3.9	0	0
≤1 month	3	11.5	20	22.5
1–3 month	14	46.2	34	40.5
4–6 month	2	11.5	16	15.8
7–12 month	3	11.5	10	11.3
>1 year	3	15.4	9	10.1
Total	26	100	89	100

(*P* value 0.85) Majority of them had discharge/low back pain/abdominal pain earlier which was ignored and later reported when bleeding started. Two women with bleeding were late to report because bleeding was negligible in amount and episodic and reported later with massive bleeding. Six women were diagnosed with uremia (Tables 3, 4).

11 (12.4 %) subjects in late stages had nonspecific complaints like anorexia, abdominal discomfort, fever, vomiting, etc., which contributed to delay in reporting and diagnosis (Table 5).

Women who presented in early stages had proliferative growth (53.9 %) and endocervical carcinoma, while indurated type (51.7 %) was more common in late stages. The morphological difference between early and late stage diseases is highly significant statistically (*P* value 0.00059) (Table 6).

Of the 115 women, only three had done pap smear previously. Among these three, one woman in spite of being informed that the result was abnormal, did not report for further follow-up. The second lady did not collect the result, and the third one was diagnosed with microinvasive carcinoma (stage 1a₁) None of the 115 women was aware about the availability of an HPV vaccine for prevention of carcinoma cervix, and only two of them (1.7 %) had heard about pap smear screening test.

Table 5 Distribution of symptoms in early and late stages

Symptoms	Early stages		Late stages	
	No of women	%	No of women	%
Bleeding	4	15.4	29	32.6
Pain	3	11.5	11	12.4
Discharge	10	38.5	22	24.7
Bleeding + discharge	6	23.1	12	13.5
Pain + discharge	1	3.9	3	3.4
Bleeding + pain + discharge	1	3.9	1	1.1
No symptoms	1	3.9	0	0
Anorexia	0	0	2	2.3
Fever/vomiting	0	0	1	1.1
Pain + abdominal distension	0	0	2	2.3
Dysuria	0	0	1	1.1
Cachexia	0	0	5	5.6

Table 6 Relation between morphology of growth and stage

Morphology of growth	Early stages <2a		Late stages >2b	
	No. of women	%	No. of women	%
Indurated	4	15.4	46	51.7
Proliferative	14	53.9	30	33.7
Ulcerative	1	3.9	8	9
Endocervical carcinoma	6	23.1	5	5.6
Apparently normal cervix	1	3.9	0	0
Total	26	100	89	100

P value 0.00059

Discussion

Carcinoma cervix is still the commonest genital malignancy and twice as common as uterine cancer. A majority of the women affected by carcinoma cervix were below poverty line (BPL) (73.9 %), Illiterate (49.6 %), and single (57.3 %). This social disadvantage probably limited their accessibility to health care. Late reporting was due to lack of awareness of available prophylactic measures and ignorance about symptoms. The fact that only 54 % of the deserving BPL patients made use of government welfare programs, like Rashtriya Swasthya Bima Yojana (RSBY), indicates that these Government programs do not reach the needy.

Most alarming symptom was bleeding especially post-menopausal bleeding which prompted them to report while discharge per vaginum was the most neglected symptom, and most of them reported only when there was blood stain, foul smell, or pain. Nonspecific complaints like backache,

abdominal discomfort, etc., often resulted in delay in reporting until they developed serious problems like uremia or renal failure. Subgroup analysis of women having early versus late stage diseases showed that women with higher stages were slightly older, but this was not statistically significant. Women in late-stage disease had morphologically different types of carcinoma compared to early-stage disease, and this was statistically significant.

Our study results are comparable with studies reported from other parts of India [4], and other Asian and African countries, like Pakistan [5] and Nigeria [6], where there were no definite screening programs. Universal screening by pap smear, has decreased the incidence of carcinoma cervix by 50–60 % and mortality by 21–43 % in developed countries like the UK [7]. This decreasing trend is more evident in the age group of 50–64 years. Screening also resulted in an increased detection of cases in early and in situ stages [8–11]. More over, studies from India have shown the efficacy of low-cost screening methods like Visual inspection with acetic acid (VIA) [12] and visual inspection with Lugol's iodine (VILI). In a country like India, where the financial burden is mostly met by individuals, methods like VIA or VILI can be adopted.

Universal screening for carcinoma cervix with Pap smear alone continues to be debated and will pose huge financial burden to our country. Free services are offered in all public-run hospitals, Regional cancer centers, and at randomly held Cancer Detection camps throughout the state. The problem of under-utilization of services can be overcome through increased publicity programs, highlighting the absence of symptoms in early genital malignancy, the need for routine gynecological checkup between the ages 30 and 45 years, and prophylactic measures available through audiovisuals. Healthcare workers should intensify their field work to mobilize women to avail these services. This measure will substantially help in the early detection of premalignant lesions and early malignancy, and reduce the incidence of advanced carcinoma.

Conclusion

The sociodemographic profile of women having carcinoma cervix in Kerala is not different from other states of India and typical of countries where there are no definite screening programs in place. Spreading awareness regarding the need for a gynecological checkup in the age group of 30–45 years, and availing low-cost screening techniques like VIA/VILI will help in the early detection and in reducing the incidence of invasive cancer of cervix. Policymakers and executives of the programs have to find effective ways to ensure the utilization of such services.

Limitation of the Study

Since our institution is a tertiary care center situated in a rural area, with most of the women seeking care belonging to low- and low-to-middle-income groups, the incidence may not reflect that of the population in general.

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Compliance with Ethical Standards

Ethical approval The first author had received financial assistance for this work from Institutional Research Board, Govt medical college Thrissur, Kerala, India. No ethical issues are involved as the document doesn't contain any information regarding the identity of the women. Also Informed consent is taken from the patients. All procedures followed were in accordance with the Ethical standards of the institutional review board.

Conflict of interest The co author Dr. Reena has no conflict of interest.

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