

Original Article

Cancer Profile in South Kashmir, India: A Hospital-Based Study from a Newly Commissioned Level II Cancer Center

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ABSTRACT

Background: The prevalence of cancers differs in different parts of the world and which makes studying every population important to know various risk factors associated with cancers common in various parts of the world. This study was undertaken to know the burden of cancer in rural Kashmir. **Materials and Methods:** Cases registered in the Department of Radiation Oncology, GMC, Anantnag, during 2019–2020 were enrolled for this study to check the prevalence and profile of cancer. **Results:** Stomach cancer was the most common cancer diagnosed in 233 patients in 2019–20 overall. In males, it was seconded by esophageal cancer, whereas in females, breast cancer was the second-most common cancer. **Conclusion:** Patterns of cancer distribution differ vastly across India; cancer patterns in Kashmir are more similar to the Caspian cancer belt with upper gastrointestinal tract cancer dominating both sexes.

KEYWORDS: Cancer profile, South Kashmir, stomach cancer

INTRODUCTION

Cancer is one of the deadliest diseases in the world. Almost 10 million people lost their lives because of cancer in 2020.^[1] Although the incidence of cancer is on the rise, early detection has led to a decrease in mortality in almost all types of cancer. This can also be attributed to significant advances in diagnostic and treatment methods. Unfortunately, all this is still not true when it comes to underdeveloped parts of developing nations like India. The majority of cancer death burden is still brunt by developing nations.^[2] Illiteracy, lack of awareness, and diverse cultural and ethnic practices often lead to delays in diagnosis and advanced stages at presentation.

Although few studies have been undertaken to explore the cancer spectrum of Kashmir, this study is more focused on the rural population who usually cannot afford to go to bigger cities or outside Jammu and Kashmir for treatment. Cancer profiles differ in urban and rural regions because of different lifestyles and dietary habits, which makes this study novel from earlier studies. Data from previous studies undertaken at State Cancer Institute, Srinagar, shows that cancer esophagus is the most prevalent cancer in both males and females

as a whole while in males lung cancer was the most common cancer seconded by esophageal cancer. Breast cancer was the second-most common cancer in females.^[3]

MATERIALS AND METHODS

This retrospective cross-sectional study was conducted in the Department of Radiation Oncology at Government Medical College, Anantnag, which is a newly developed designated level II Cancer center. Our hospital caters to the entire South Kashmir and Chenab Valley. Data were collected from the cancer registry maintained by our department. All the patients registered in 2019 and 2020 were enrolled for this study. Patients were registered after proper histopathology. Staging investigations were done, and a treatment plan was devised. Patients were advised surgery, chemotherapy, radiotherapy, or any of these depending upon the patient's condition. Patients were advised regular follow-up on treatment completion.

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RESULTS

The total number of patients diagnosed with cancer at our center in 2019–20 was 233, out of which 129 (55.3%) were males and 104 (44.6%) were females. Overall, the most common cancer was stomach cancer (18.8%), followed by esophageal cancer (14.1%) and breast cancer (9%) [Table 1]. Among males, the top three cancers were cancers of the stomach (17.8%), esophagus (12.4%), and lung (8.5%). The mean age at presentation for these cancers was 62.8, 65.3, and 57 years, respectively [Table 2]. In females, the top three cancers were cancer of the stomach (20.1%), breast (18.2%), and esophagus (17.3%) with the mean age at presentation for these cancers being 61.5, 52.1, and 61.4 years, respectively [Table 2]. Smoking history was present in 51 (21.8%) patients overall, almost among 35% of male cases and only 5.7% of female cases [Table 3]. The most common stage at presentation was II (46.3%), followed by III (35.19%), IV (10.7%), and I (7.7%) [Table 4].

DISCUSSION

Due to its unique geographical location and cultural habits, the cancer spectrum in Kashmir Valley differs

significantly from that of the rest of India. It is a Muslim-majority province with a cancer pattern more similar to the “Caspian esophageal cancer belt” than the rest of India. The cancer spectrum even differs in different parts of Kashmir, epidemiological profiles of cancer in North Kashmir, Central Kashmir, and South Kashmir are different.^[4] Cancer of the upper gastrointestinal tract is the most common among our patient population, this could be attributed to the special dietary habits such as high salty foods such as dried fish, meat, and vegetables used mostly during the winter season and are still quite prevalent in our society. Kashmiri people, particularly the rural population, consume dried/smoked foods and pickles that are distinct from the rest of the world and have a significantly high quantity of nitrosamines.^[5] That could be the reason for the high incidence of upper gastrointestinal tract cancers, the same has been found in multiple studies conducted earlier in Kashmir Valley.^[3,6] A larger study was done to evaluate trends in esophageal cancer over two decades, in which it was found that global trends in esophageal carcinoma do not necessarily apply to Kashmir.^[7] We have documented the same observations in our study. According to the Cancer Statistics Report 2020 of the National Cancer Registry Program (NCRP) India, the most common cancers among males were lung, oral cavity, esophagus, and stomach, and in the case of females, breast, cervix, and ovary were the most common sites of cancer.^[8] Although lung cancer is most common among the male population in India, the proportion of smokers according to this report was also quite high, especially in Northeast India. Lung cancer was the third most prevalent cancer in our male patients and smoking history was present in almost 35% of males and only 5.7% of female patients. The second-most common cancer in India is cancer of the oral cavity which is hugely attributed to chewing tobacco. In our case, chewing tobacco is nonexistent in the Kashmiri population so oral cavity cancers are quite rarely seen here. Among females according to the NCRP report, breast cancer was most commonly seen in females which was the second-most

Table 1: Case distribution by cancer type overall (n=233)

Cancer type	n (%)
Ca stomach	44 (18.88)
Ca esophagus	33 (14.16)
Ca breast	21 (9.0)
Ca lung	15 (6.43)
Ca ovary	14 (6)
Ca GE junction	11 (4.72)
Ca colon	11 (4.72)
Head and neck Ca	11 (4.72)
Ca rectum	10 (4.29)
NHL	10 (4.29)
Ca prostate	7 (3)
Glioma	5 (2.14)
Ca gallbladder	5 (2.14)

NHL: Non-Hodgkin lymphoma, Ca: Cancer, GE: Gastroesophageal

Table 2: Case distribution based on the type of cancer

Cancer type	Males (total n=129)			Females (total n=104)		
	n	Mean age (years)	Percentage	n	Mean age (years)	Percentage
Ca stomach	23	62.8	17.8	21	61.5	20.1
Ca esophagus	16	65.3	12.4	18	61.4	17.3
Ca breast	2	60.5	1.5	19	52.1	18.2
Ca lung	11	57.1	8.5	4	55.2	3.8
Ca ovary	0	-	0	13	45.7	12.5
Ca GE junction	8	67.3	6.2	3	65.5	2.8
Ca colon	8	56.8	6.2	3	53.4	2.8
Others	61	-	-	23	-	-

Ca: Cancer, GE: Gastroesophageal

Table 3: Case distribution based on smoking history

Smoking	Males (n=129), n (%)	Females (n=104), n (%)	Total (n=233), n (%)
Yes	45 (34.8)	6 (5.7)	51 (21.8)
No	84 (65.1)	98 (94.2)	182 (78.1)

Table 4: Case distribution based on stage (n=233)

Stage	n (%)
I	18 (7.72)
II	108 (46.35)
III	82 (35.19)
IV	25 (10.72)

common cancer among females in our patient population after stomach cancer.^[8] A lower incidence of breast cancer may be attributed to a physically active lifestyle, early parity, and breastfeeding in our patient population than in most cities and towns of India where more western lifestyles are prevalent. Less than half (35.19%) of our patient population presented in locally advanced stages which is far better when compared with the data from the rest of India where more than 50% of patients present in locally advanced stages.^[8]

CONCLUSION

Cancer is a diverse disease with a plethora of risk factors some known and many unknown, genetics also plays a key role in some cancers.^[9] Kashmiri population is unique in many cultural and dietary habits and so is the pattern of cancer in this population. Upper gastrointestinal tract cancers are most common overall with cancer stomach surpassing esophageal cancer in this study in both sexes. Further, epidemiological studies are needed to cover population-based studies in South Kashmir as hospital-based studies do not always give the clearest picture.

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Conflicts of interest

There are no conflicts of interest.

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