

Sociodemographic and clinical profile of geriatric patients with cervical cancer—An audit from a tertiary cancer center in India

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ABSTRACT

Background and Aim: Cervical cancer is a major health problem among the female population worldwide. Its incidence among the elderly group of patients seems to be increasing. Sociodemographic along with clinical profile of patients is the first step in planning preventive and curative measures; we thus conducted a retrospective analysis of demographic and clinical profile of elderly patients suffering from cervical cancer visiting at our institute. **Patients and Methods:** Records of 88 elderly patients (age \geq 65 years) suffering from cervical cancer from the year 2011 to 2014 were analyzed for a sociodemographic profile, symptoms, histology, and staging. Fisher's exact test was applied using R software (version 3.5.2) for statistical analysis. **Results:** The median age of the cohort was 74 years. The majority of patients were from a rural background and were nonsmokers. All patients were multiparous. The most common presenting symptoms were discharge, bleeding from vagina and pain in the abdomen; present in 45 (51.13%), 25 (28.40%) and 18 (20.45%) patients, respectively. 78 (88.63%) patients had advanced stage (II, III, IV) at the time of presentation while the number of cases diagnosed at early stage were only 10 (11.36%). 69% had associated comorbidities. Prolonged duration of symptoms was also found to be associated with higher stage ($P < 0.05$). **Conclusion:** The study brings forth the background profile of the elderly patients suffering from cervical cancer. Since the majority of patients present in an advanced stage of disease appropriate preventive steps and also the possibility of initiating screening measures should be sought among an elderly group of cervical cancer patients.

Keywords: Cervical cancer, demography, elderly

Introduction

Cervical cancer is the fourth major health problem among women with an estimated 570,000 cases and 311,000 deaths in 2018 worldwide, as per GLOBOCON 2018.^[1] It is the second most common cancer in India with approximately 96,922 women diagnosed with cervical cancer every year and approximately 60,078 deaths from the disease.^[2] Cervical cancer is a disease of the younger population with the mean age of presentation

ranging between 50 and 56.7 years, as per the data from various hospital-based cancer registries (HBCR) of India.^[3] Patients aged 65 or above account for around 15% of all patients in these HBCRs.^[4] Though as per the United Nations (UN), a proposed cutoff of 60+ years is considered as the older population, WHO defines the elderly as age more than 65 years.^[5]

With the advancement in health care and medical science, the population of elderly patients is increasing. Compared with young patients, elder patients are more likely to have more advanced disease. A research-based on surveillance, epidemiology, and end results (SEER) database showed that for patients at the

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Received: 27-11-2019

Revised: 26-02-2020

Accepted: 03-03-2020

Published: 26-03-2020

Access this article online

Quick Response Code:



Website:
www.jfmipc.com

DOI:
10.4103/jfmipc.jfmipc_1067_19

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How to cite this article: Kumar D, Dey T, Bansal P, Srinivasa GY, Rai B. Sociodemographic and clinical profile of geriatric patients with cervical cancer—An audit from a tertiary cancer center in India. J Family Med Prim Care 2020;9:1528-32.

age of <50, 50–59, 60–69, 70–79, and ≥80 years old, the proportions of the International Federation of Gynaecology and Obstetrics (FIGO) stage I patients were 70.1%, 49.2%, 45.7%, 39.9%, and 33.2%, respectively, while the proportions of the patients with International Federation of Gynecology and Obstetrics (FIGO) stage IIIB disease were 6.7%, 13.8%, 13.3%, 14.9%, and 16.9%, respectively.^[6] Advanced stage carries poor prognosis.^[7] Earlier the diagnosis is established, the chances of survival increases. Primary care physicians (PCP) can play a key role in early diagnosis.^[8]

Cervical cancer screening guidelines currently recommend cessation of screening after the age of 65 with a history of adequate negative screening.^[9] Patients over the age of 65 are still susceptible to the disease, however, as studies of the sociodemographic profile form the background for planning screening and control measures, it is an important source of information not only for the geriatrician but also for the PCP taking care of the elderly patients. Since the data for same in geriatric patients with cervical cancer are lacking, we in this retrospective analysis have tried to evaluate and bring forth the sociodemographic profile, symptoms, histology, and staging in elderly patients of cervical cancer who were enrolled for management at our institute.

Patients and Methods

Medical records of patients from the year 2011 to 2014 diagnosed with cervical cancer enrolled at department of Radiotherapy, Post-Graduate Institute of Medical Education and Research, Chandigarh, India were retrospectively analyzed. Patients of age ≥65 years were included in the analysis. Sociodemographic parameters included age in completed years, religion, residential address, marital status, parity, and smoking. Clinical profile included symptoms, duration of symptoms, Kernofsky performance status (KPS), histology, type of growth, stage, and comorbid condition. Fisher's exact tests were applied using R software (version 3.5.2) for statistical analysis. Special ethical clearance was not required keeping in mind the retrospective nature of this analysis.

Results

Records of 88 patients were analysed. The sociodemographic profile is documented in Table 1, the age range of the patients was from 65 to 80 years. The median age was found to be 74 years. Most of the patients were Hindus (72.72%), followed by Sikhs (26.13%), and very few (1.13%) were from other communities. Most of the patients were nonsmokers with smokers being 3.4% only. All patients were multiparous with highest parity being 7 and lowest being 3 in our cohort of patients. 39 (44.31%) of the population were from Punjab, 15 (17.04%) were from Haryana, 27 (30.68%) from Himachal Pradesh, local residents of Chandigarh were 2 (2.27%), while 5 (5.68%) patients were from other states.

Table 1: Sociodemographic profile of women diagnosed with advanced cervical cancer

Sociodemographic characteristics	Number	Percentage
Age (years)		
65-69	47	53.40
70-74	28	31.81
75-79	10	11.36
80 and above	3	3.40
Religion		
Hindu	64	72.72
Sikh	23	26.13
Christian	0	0
Muslim	1	1.13
Marital status		
Married	54	61.36
Widow	34	38.63
Residential address		
Punjab	39	44.31
Haryana	15	17.04
Himachal Pradesh	27	30.68
Chandigarh	2	2.27
Other states	5	5.68
Parity		
Multiparous	88	100
Nulliparous	0	0
Smoking		
Non-smoker	85	96.59
Smoker	3	3.40

The clinical stage of the disease, tumor histology, performance status, and major comorbid conditions were considered to describe the clinical profile of patients. Stage-wise distribution of cervical cancer patients has shown that a very small percentage of patients (11.36%) were diagnosed at an early stage. 41 (46.59%) of the patients were diagnosed with stage II, stage III patients were 35 (39.77%), while 02 (2.27%) patients were of stage IV. 75 (85.22%) patients had squamous cell carcinoma, 10 (11.36%) had adenocarcinoma, 2 (2.27%) had clear cell carcinoma, and 1 (1.13%) had adenosquamous. Performance status was recorded on the basis of KPS. The majority of the patients had a KPS score of ≥80, while patients with a KPS score of 70 and 60 were 29.54% and 5.68% respectively. History of hypertension, diabetes, AIDS (HIV +ve), hepatitis (HBsAg +ve and hepatitis C virus [HCV]) and tuberculosis was considered as the presence of comorbidity. About 69% of patients had one or more comorbid conditions, of which hypertension (47.72%) was the leading cause of comorbidity followed by diabetes (12%). The most common presenting symptoms were discharge per vagina seen in 45 patients (51.13%) followed by bleeding per vagina, and pain abdomen in 25 (28.40%) and 18 (20.45%) patients respectively [Table 2].

We also tried to evaluate the association between the duration of symptoms and stage. The stage of disease was found to be significantly ($P < 0.05$) associated with the duration of symptoms [Table 3].

Table 2: Clinical profile of women diagnosed with advanced cervical cancer

Clinical Measures	Symptoms	Number	Percentage
Presenting first complaint	Discharge per vagina	45	51.13
	Bleeding per vagina	25	28.40
	Pain abdomen	18	20.45
Duration (in months)	1-3	37	42.04
	4-6	25	28.40
	7-9	19	21.59
	10-12	07	7.95
KPS	90	43	48.86
	80	14	15.90
	70	26	29.54
	60	05	5.68
Tumor Histology	SCC	75	85.22
	AC	10	11.36
	CC	02	2.27
	ASC	01	1.13
Type of Growth	UPG	64	72.72
	UIG	08	9.09
	UN	16	18.18
Stage	I	10	11.36
	II	41	46.59
	III	35	39.77
	IV	02	2.27
Comorbid condition	HTN	39	44.31
	DM	11	12.50
	Both HTN & DM	07	07.95
	HIV	01	1.13
	Hepatitis (HbsAg, HCV)	03	3.40

SCC: squamous cell carcinoma, AC: adenocarcinoma, CC: clear cell carcinoma, ASC: adenosquamous cell, UPG: ulceroproliferative growth, UIG: ulceroinfiltrative growth, UN: ulceronodular, HTN: hypertension, DM: diabetes mellitus, HIV: human immunodeficiency virus, HbsAg: hepatitis B, HCV: Hepatitis C

Table 3: Association between duration of symptoms and stage of disease

Duration (in months)	Stage				P
	I	II	III	IV	
1-3	4	23	9	1	0.0039
4-6	4	12	9	0	
7-9	0	3	15	1	
10-12	1	4	2	0	
Total (n=88)	9	42	35	2	

Discussion

Cervical cancer is one of the leading causes of cancer-related mortality and morbidity in India. Screening by conventional cytology has led to substantial decrease in the incidence of cervical cancer in the developed countries.^[10] Screening, however is lacking in the low- and middle-income developing countries owing to limited resource, poor infrastructure, and improper surveillance; hence poses a major health concern. As significant part of control in cervical cancer is through early diagnosis, effective screening strategies should be sought.

Though breast cancer is the leading cause of malignancy amongst female population, still it is of immense importance to

understand the sociodemographics as well as the clinical profile of cervical malignancy to formulate a proper screening program and properly designed public health policies in the future. Moreover, in this study, since we have emphasized on geriatric population, it is important to consider that such patients are less likely to undergo aggressive treatments (radical chemoradiation) either due to general condition, comorbidities, or otherwise. Thus, there is a need to understand the population characteristics which will allow us to devise appropriate and timely management skills for the same.

Cervical cancer is most predominantly seen in a middle-aged and elderly female. Studies have reported that older women present with advanced-stage disease at diagnosis. Brun *et al.* reported that elderly women presented with the higher-stage disease in France.^[11] Similarly, Ioka *et al.* reported older women in Japan to be diagnosed at a later stage and to have a poor outcome, likely due to the underutilization of Pap smears.^[12] Another study by Aanchal Jain *et al.* on the Indian population (registered in TMH, Mumbai) showed that the median age of patients with advanced disease at diagnosis was significantly higher than patients with early-stage disease, only 13% diagnosed with early-stage disease (stage I).^[13] A similar stage-wise distribution was described by Nandakumar *et al.* in their population-based cancer registry study conducted in Bangalore^[14] and Shrivastava *et al.* in their retrospective study of 6234 patients.^[15] Our study also yielded similar results; only 11.36% were diagnosed at an early stage. Older age indicates a lack of awareness, non-existence of effective screening programs. Also, a longer duration of symptoms is associated with an advanced stage of the disease. Thus, it can be emphasized that equipping older women with the appropriate knowledge and confidence to present with cervical cancer symptoms at the earliest might help to downstage cervical cancer in elderly women, thereby improving their survival.

Cervical cancer presents with a wide spectrum of symptoms, irregular vaginal bleed, foul-smelling discharge per vagina, lower abdominal pain, symptoms related to anemia from chronic blood loss, back pain, dysuria, etc., Our study reported that most patients present with vaginal discharge (51.13%) which was also similarly reported by Kaverappa *et al.*^[16]

This study showed that about 69% of patients had one or more comorbid conditions, of which hypertension (44.31%) was the leading cause. The prevalence of comorbid conditions reported in this study was higher than reported by Ibfelt *et al.*^[17] Also, the study published by Aanchal *et al.* showed that 26% of patients had comorbidities, hypertension (13.98%) was again the most common followed by diabetes (4.05%). Since both these studies included all the patients of cervical malignancy and not only geriatric patients, this might possibly explain this difference from our analysis. Also, the distribution of patients' religion-wise reported in this study is similar to the results obtained by other Indian authors, about 72% are Hindu. Most (64.76%) of our study population had KPS \geq 80, only 29.54% and 5.68% had KPS score of 70 and 60 respectively.

Similar findings were observed in studies conducted by Kaverappa *et al.* (81%) and Sankaranarayanan *et al.* (91.82%).^[18]

Smoking has been considered as a risk factor for cervical cancer. It is also associated with HPV driven carcinogenesis. A possible explanation for this association is due to inhibition of the immune response to human papillomavirus (HPV) and secondly, HPV infected cells are exposed to smoking carcinogens that cause DNA damage while HPV oncoproteins block apoptosis and cell cycle arrest.^[19] On the contrary, the regression of low grade squamous intraepithelial lesion (LSIL) has been found to be significantly lower in smokers than non-smokers, so smoking negatively affects the early natural history of HPV infections.^[20] Our study has shown a high incidence of malignancy in non-smokers as well and this may be due to the other confounding risk factors (socio-economic conditions, parity, age of first intercourse, immunosuppression, etc.).

Histologically, 86.36% patients had squamous cell cancer which was similarly reported by Jain *et al.* and Kaverappa *et al.* HPV infection is considered to be the single most important factor for squamous cell cancer of cervix but they are also related to adenocarcinoma, HPV 18 being the most prevalent one. But the prevalence of HPV infection depends on age. Andersson *et al.* studied that only 43% of patients above 60 years of age had HPV while 89% of those below 40 years tested positive for HPV.^[21] Not only prevalence but the virulent HPV strains also differ with age. Castle *et al.* have observed that age-related physiologic changes of the cervix alter the HPV subtypes found in older women due to the difference in susceptibility of cells to HPV infection and degree of cervical ectopy.^[22] But in our records, possibly due to limited resources, HPV status was not available.

Recently, the concept of delayed diagnosis has become an important issue in cancer prevention and treatment.^[23] Delays may occur at different stages of cancer and could be either patient-focused or health care provider focused.^[24] A significant association between the duration of symptoms and the stage of disease was found in our analysis. Delays not only influence the stage of the disease but also lead to psychological distress. T. Risberg *et al.* in their study found diagnostic delays to cause psychological distress, more in women than in men.^[25] Analysis done by Shen *et al.* revealed that cervical cancer patients of more advanced age (≥ 65 years) at diagnosis were more likely to delay treatment.^[26] Since PCP forms an important bridge between the patients and the referral institute and can play an important role in early detection of disease, especially in geriatric patients who prefer to meet their PCP on the first go, a thorough knowledge of the demographic profile, symptomatology and stage is a must. In a study done by A. Basu *et al.* concluded that regularly updating PCP about alarming symptoms of cancer, developing guidelines to identify these symptoms and timely referral should all help prevent delays in cancer diagnosis.^[27]

Limitations

Our study had few limitations. This study did not take into account some important characteristics such as patient's socioeconomic conditions, age at marriage or first sexual exposure, educational and family income. Also, the HPV status was not known due to limited resources. These drawbacks are attributed to the nature of the study, based on secondary data. Hence, only those factors which were noted in the medical records have been taken into consideration in this study.

Conclusion

There are very limited studies conducted on the Indian population describing the sociodemographic and clinical profile of geriatric malignancy patients. Also, inadequate literature is available explaining the relationship between elderly patients' characteristics and cancer-related factors. This basic information on elderly cervical cancer patients' profiles, thus might help to plan proper public health policies including screening programs, timely referrals by PCP and efficient utilization of hospital resources, specially in lower- middle income countries (LMIC) like India.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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