

Demographic Profile and Survival of Cancer Patients in a Tertiary Hospital, Bangladesh- A Cross-Sectional Study

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Abstract

Original Research Article

Introduction: Cancer is the second leading cause of death and disability around the world. In developing countries, the problem of cancer is a substantial issue. Cancers like lung, stomach, breast, cervix etc. are more prevalent among socially disadvantaged populations. Globally, cancers in all forms are causing about 12% of all deaths. The aim of this study was to determine the demographic profile and survival of cancer patients in a tertiary care hospital. **Methods:** This was a cross-sectional study and was conducted in the Department of Oncology of North East Cancer Institute (NECI), Sylhet, Bangladesh during the period from January 2023 to June 2023. Age and sex related data of 1594 patients were collected by reviewing hospital records of diagnosed and treated cancer patient in North East Cancer Institute (NECI) from January 2016 to December 2020. **Results:** Majority of our patients were aged ≥ 45 years old and most of our participants were male (57.15%). The number of patients was decreased in 2020, and among 1594 registered patients only 1073 (67.31%) patients responded to our phone calls. And among the patients who responded (1073) to our phone call out of them 336 (31.31%) patients were survived and 737(68.69%) patients died. The patient who survived 336 (31.31%) among them majority were suffering from Head & Neck (14.35%), Breast (5.87%), Cervix (2.89%) cancer and patients of other type of cancer survived (8.02%). **Conclusion:** An increased trend of cancer is found in the older people of Bangladesh and it is more prevalent leading among the male. Though Head & Neck cancer is more prevalent in our study this result cannot be extrapolated to the entire nation.

Keywords: Demographic Profile, Carcinoma, Survival.

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INTRODUCTION

Cancer is an important cause of mortality in both economically underdeveloped and highly developed countries. Due to the increase in population and aging, cancer is expected to increase throughout the world, but especially in underdeveloped countries in which 82% of the global population lives [1]. According to the 2015 estimates of the World Health Organization (WHO), cancer is the first or second cause of mortality in 91 of 172 countries before the age of 70 years, and the third or fourth cause of mortality in 22 [2, 3]. The ongoing global demographic and epidemiologic transitions mean an increasing cancer burden, especially in low and middle- income countries for the following

decades. It is estimated that the global cancer burden caused 14.1 million new cases and 8.2 million deaths in 2012, which increased to 18.1 million new cases and 9.6 million deaths in 2018. Globally, one in five men and one in six women develop cancer in their lifetime, while one in eight men and one in 11 women die of this disease [2–4].

Cancer is the second leading cause of death and disability around the world. In developing countries, the problem of cancer is a substantial issue. Cancers like lung, stomach, breast, cervix etc. are more prevalent among socially disadvantaged populations. Although cancer is a devastating disease, it is largely preventable.

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Globally, cancers in all forms are causing about 12% of all deaths. In developed countries cancer is the second leading cause of death accounting for 21% of mortality and in developing countries it ranks third, accounting for 9.5% of all deaths [5]. In 2030, incidence may increase to 20-26 million with around 13-17 million mortalities. Cancer cases doubled globally between 1975 and 2000, will double again by 2020 and triple by 2030. The rapid increase in the global cancer burden represents a real challenge for health systems worldwide [6].

In most developed countries, cancer mortality rates are declining, primarily because of recent successes in effective interventions for prevention, early detection, and treatment. In contrast, in countries in transition, mortality rates are still increasing, or at best stabilizing [7]. The burden of cancer is increasing in developing countries as a result of population aging and the adoption of certain lifestyle choices like smoking, physical inactivity, and “Westernized” diets [8]. This incorrectly has caused cancer to be perceived as the “Disease of the Rich,” since poorer sections of society cannot afford such a lifestyle. However, since the diagnosis of cancer is usually expensive, it is diagnosed with higher frequency among the more affluent sections of society. This leads to a gross underestimation of the actual cancer burden and an incorrect assessment of health needs in the rural areas of the country. It is estimated that 57% (8 million) of new cancer cases and 65% (5.3 million) of cancer deaths in 2012 occurred in the less developed regions of the world [9]. The incidence and pattern of cancer varies from country to country and from one region to another region within a large country [10]. Understanding the geographical and social distribution of specific cancers is essential for family physicians. It helps them identify the at-risk cases in their community and initiate early screening and management [11].

There are 13 to 15 lakh cancer patients in Bangladesh, with about 2 lakh patients newly diagnosed with cancer each year [12]. In the coming years, the increase in population and longevity will result in an increase in the number of cancer patients in Bangladesh. When combined with population aging, the increase in cancer prevalence is inevitable. Keeping pace with the demand will require a major government commitment to cancer prevention and curative services in the coming years with an aim to control major risk factors and deliver a universal, quality-based, and timely service, in line with the best practices that are currently available in South- East Asian countries [13].

However, there is a clear message of hope: Although cancer is a devastating disease, it is largely preventable. If we have adequate data about cancer patients, then by applying appropriate measures, a great impact on reducing the global cancer burden can be achieved. One of the instruments for data collection on cancer patients is their registration [14]. Cancer registration is the process of continuing, systematic

collection of data on the occurrence and characteristics of reportable neoplasms with the purpose of helping to assess and control the impact of malignancies on the community. Of the two, population-based (PBCR) and Hospital-based cancer registry (HBCR), HBCR limits its aim to record the particulars of cancer cases seen in a given hospital or group of hospitals irrespective of boundaries of geographical areas [15]. The purpose is to serve the needs of the hospital administration and above all, the individual patient. It also tends to improve cancer therapy, provides the baseline data for improvement in the treatment modalities, and recommends measures for better control of treatable and curable cancers [15]. It gives an estimate of the number of cancer cases attending the host institute in various disciplines and the exact type of cases diagnosed and classified according to the International Classification of Diseases (ICD) [15]. In addition, great details of the patient pertaining to socio-demographic characteristics are also obtained. HBCR records all cases in a given hospital, usually without knowledge of the background population; the emphasis is on clinical care, regular routine follow-up, and hospital administration. It may also form the nucleus for PBCR [15]. In this study, we aimed to determine the demographic profile and survival of cancer patients in a tertiary care hospital.

METHODOLOGY & MATERIALS

This was a cross-sectional study and was conducted in the Department of Oncology of North East Cancer Institute (NECI), Sylhet, Bangladesh during the period from January 2023 to June 2023. Age and sex related data of 1594 patients were collected by reviewing hospital records of diagnosed and treated cancer patient in North East Cancer Institute (NECI) from January 2016 to December 2020.

These are the following criteria to be eligible for the enrollment as our study participants: a) Patients belonged to any age group; b) Patients diagnosed with any Carcinoma; c) Patients suffering from pain due to carcinoma ; d) Patients at the end stage of carcinoma; e) Patients who were willing to participate were included in the study And a) Patients with comorbidities; b) Patients with Coagulopathy ; c) Patients with previous surgical history; d) Patients with any history acute illness (e.g., renal or pancreatic diseases, ischemic heart disease etc.) were excluded from our study.

Statistical Analysis

Details data of patient were compiled in a preformed data sheet comprising their demographic profile (age, sex) and data about patient’s survival was collected by conducting individual with over phone. All data were recorded systematically in preformed data collection form and qualitative data was expressed as frequency distribution and percentage. Statistical analysis was performed by using SPSS (Statistical Package for Social Sciences) for windows version 10.

The study was approved by Ethical Review Committee of North East Cancer Institute (NECI), Sylhet, Bangladesh.

RESULTS

Table 1: Age distribution of the cancer patients (n=1594)

Age distribution	Frequency	Percentage (%)
<18	15	0.94
18-30 yr	60	3.77
31-44 yr	173	10.85
≥45	1060	66.50
Age unknown	286	17.94
Total	1594	100

Table 1 shows the age distribution of our study subjects. The majority (66.50%) of our patients were aged ≥45 years old, followed by 17.94% & 10.85% of

patients were found with unknown age & 31-44 years old respectively. Less than 4 % & 1 % patients were 18-30 years & < 18 years old respectively.

Table 2: Sex distribution of the cancer patients (n=1594)

Gender	Frequency	Percentage (%)
Male	911	57.15
Female	683	42.85
Total	1594	100

Table 2 shows that most of our patients were male (57.15%) compared to female (42.85%) The ratio of male and female was found 1.32: 1 in our study.

Table 3: Pattern of cancer from 2016-2020 (n=1594)

Type of Cancer	2016	2017	2018	2019	2020	Total	Percentage (%)
Ca Head & Neck	105	136	142	137	69	589	36.95%
Ca Breast	29	45	44	50	22	190	11.92%
Ca Lung	21	46	41	36	10	154	9.66%
Ca Esophagus	20	25	25	34	15	119	7.47%
Ca Cervix	14	26	32	25	12	109	6.84%
Ca Brain	15	17	32	24	9	97	6.09%
Ca Bone Mets	15	7	40	25	7	94	5.90%
Ca Rectum	13	22	19	14	8	76	4.77%
Ca Other	5	13	16	20	8	62	3.89%
Ca Prostate	7	8	6	3	0	24	1.51%
Ca NHL(Non-Hodgkin's Lymphoma)	1	6	5	4	2	18	1.13%
Ca Bladder	2	3	2	2	2	11	0.69%
Ca Skin	1	1	4	4	0	10	0.63%
Ca Pancreas	3	2	3	0	1	9	0.56%
Ca Stomach	3	1	0	2	2	8	0.50%
Ca Abdomen	7	0	0	0	0	7	0.44%
Ca Testis	3	2	0	0	1	6	0.38%
Ca Brain Mets	0	5	0	0	0	5	0.31%
Ca GB(Gallbladder)	0	1	0	1	1	3	0.19%
Ca Neuroblastoma	2	0	0	0	0	2	0.13%
Ca Ovary	0	0	1	0	0	1	0.06%
Total	266	366	412	381	169	1594	100.00%

Table 3 shows the pattern of cancer from 2016-2020. The majority of cancer patients were found in 2018. The most common cancer patterns were head & neck (36.95%), breast (11.92%), lung (9.66%), esophagus (7.47%), cervix (6.84%), brain (6.09%), bone

mets (5.90%), rectum (4.77%) and other (3.89%). There were more cancer patterns like prostate, bladder, pancreas, stomach, abdomen, gallbladder, ovary, etc. were found in our study.

Table 4: Distribution of Respondents about their responses over the phone (n= 1594)

Year	Total Responded Patients (%)	Not Response (%)	Total Number of Patients
2016	181 (68.05%)	85 (31.95%)	266
2017	263 (71.86%)	103 (28.14%)	366
2018	256 (62.14%)	156 (37.86%)	412
2019	270 (70.87%)	111 (29.13%)	381
2020	103 (60.95%)	66 (39.05%)	169
Total	1073 (67.31%)	521 (32.69%)	1594

Table 4 distributes the respondents about their responses over the phone. Among all patients, majority (70%) patients responded well in 2019, whereas 29% did

not respond in the same year. On the other hand, majority (37.86%) patients didn't respond well in 2018, whereas more than 60% patients responded well in the same year.

Table 5: Number of Patients Survived (n= 1073)

Type of cancer	Number of Patients Alive					Total Alive Patients (%)
	2016	2017	2018	2019	2020	
Head & Neck	17	44	36	35	22	154 (14.35%)
Cervix	5	7	6	6	7	31 (2.89%)
Breast	2	17	17	24	3	63 (5.87%)
Others	6	18	31	20	13	88 (8.02%)
Total	30	86	90	85	45	336 (31.31%)

Table 5 shows the number of surviving patients. Among all patients, 336 (31.31%) patients survived. Among the surviving patients, most of them were head

& neck cancer patients. The number of surviving patients was highest in 2018, followed by 2017, 2019, 2020 & 2016 respectively.

Table 6: Number of Patients Died (n= 1073)

Year	Total Responded Patients	Total Death Patients (%)
2016	181	151 (83.42%)
2017	263	177 (67.30%)
2018	256	166 (64.84%)
2019	270	185 (58.52%)
2020	103	58 (56.31%)
Total	1073	737(68.69%)

Table 6 shows the number of patient deaths. Among all patients, 737 (68.69%) patients died. The number of dead patients was highest in 2019, followed by 2017, 2018, 2016 & 2020 respectively.

[17, 18]. Similar findings were also found in the study conducted by Knežević *et al.*, [19]. Maximum patients were old and those in childhood as well as reproductive age were less. Kalyani *et al.*, also showed cancers with more prevalence in the elderly which may be due to increased life expectancy [20, 21].

DISCUSSION

Cancer registration helps public health professionals to understand the dynamics of cancer incidence for the formulation of future strategies. This retrospective study was conducted among the diagnosed cancer patients attended in North East Cancer Institute (NECI) from 2016 to 2020. This study showed that different type of cancer is prevalent among ≥45 (66.50%) year's age. A study conducted by Cokkinides *et al.*, also found that cancer has been commonly developed in older people and interestingly 78% of all cancer diagnoses were being conducted in people over 55 years of age [16]. In this study, it is also shown that cancer increases with age but it's not uncommon in persons less than 40 years [16]. Hospital-based cancer registry of National Institute of Cancer Research and Hospital in Bangladesh showed that 66% of cancer patients are in the age group 30 to 65 years, the main workforce structure of a country

Gupta *et al.*, found that the majority of participants recruited in their study were aged between 40 and 69 years [11]. In various hospital-based studies conducted across the country, Aggarwal *et al.*, from Punjab [4]. Conjeevaram *et al.*, from Andhra Pradesh [22]. Puri *et al.*, from Chandigarh [15], and Bangal *et al.*, from Maharashtra [23], similar observations were made, with all of them reporting the largest incidence of cancer in the age group of 40–69 years. Incidence of cancer has been projected to increase in our country because of population growth and increasing life expectancy. In addition, awareness regarding risk of cancer, benefit of early screening and its predilection among geriatric population has also led to an increased number of middle-aged people consult their physicians on the advent of known symptoms [24].

Most of the earlier studies have found a greater prevalence of cancer among women than men. Conjeevaram *et al.*, [15], reported the prevalence of cancer among women to be as high as 76.8%, while other studies have reported a marginal increase in the number of female cancer patients compared to men [22, 23]. This was in contrast to our observations, with a higher number of male participants being recruited at tertiary hospital. One of the probable reasons for this could be that most participants in our study had cancer of the head and neck, which has preponderance among males. According to this study cancer is most common in male of (57.15%) and male female ratio is 1.32: 1 which is similar with the study conduct by Yeole BB [14]. This is consistent with recent international trends which still show that cancers are more common in male although rates in females had been rising, and differences in sexes had been narrowing [16]. The results were in contradiction to that of study done in Aizwal [6], that showed that cancers were more prevalent in males as compared to females. [25].

In this study Carcinoma of Head and Neck was more prevalent (36.95%) among all cancers, which is followed by carcinoma of breast (11.92%). It has been observed that the number of patients was increased from 2016 to 2019 but number of was decreased in 2020. This might be due to COVID-19 pandemic lockdown.

Puri *et al.*, found that cancer lung (22.3%) in subjects was most prevalent, followed by ca breast (13.1%) [15]. In hospital based cancer registry report of PGIMER (Postgraduate Institute of Medical and Research) during 1984- 1993 ca cervix and ca breast in females and ca bronchus in males were the leading sites of cancer [26]. As per report more than 50 per cent cases of ca cervix presented in stage 3 of the disease. Even study done by Bagchi *et al.*, depicted that breast cancer epidemic would occur over the next decade as more women adopt Western lifestyles by marrying and bearing children later in life [27]. The patients who had ca mouth (1.6%), cancer tongue (3.5%), pyriform fossa (4.1%), hypopharynx (0.7%), larynx (0.6%) and esophagus (7.2%) were more in comparison to that of results of PGIMER report. Another study, showed that cancers of the upper alimentary and respiratory tracts (oral cavity, pharynx, larynx, esophagus, and lung) contribute more than half of the cancers in men and about a quarter in women [28]. Indigenous habits of chewing and smoking seem to be primarily responsible for the high incidence of these cancers in men [28].

As the number of patients was decreased in 2020, we conducted this study to know the survivability of the patient. Due to COVID-19 pandemic we make contact with them over cell phone and among 1594 registered patients only 1073 (67.31%) patients responded to our phone calls. And among the patients who responded (1073) to our phone call out of them 336 (31.31%) patients were survived and 737(68.69%)

patients died. The patient who survived 336 (31.31%) among them majority were suffering from Head & Neck (14.35%), Breast (5.87%), Cervix (2.89%) cancer and patients of other type of cancer survived (8.02%).

LIMITATION

Our study period was just six months, so the exact pattern of cancers prevalent in the region and surrounding areas could not be estimated. As the study period was short, complete data from patients regarding follow-up and outcome could not be recovered, and the convenience sample strategy was utilized in this investigation, which may have affected the generalizability of the results.

CONCLUSION

An increased trend of cancer is found in the older people of Bangladesh and it is more prevalent leading among the male. Though Head & Neck cancer is more prevalent in our study this result can not be extrapolated to the entire nation. In the absence of population-based registries, and where the incidence and mortality figures are not available, studies like the present one may provide useful leads for health planning and future research.

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