Comprehensive Analysis of Cancer burden in Andaman and Nicobar Islands: a Descriptive Study

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ABSTRACT

Introduction: Cancer is one of the leading causes of mortality and morbidity worldwide. The common sites of cancer have varied distribution in different geographical locations.
This study was conducted to determine the demographic profile in cancer patients at a tertiary care teaching hospital in Andaman and Nicobar Islands.

Material and methods: A retrospective study was carried out in Oncology OPD of G.B Pant Hospital, ANIIMS, Port Blair. Data was collected from hospital based registry for demographic profile of cancer patients, who attended oncology OPD, between January 2015 to January 2016, with a pretested and validated structured format. Data was analyzed in the form of percentage and proportions.

Results: A total of 275 patients attended Oncology OPD in one year, out of which 138 of the total cases were males. Seventy percent of patients belonged to South Andaman province. 15 patients were of indigenous tribal origin of Andaman and Nicobar Islands. Cancer was most common in the age group of 50 to 69 years, which comprised 48.7 percent of the total cases. Oral cancer was overall, the most common cancer. It comprised 19.27% of all the cases, followed by breast cancer comprising 16.36% of the total cases.The most common site of malignancy noted in males was oral cavity, comprising of 31.15% cases, followed by lung, with 9.4% cases. In females, the most common site of malignancy was breast, comprising 32.8 percent of the total cases, followed by cervical, with 7.2% of the total cases. Majority of the patients, 64.36% were in advanced stage of cancers at the time of diagnosis

Conclusion: Head and neck cancers are more prevalent in population of Andaman & Nicobar Islands and the reasons for this should be explored for better control of malignancies in the island. Thus, cancer registration helps the public health professionals to understand the dynamics of cancer incidence for the formulation of future strategies.

Keywords: Cancer, Demographic Profile, Andaman And Nicobar Islands, Registration, Oral Cancer.

INTRODUCTION

Cancer constitutes an enormous burden on society in more and less economically developed countries alike. It is one of the major causes of mortality and morbidity worldwide. Despite advances in diagnosis and treatment, cancer continues to be a global problem, with an estimate of about 14 million new cancer cases. It accounts for about 13% of all deaths worldwide (8.2 million deaths) (Globocan, 2012).[1] One million of these new cases and nearly 700,000 of the deaths occurred in India, which is home to about 17% of the global population. Even in age-adjusted terms the recorded incidence for India is, at 94 per 100 000 people, only slightly more than half of the world average of 182 per 100 000, and about a third of that recorded in the more developed countries (268 per 100 000).[2]

Cancer registration helps the public health professionals to understand the dynamics of cancer incidence for the formulation of future strategies. Of the two types of cancer registration, population based (PBCR) and Hospital based cancer registry (HBCR).In HBCR, all the cases are recorded in a given hospital, generally without knowledge of the background population. The priority is on, regular routine follow up, clinical care and hospital administration.[3] Despite, being a national enigma, no national registry exists that provides comprehensive cancer incidence or mortality data for India. However, the National Cancer Registry Programme (NCRP, established by the Indian Council of Medical Research in 1981) provides data from 29 population-based data from a selected network of 29 cancer registries located across the country, including urban areas and only one rural cancer registry raising questions about validity of the national estimates.[4]

The Andaman & Nicobar, is a Union Territory, a group of Islands, a total of 572, lying in the South Eastern Part of the Bay of Bengal. According to 2011 census, the population of the Union Territory was 379,944, out of which 53.25% were male. There are 3 districts, North and middle Andaman, South Andaman and Nicobar. Inhabitants of these islands are a mixture of different races and cultures who migrated from various places of India and also the indigenous tribal population identified as the Particularly vulnerable Tribal Groups (PTGs) by Government of India.[5] Till date, no population or hospital based registry has been conducted in the islands.

Andaman & Nicobar Islands Institute of Medical Sciences, Portblair is the only tertiary care centre in the whole island and caters to the whole population.

Thus, we present a comprehensive analysis of malignancies diagnosed and treated in Andaman & Nicobar Island in one year.

MATERIAL AND METHODS

The present study was carried out in ANIIMS, Port Blair, the only government tertiary care hospital in Andaman and Nicobar Islands. A one year hospital record based retrospective study was carried out by the Division of Oncology using the clinical records after taking ethical clearence from institution review board.

All the patients diagnosed or suspected with cancer, registered in G.B. Pant Hospital, in the study time period -January 2015 to

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January 2016 were enrolled.

All the patients so registered, were sent in different departments and those suspected of suffering from cancer were sent for diagnostics to pathology department. After being diagnosed for malignancy, they were referred to Oncology department for further management.

As per WHO standardized guidelines on patient information for Hospital based cancer registry, detailed information was taken of the patients who gave consent to participate in the study. In case of respondents below 18 years of age, assent was taken from parents. Confidentiality of responses was assured.

All the patients were evaluated and Information on socio-demographic profile, medical history, family history and previous treatment, if any, or any relevant findings was recorded.

STATISTICAL ANALYSIS

The data was collected and compiled in MS Excel and summarized using percentages and proportions.

RESULTS

A total of 275 patients were diagnosed with malignancies in the one year study period. 138 of the total cases were males, and females comprised 137 of the total cases. Seventy percent of patients belonged to South Andaman province. 15 patients were of indigenous tribal origin of Andaman and Nicobar Islands.

Cancer was most common in the age group of 50 to 69 years, which comprised 48.0 percent of the total cases. Out of which, 53.8 percent were in the age group of 50 to 59 years. Only 11 patients were aged less than 20 years, and 37 were of age 70 years or older. 49.09 percent of the patients practiced Hindu religion, followed by Muslim and Christian (Table 1).

Oral cancer was, overall, the most common cancer. It comprised 19.61 percent of all the cases, followed by breast cancer comprising 16 percent of the total cases.The most common site of malignancy noted in males was oral cavity, comprising of 32.59 percent cases, followed by lung, with 10.14 percent cases. The most common site of malignancy in females was Breast, comprising 32.11 percent of the total cases, followed by cervical, with 14.6 percent of the total cases.

Other common malignancies observed were Gastroinstestinal, with 14.9 percent cases, hematopoietic and lymphatic tumors, comprise 12.35 percent cases and genitourinary comprised 4.37 percent of all cases.

Buccal mucosa was the predominant site in head and neck cancers, consisting of one third of the head and neck cancer cases and stomach, was the most common gastrointestinal malignancies, comprising 26.83 percent of the total (Table 2).

177 (64.36 percent) cases were in advanced stage of cancers at the time of diagnosis and 64 patients (23.27 percent) were in localized stage. 183 patients (66.54 percent) survived after treatment, 45 (16.36 percent) patients expired and rest 25 (9.09 percent) had lost follow up at the time of analysis.

DISCUSSION

Cancer registration is a systematic collection of data on the incidence and characteristics of reportable neoplasms with the purpose of aiding to assess and curb the impact of malignancies on the community. It helps the public health professionals to understand the dynamics of cancer incidence for the formulation of future strategies.[3] In patients so registered with G.B Pant hospital, males and females were in almost equal proportion. The results were in disagreement to that of study conducted by Kalyani[6] that showed that cancers were more prevalent in females as compared to males.Howsoever, a study done by Puri S et al.[7] in 684 patients showed that there were equal number of males and females. Cancer was most common in the age group of 50 to 69 years. Maximum patients were in the older age group than those in childhood as well as reproductive age groups. Kalyani et al.[6] also showed cancers with more prevalence in elderly, that may be due to increased life expectancy. Khandekar SP et al.[8] and Ganesh R et al.[9] in their studies also found that majority of the subjects belonged to 51 - 60 years age group.

Majority of patients in our study were Hindus. The predominance of cancers in this group of religion has been cited in many studies.[10] The reason is due to the predominance of Hindus in the community as compared to other religions. The most common site of malignancy noted in males was head and neck (39.8% cases), followed by lung (9.4%). The most common site of malignancy in females was breast (32.8%) followed by cervical, 7.2% of the total cases. The results were simialar to those found in Bhopal registry (NCRP), with leading cause of cancer in males being, mouth (15.3%), lung (11.3%), tongue (9.1%) and larynx (5.8%); and in females: breast (31.2%) was the leading site followed cervix uteri (12.5%). In Ahemdabad urban registry, the leading sites of cancer among males were,mouth (20.3%), tongue (11.5%), lung (8.4%). While in female, breast (31.5%) was the leading site followed by cervix uteri (9.3%). Overall, most common cancer was reported to be oral cavity followed by breast cancer.[11]

Study done by Bagchi S[12] showed that breast cancer epidemic would occur over the next decade, the reason being adoption of western lifestyles, i.e late marriage and child bearing at a later age.

Delay in diagnosis and treatment increases the proportion of advanced stages in cancer patients and leads to poor prognosis and quality of life.[13-15] Majority of the patients, in our study were

	Male (n=138) No. (%)	Female (n=137) No. (%)	Total (n=275) No. (%)
Age group (years)			
<10	3 (2.17)	2 (1.45)	5 (1.81)
10-19	2 (1.45)	4 (2.91)	6 (2.18)
20-29	6 (4.34)	3 (2.19)	9 (3.27)
30-39	16 (11.59)	18 (13.14)	34 (12.36)
40-49	20 (14.49)	32 (23.36)	52 (18.90)
50-59	38 (27.54)	33 (24.09)	71 (25.81)
60-69	30 (21.74)	31 (22.63)	61 (22.18)
70-79	15 (10.87)	8 (5.84)	23 (8.36)
80-89	7 (5.07)	6 (4.38)	13 (4.72)
>90	1 (0.72)	0	1 (0.36)
Region (District)			
North and Middle	32 (23.19)	34 (24.82)	66 (24)
South	97 (70.29)	98 (71.53)	195 (70.90)
Nicobar	9 (6.52)	5 (3.65)	14(5.09)
Religion			
Hindu	67 (48.55)	68 (49.64)	135 (49.09)
Muslim	43 (31.16)	42 (30.66)	85 (30.90)
Christian	28 (20.29)	27 (19.71)	55 (20)

Table-1: Demographic profile of cancer patients

	Carcinoma (ICD 10 Coding)	Male No. (%)	Female No. (%)	Total No. (%)
Head & Neck Oral cavity	Buccal Mucosa (C03)	24 (17.39)	3 (2.19)	27 (9.81)
	Tongue (C01)	8 (5.79)	2 (1.45)	10 (3.63)
	Alveolus (C06)	3 (2.17)	1 (0.73)	4 (1.45)
	Gingiva (C03.9)	2 (1.45)	2 (1.45)	4 (1.45)
	Palate (C05)	2 (1.45)	1 (0.73)	3 (1.09)
	Floor of mouth (C04)	3 (2.17)	0	3 (1.09)
	Retromolar trigone (C10)	2 (1.45)	0	2 (0.73)
	Angle of mouth (C14)	1 (0.72)	0	1 (0.36)
Other head and neck	Supraglottis (C14.1)	3 (2.17)	1 (0.73)	4 (1.45)
	Hypopharynx (C13)	2 (1.45)	2 (1.45)	4 (1.45)
	Nasopharynx (C11)	3 (2.17)	1 (0.73)	4 (1.45)
	Thyroid (C73)	1 (0.72)	3 (2.19)	4 (1.45)
	Pyriform fossa (C12)	1 (0.72)	0	1 (0.36)
	Oropharynx (C10.9)	3 (2.17)	0	3 (1.09)
Breast	Breast (C 50)	0	44 (32.11)	44 (16)
Gastro intestinal Tract	Stomach (C16)	6 (4.35)	5 (3.65)	11 (4)
	Pancreas (C25)	4 (2.90)	1 (0.73)	5 (1.82)
	Gall Bladder (C 23)	1 (0.72)	2 (1.45)	3 (1.09)
	Colon (C18)	5 (3.62)	1 (0.73)	6 (2.18)
	Rectum (C20)	1 (0.72)	2 (1.45)	3 (1.09)
	Liver (C 22)	4 (2.90)	2 (1.45)	6 (2.18)
	Duodenum (C 17)	0	1 (0.73)	1 (0.36)
	Esophagus (C15)	4 (2.90)	1 (0.73)	5 (1.82)
	Jejunum (C17.1)	1 (0.72)	0	1 (0.36)
Gynaecological	Ovary(C56)	0	11 (8.03)	11 (4)
	Cervix (C53)	0	20 (14.60)	20 (7.27)
	Endometrium (C55)	0	4 (2.91)	4 (1.45)
Lung	Lung (C34)	14 (10.14)	7 (5.11)	21 (7.63)
Genitourinary	Penis (C 60)	2 (1.45)	0	2 (0.73)
	Kidney	0	2 (1.45)	2 (0.73)
	Urinary bladder (C 67)	2 (1.45)	1 (0.73)	3 (1.09)
	Prostate (C 61)	3 (2.17)	0	3 (1.09)
	Testis (C62)	2 (1.45)	0	2 (0.73)
Hematopoietic and lymphoid	AML (C92)	2 (1.45)	2 (1.45)	4 (1.45)
	CLL (C 91.1)	1 (0.72)	0	1 (0.36)
	ALL (C91)	4 (2.90)	1 (0.73)	5 (1.82)
	CML (C 92.1)	6 (4.34)	1 (0.73)	7 (2.55)
	Hodgkins (C 81)	2 (1.45)	2 (1.45)	4 (1.45)
	Non Hodgkins (C82)	5 (3.62)	3 (2.19)	8 (2.90)
	Multiple myeloma (C 90)	3 (2.17)	2 (1.45)	5 (1.82)
CNS	Brain (C 5)	2 (1.45)	2 (1.45)	4 (1.45)
Musculoskeletal	Bone (C40–C41)	2 (1.45)	2 (1.45)	4 (1.45)
Neck	Neck(unknown primary) (C79)	2 (1.45)	1 (0.73)	3 (1.09)
Skin	Skin (C43,44)	2 (1.45)	1 (0.73)	3 (1.09)

Table-2: Site wise distribution of cancer:

in advanced stage of cancers at the time of diagnosis.

In the present analysis, the reasons for this delay mainly comprised of unawareness regarding the signs and symptoms of cancer, improper or no consultation, use of alternative medication, poor socio-economic conditions and lack of a proper referral infrastructure. These factors are a known predicament in developing nations.[16,17]

CONCLUSION

One year cancer analysis in Andaman and Nicobar Islands depicts, equal incidence in male and females, with majority of cases in the sixth decade of life. Oral cancers are most prevalent in population of Andaman & Nicobar Islands, followed by breast cancers. Most of the patients presented to the Oncology OPD were in the advanced stage, pertaining to unawareness and neglect. The reasons for such a high incidence should be explored for better control of malignancies in the island.Thus, at this stage, cancer registration becomes much more rewarding, and this end justifies every effort to undertake the job, in spite of the difficulties.

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