

# Profile of cervical cancer patients attending Tertiary Care Hospitals of Mangalore, Karnataka: A 4 year retrospective study

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## Abstract

**Objectives:** To describe the sociodemographic characteristics and clinical profile of women presenting with cervical carcinoma and to identify factors associated with the timing of presentation and prognosis. **Materials and Methods:** A record-based descriptive study was carried out from 1<sup>st</sup> February to 31<sup>st</sup> March 2014 at Tertiary Care Hospitals of Mangalore. The study population included women who were diagnosed with cervical carcinoma from January 1, 2010 to December 31, 2013. A pretested data extraction sheet aimed at collecting information from the inpatient records was used as the study instrument. The collected data were entered and analyzed using SPSS version 16.0. **Results:** A total of 227 patients were included in the study. Mean (Standard Deviation) age of diagnosis of cervical cancer was found to be 55 ± 11 years. Majority of the women were Hindus (88.5%) and 51.0% of the women had occupational activities out of which manual labor was the most common. Forty-eight percent of the patients presented in the late stages. Squamous cell carcinoma was found to be the most common histological type. It was also observed that a slightly higher proportion of women with an age >49 years presented in late stages of the disease ( $n = 70$ , 48.6%) compared to women <49 years of age ( $n = 28$ , 46.7%); however, the difference was not statistically significant ( $P = 0.800$ ). **Conclusions:** Our study found out a higher proportion of late presentation by the patients. It emphasizes the need for the development and implementation of an efficient screening cum prevention program for cervical cancer and to continue active research in the domains of identifying all possible risk factors and steps to mitigate them.

**Key words:** India, retrospective studies, risk factors, uterine cervical neoplasms

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## INTRODUCTION

Cervical cancer is a malignant neoplasm arising mainly in the transformation zone of the cervix. Cervical cancer is of several types such as squamous cell carcinoma (SCC), adenocarcinoma, adeno-squamous carcinoma and neuroendocrine carcinoma. However, SCC and adenocarcinoma constitute the greatest burden, globally as well as in India.<sup>[1]</sup> Cervical cancer is the second most common cancer among women worldwide after breast cancer.<sup>[2]</sup> However, it is the leading malignancy in women in India. Globally, cervical cancer was responsible for 275,000 deaths in 2008 with mortality to incidence ratio of 52%.<sup>[3]</sup> Nearly, 88% of these deaths occurred in developing countries where it is the tenth most common cancer. India has a disproportionately high burden of cervical cancer.<sup>[4]</sup> Although its age-standardized death rate of 9.5 deaths per 100,000 population is representative of global rates, it accounts for nearly one-third of global cervical cancer deaths.<sup>[5-7]</sup> It is the third largest cause of cancer mortality in India after cancers of the mouth, oropharynx and esophagus, accounting for nearly 10% of all cancer-related deaths in the country.<sup>[5]</sup> Among women, it is the leading cause of cancer mortality, accounting for 26% of all cancer deaths.<sup>[6,7]</sup> Nearly, 132,000 cases of cervical cancer occur each year in India, and annually more than 77,000 Indian women die of the disease.<sup>[8]</sup> By 2025, the number of new cervical cancer cases in India is projected to increase to 226,084.<sup>[9]</sup> According to IARC estimates, mortality from cervical cancer is expected to witness a 79% increase from 74,118 deaths in 2002 to 132,745 deaths by 2025.<sup>[5,10]</sup> Various etiological agents and risk factors are known to be associated with cervical cancer such as infection with human papillomavirus (HPV) and other viruses, smoking, early sexual debut, multiparity, immunosuppression, nutritional deficiencies, oral contraceptives, and low socioeconomic status.<sup>[11]</sup> The prevalence and burden of cervical cancer are much higher among women of low socioeconomic status as well as among rural women in India.<sup>[12,13]</sup> Cervical cancer has also been shown to have a linear relationship with age in developing countries.<sup>[14]</sup> It is commonly seen that HPV infections and precancerous lesions remain unnoticed with the result that many women present in the late stages of the disease with full blown cancer.<sup>[15]</sup> The probable causes for late presentation and poor prognosis of cervical cancer among women are varied. They include lack of awareness among women, cultural factors, lack of centralized policies regarding cancer prevention and HPV vaccination.<sup>[16]</sup> Western countries have seen a dramatic fall in the occurrence of cervical cancer due to widespread conduction of pap smears. In India, though there has been a steady fall in the incidence of cervical cancer, the rates are still high, especially in rural areas.<sup>[17]</sup> The purpose of this study was to

determine the sociodemographic characteristics of cervical cancer patients attending Tertiary Care Hospitals (TCH) as well as to identify the population groups that are more susceptible to develop carcinomas of the cervix so that clinicians can direct necessary interventions toward these particular groups.

## MATERIALS AND METHODS

This is a retrospective record-based study that was conducted from February 1, 2014 to March 31, 2014 in TCH associated with Kasturba Medical College (KMC), Mangalore. The population selected for this study included women who presented with cervical carcinoma from January 1, 2010 to December 31, 2013 at the above-mentioned hospitals. The cases of cervical carcinoma that presented with recurrence of the tumor were excluded from this study. A pretested data extraction sheet aimed at collecting information in relation to patient details (age, literacy, marital status, parity status, presenting symptoms, personal habits, staging of the disease, etc.) was used as the study instrument. The data were extracted from the inpatient records kept at the Medical Records Department (MRD) of the above-mentioned hospitals. Ethical approval was obtained from the Institutional Ethics Committee of KMC Mangalore, before starting the study. Since, we did not come in contact with individual patients, informed consent was not obtained. The investigators visited the hospital MRD and individually went through patient case sheets for available information and staged cancer as per Federation of Gynecology and Obstetrics criteria.<sup>[18]</sup> All the Collected information has been kept confidential. The information obtained from the pretested data extraction sheet was entered and analyzed using SPSS Version 16.0 (SPSS Inc., Chicago, IL, USA) and descriptive statistics such as mean, median and percentage were calculated. Association between variables of importance was tested using Chi-square test and a value of  $P < 0.05$  was considered as statistically significant.

## RESULTS

Two hundred and twenty-seven patients presented to the TCHs of KMC, Mangalore during the study period. The age of patients who presented with cervical cancer ranged from 28 to 85 years. The mean age of presentation was  $55.0 \pm 11.0$  years. A higher proportion of cases ( $n = 86$ , 38.4%) were associated with an age of presentation at 60 years or more. Out of the 227 cases recorded 201 (89.3%) were Hindus, 13 (5.8%) were Muslims and 10 (4.5%) were Christians. Among them, 113 (73.0%) women were manual laborers by occupation, while 39 (25.2%) were homemakers. A total of 126 (58.3%) women hailed from urban areas while 90 (41.7%) women hailed from rural

areas. Regarding the parity status, 136 (70.5%) women had a parity status between 1 and 4, while 52 (26.9%) women were grand multiparas and 5 women (2.6%) were nulliparous [Table 1].

Common presenting symptoms included postmenopausal bleeding ( $n = 102$ , 44.9%), white discharge per vagina was ( $n = 76$ , 33.5%) and abdominal pain ( $n = 75$ , 33.0%) [Table 2].

Regarding the staging of the disease, 107 (51.9%) women presented in the early stages (i.e., ranging from stages IA to IIB) of the disease, of which 67 (32.5%) women presented in stage IIB of the disease. Ninety-nine women (48.1%) presented in the late stages (i.e., ranging from stages IIIA to IVB) of the disease of which 63 (30.7%) women presented in stage IIIB of the disease.

Among the various histological types of cervical carcinoma, 177 (94.1%) cases were of SCC type out of which non-keratinized SCC ( $n = 75$ , 42.4%) was more common than keratinized SCC ( $n = 23$ , 13.0%). Adenocarcinoma was found among 10 (4.4%) patients [Table 2].

Regarding the types of treatment provided, 138 women (60.8%) were treated with monotherapy out of which radiotherapy was administered to 79 women (34.8%). Fifty-three women (23.3%) of the cases were treated with combined therapy out of which chemo-radiotherapy was the preferred treatment modality in 43 (18.9%) of the cases. Palliative care was given to only 2 women [Table 3].

A slightly higher proportion of women with an age >49 years presented in late stages of the disease ( $n = 70$ , 48.6%) compared to women <49 years of age ( $n = 28$ , 46.7%), however the difference was not statistically significant ( $P = 0.800$ ). Similarly, women with higher parity status (>4) showed a higher proportion of late presentation ( $n = 28$ , 57.2%) compared women with a lower parity status ( $n = 55$ , 42.8%), however, the comparison was not found to be statistically significant ( $P = 0.209$ ).

## DISCUSSION

Cervical cancer can develop in women of all ages, but it usually develops in women aged 35-55 years with the peak age for incidence varying with populations.<sup>[19]</sup> For example, as per a similar study done in Morocco 87.0% of the cervical cancer cases reported were of women age 40 years and over.<sup>[20]</sup> In India, the peak age for cervical cancer incidence is 45-54 years, which is similar to the rest of South Asia.<sup>[9]</sup> In our study, however, although the mean age was around 55 years, most women who presented with cervical cancer

**Table 1: Sociodemographic profile of the cervical carcinoma cases**

Attribute	n (%)
Age groups (n=224)	
20-29	001 (00.4)
30-39	013 (05.8)
40-49	054 (24.1)
50-59	070 (31.2)
≥60	086 (38.4)
Religion (n=225)	
Hindu	201 (89.3)
Muslim	013 (06.5)
Christian	010 (04.4)
Jain	001 (00.4)
Occupation (155)	
Manual laborer	113 (73.0)
Homemaker	039 (25.2)
Employee head-post office	001 (00.6)
Beedi maker	001 (00.6)
Agricultural farmer	001 (00.6)
Place of residence (n=216)	
Urban	126 (58.3)
Rural	090 (41.7)
Parity status (n=193)	
Nullipara	005 (02.6)
1-4	136 (70.5)
≥5	052 (26.9)

**Table 2: Clinical profile of cervical carcinoma cases**

Attribute	n (%)
Presenting symptoms <sup>a</sup>	
Postmenopausal bleeding	102 (44.9)
White discharge per vagina	076 (33.5)
Abdominal pain	075 (33.0)
Decreased appetite	032 (14.1)
Loss of weight	030 (13.2)
Inter-menstrual bleeding	027 (11.9)
Foul smelling discharge	022 (09.7)
Burning micturition	016 (07.0)
Backache	014 (06.2)
Constipation	012 (05.3)
Contact bleeding	011 (04.8)
Difficulty in micturition	010 (04.4)
Histological types of cervical cancer (n=188)	
Squamous cell carcinoma	177 (94.1)
Adenocarcinoma	010 (05.4)
Adeno-squamous carcinoma	001 (00.5)
FIGO staging of cervical carcinoma (n=206)	
IA	008 (03.9)
IB	018 (08.7)
IIA	014 (06.8)
IIB	067 (32.5)
IIIA	014 (06.8)
IIIB	063 (30.7)
IVA	018 (08.7)
IVB	004 (01.9)

<sup>a</sup>Multiple responses. FIGO: Federation of Gynecology and Obstetrics

were diagnosed at ages of 60 years or more. These findings are suggestive of either late diagnosis of cervical cancer or late occurrence of cervical cancer. Majority of the women diagnosed with cervical cancer were Hindus by religion. This

**Table 3: Treatment profile of patients with cervical carcinoma (n = 193)**

Treatment	n (%)	Overall n (%)
Monotherapy		
Chemotherapy	57 (29.5)	138 (71.6)
Radiotherapy	79 (40.9)	
Surgery	02 (01.1)	
Combined therapy		
Chemo-radiotherapy	43 (22.3)	053 (27.5)
Chemotherapy and surgery	06 (03.1)	
Radiotherapy and surgery	04 (02.1)	
Palliative care	02 (01.1)	002 (00.9)

corresponds with the results of a similar study conducted in Karimnagar, Andhra Pradesh.<sup>[21]</sup> An overwhelming number (49.8%) of the women who were diagnosed with cervical cancer were manual laborers by occupation while only 17.2% of the women were homemakers. This is in contrast with the study conducted in Morocco in which only 7.8% of the sample had professional activity, and 90.7% were homemakers.<sup>[20]</sup> The available knowledge suggests that, the prevalence and burden of cervical cancer is much higher among women of low socioeconomic status, as well as among rural women in India.<sup>[12,13]</sup> The results of this study, however, suggest that urban prevalence of the disease is more than rural prevalence. There can be two explanations for this, the first being the fact that there are increasing number of women who, along with their families, migrate to urban areas due to a better job prospective in urban areas. Second, the hospitals involved in this study are situated in Dakshina Kannada where 47.7% of the population reside in urban areas.<sup>[22]</sup> From this study as well as previously conducted similar studies, it is clear that multiparity is an important risk factor regarding development of cervical cancer in women. An effective way to reduce cervical cancer cases would be to educate women regarding family planning and birth control practices as number of children is usually a personal choice, the regulation of which would contribute to a decreased risk of developing cervical cancer. Another important finding is that majority of women presented in the later stages of the disease where prognosis is generally poor and treatment options are limited. Women should be educated regarding the common symptoms of cervical cancer and encouraged to consult a doctor at the earliest when faced with such problems. National screening programs for the detection of cervical cancer should be developed and implemented so as to reduce the increasing incidence of such cases. An overwhelming number of cervical cancer cases were of SCC histology. This finding corroborates with the existing knowledge that SCC is the most common histological type and resulting in radiotherapy being the preferred mode of treatment.

The main limitation encountered while performing our study was the lack of documentation of certain aspects

of personal history such as age at marriage, age at first intercourse, number of sexual partners, use of oral contraceptive pills, consumption of alcohol, smoking, etc. and investigations such as pap smear results and HPV infection. Lack of these variables limited the number of associations that could be drawn regarding populations at a high risk of developing cervical cancer. Nonetheless, this study brought to light certain findings that indicate certain socioeconomic and occupational variables that may contribute to the development of cervical cancer. It also highlighted the fact that a majority of Indian women are diagnosed at later stages of the disease thus strengthening the urgency for the development of a national screening program that aims at limiting cervical cancer in its early treatable stages. This study also shows that despite the relatively better health facilities in urban areas, women hailing from such areas are showing a higher prevalence of cervical cancer.

## CONCLUSION

Our study found out a high proportion of late presenters. Furthermore, there was a higher number of patients from the urban areas where most of the health facilities are located. Cervical cancer is preventable and curable if detected at an early stage. The 5-year survival rate of cervical cancer, when detected at the earliest stage, is 92%, and the combined 5-year survival rate for all stages is 71%. This emphasizes the need for a highly populated country like India to not only develop and implement an efficient screening cum prevention program for cervical cancer but to continue active research in the domains of identifying all possible risk factors and steps to mitigate them. Awareness generation regarding the cervical cancer prevention and treatment through the existing National Noncommunicable disease prevention and control program could help in the reduction of morbidity and mortality associated with this preventable cancer.

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## Conflicts of interest

There are no conflicts of interest.

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