DISTRIBUTION OF TYPES OF CANCER AND PATTERNS OF CANCER TREATMENT AMONG THE PATIENTS AT VARIOUS HOSPITALS IN DHAKA DIVISION, BANGLADESH

Hasan A.H.M Nazmul, Uddin Md.Mesbah, Rafiquzzaman Md., Chowdhury Sanchita Sharmin, Wahed Tania Binte*

Department of Pharmacy, Jahangirnagar University, Savar, Dhaka-1342, Bangladesh

*Email: tania.wahed@yahoo.com

ABSTRACT
A survey study on 171 cancer patients for various aspects related to cancer was done at different hospitals in Dhaka division, Bangladesh, using a questionnaire. Histopathologically confirmed cancer patients; patients having radiological evidence or clinical evidence of malignancy were included in the study. Majority of the patients came from various districts of Dhaka division (57.8%), while only 3.3% patients were from Sylhet division of Bangladesh. There were 117 male and 54 female patients in this study with the ratio about 2.1:1. Incidence of cancer occurred in middle to old age with majority of the patients. In adult male, lung cancer ranked the top (30, 28.4%), followed by head and neck cancer (14, 12.8%), stomach cancer and leukemia (10, 9.2%), colorectal cancer (9, 8.3%) and carcinoma of male genital organ (7,6.4%). Breast cancer (13,21%) was the major malignancy amongst adult female followed by carcinoma of cervix (12,19.4%), stomach cancer (7,11.3%), colorectal cancer (6,9.7%) and carcinoma of ovary and oral cavity (5,8.1%). In pediatric patients malignancy of lymphatics and lymphoid tissue led the tally while in geriatric group lung cancer found to be more prevalent. From the survey, we also found that, in Bangladesh the main strategy of cancer treatments are surgery, chemotherapy and radiotherapy, which are used individually or in combination.
KEYWORDS: cancer; types of cancer; cancer treatment pattern; distribution of cancer patients; Bangladesh

INTRODUCTION
Cancer has become one of the main causes of death worldwide and has affected a significant part of world population[1]. Deaths from cancer worldwide are projected to continue rising, with an estimated 13.1 million deaths in 2030[2].In the United States,1 in 4 deaths is due to cancer and it is the second leading cause of death following heart disease, accounting for 23% of all deaths[3].According to the latest WHO statistics, cancer causes around 7.9 million deaths worldwide each year. Of these deaths, around 70%, that means 5.5 million, are now occurring in the developing world[4].Lung, breast and colorectal cancers, that are becoming increasingly common in developing countries- reflect longer life expectancies, the adoption of western diets, and the globalization of tobacco markets[5]. In both sexes, overall cancer incidence rates in the developing world are half those seen in the developed world, but the overall cancer mortality rates are generally similar[6].Cancer has been appearing as an important health problem in Bangladesh. Due to lack of reporting system and under-diagnosis of cancer, the real situation is unknown yet. Lung cancer in males, and cervical and breast cancer in females constitute 38% of all cancers in Bangladesh[7]. According to the latest WHO data published in April 2011 lung cancers deaths in Bangladesh reached 18,124 or 1.89% of total deaths[8].Cancer incidence is rising in our country day by day. It is therefore important to gather various information to cancer to address it smoothly. Among others, this study is aimed to see the distribution of types of cancer and also to see the cancer treatment patterns among the patients in various hospital in Dhaka division, Bangladesh.

MATERIAL AND METHODS
Histologically confirmed cancer patients, patients having radiological evidence or clinical evidence of malignancy by referring physician or hospital attending the outpatient or admitted patients taking therapy of various hospital were included in the study. A structured questionnaire was developed through different stages of cross-check and analysis and that was used to collect data from the patients. The survey was conducted in two phases.

The first phase of the survey was conducted at the DMCH (Dhaka Medical College Hospital) Oncology and Haematology ward, BSMMUH (Bangabandhu Sheikh Mujib Medical University Hospital) cancer treatment centre, Ahsania Mission Cancer Hospital and Bangladesh Cancer Welfare Society and Hospital.

The second phase of this survey was conducted at the NICRH (National Institute of Cancer research and Hospital). Questions were asked to the patient and answers of the patient were included into the data collection form. For the treatment pattern of cancer and other information, the patient history file and other medical records were verified.

RESULTS
Out of 171 cancer patients in the study,117 were male and 54 were female with a male female ratio 2.1:1 (Fig:1). Majority of patients came from various districts of Dhaka division (57.8%), while only 3.3% patients were from Sylhet division. Demographic characteristics of the cancer patients are shown in Table1. Most of the patients included in the study were Muslims (97.07%) and married (70.76%). Regarding the educational status, 34.5% were illiterate, and 21.05% had primary level education only. Most of the female were housewives (72.6%). Among the male majority (28.4%) were agricultural workers (Table1).

Compiled results of incidences of cancer in patients according to the age of the patients are shown in the Table 2. It is clear from the Table 2 that incidences of cancer increased noticeably after age 40 years and cancer was most prevalent in the age 50 to 60 years (Table 2). Cancer was least prevalent in the pediatric patients (<10 years) which comprised only 5.3% (Table 2).

There were 35(20.4%) respiratory tract cancer, 31(18.1%) GIT cancer, 18(10.5%) female genital organ cancer, 12(7%) head and neck cancer, and 14(8.2%) breast cancer (Table 3). Lung was the main leading site of cancer in male (28.4%) and breast cancer (21%) was the main leading site of cancer

in female patients. Head and neck cancer (12.8%) was in second position among male patients. Carcinoma of cervix was in second position among female patients. Stomach cancer was in third position for both sexes (Table 4).

Five leading sites of malignancy found among male were lung cancer (28.4%), head and neck cancer (12.8%), stomach cancer and leukemia (9.2%), colorectal cancer (8.3%) and male genital organ (6.4%) (Table 4).

Among female, breast cancer (21%), topped the list of common cancers followed by carcinoma of cervix (19.4%), stomach cancer (11.3%), colorectal cancer (9.7%) and carcinoma of ovary and oral cavity (8.1%) (Table 4).

Only 5.2% (9) cancer patients were of pediatric group (<10 yrs) and among them 5 were boys and 4 were girls. Retinoblastoma happened to be leading cause of cancer in this group (21%) followed by lymphoma (16%) and bone cancer (12%).

Patients of above 60 years of age were considered as geriatric patients. About 46.47% of all cancer patients from this age group. Most of them, however, were male 81.81%, only 18.19% were female. Lung cancer (30%) was predominate site of cancer among geriatric patients followed by esophagus (7%) and larynx (5.2%).

The main methods of cancer treatments are surgery, chemotherapy and radiotherapy, used alone or in combination (Table 5). We found that 40.4% of cancer cases were being treated with chemotherapy alone, in 23.4% of cases surgery and chemotherapy was done and in 7.0% of cases patients was being treated with radiotherapy. All of the patients showed chemotherapy induced side effects and such were being managed with relative medication along with cancer chemotherapy.

DISCUSSION

In this study, 171 cancer patients were included with a male female ratio of 2.1:1. A similar study was done at the National Institute of Cancer research and Hospital (NICRH) in 2006[9]. In that study male female ratio was 1.4:1. Another study was done in 2002 at the same institute and male female ratio was 1.17:1[10].In the present study the male patient's number were increased and difference between male and female increased. To find out the real scenario a population based survey is necessary.

Globally the three most common cancers are lung, breast and colorectal[11]. In our study we also found lung as the leading cancer in males and breast cancer is the leading cancer in females. Similar result was found in the study conducted in 2006 at NICRH[9]. Different geographic and socio-economic condition could be underlying cause for variation between global and local findings.

In 2006 study[9],it was found that among male the highest no of cancer was in lung (24.1%) followed by carcinoma of lymph nodes and lymphatic (7.0%), larynx (6.5%).In females it was breast cancer (23.3%), followed by carcinoma of cervix (21.4%), lung (5.6%). But in the present study, it was found that among male the highest no of cancer was in lung (28.4%), followed by head and neck cancer (12.8%), carcinoma of stomach, leukemia (9.2%). From all the cancer studies, we found that lung cancer always in the leading position among male patients both in Bangladesh and in the world. The underlying main cause of lung cancer is tobacco. Tobacco use is the single most preventable cause of death worldwide, responsible for the deaths of approximately half of all long-term users[12]. From the present study it was also found that breast cancer (21%) was in leading position among female patients. The underlying causes of breast cancer are

not clear. Developed reporting system or increased consciousness to seek cancer treatment could be the cause.

In the present study, it was revealed that only 5.2% patients of pediatric age group (<10yrs) are suffering from any sort cancer. This result supports the facts that mainly cancer is a disease of adult and old age[13.] According to present study, incidences of cancer increased noticeably after age 40 years and cancer was most prevalent in the age 50 to 60 years.

From the study it was also found that maximum cancer patients (40.4%) took chemotherapy for cancer treatment and 23.4% patients took both surgery and chemotherapy.

There have been some similarity and some dissimilarity between the findings of the present study and similar study held in our country and abroad[14]. The findings of the study may not reflect the real cancer situation totally but will definitely provide some idea about possible prevalence of different type of malignancy amongst the population in Bangladesh.

According to present study majority of cancer patients came from Dhaka division and least number of patients reported from Sylhet division. The long distance and poor communication network across the country could be the cause of this difference.

CONCLUSION

Cancer is potentially the most preventable and the most curable of the major chronic, life-threatening diseases, unfortunately, it remains a leading killer worldwide. From the survey, we found that most people have no idea about cancer and it's risk factor. It needs to increase public awareness regarding this matter and government needs to come forward. Mass education is necessary to raise public awareness regarding serious health ailments like cancer, HIV infection.

Cancer treatment is expensive. Almost all of the patients said that they approximately expense 2-3 lacks taka for their cancer treatment and now they are in big trouble to pass their livelihood and management of money for their treatment. Government should give more subsidies in to the health sector that all poor and middle class patients get free treatment and also must give subsidy on anti-cancer drugs that people of every class can get anti-cancer drug at a cheap price.

In Bangladesh the number of specialized hospital for cancer treatment is not in satisfactory level. Government should establish specialized cancer hospital in the district level and must increase the cancer treatment facility in the district level and medical college based hospital.

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Table 1: Demographic characteristics of cancer patients

Demography	Male (%)	Female (%)
Religion		
Islam	106(97.2%)	60(96.8%)
Hinduism	3(2.8%)	2(3.2%)
Christianity	0	0
Buddhism	0	0
Marital Status		
Single	21(19.3%)	13(21%)
Married	81(74.3%)	40(64.5%)
Widow/Widower	7(6.4%)	9(14.5%)
Divorced	0	0
Education level		
Not Applicable(Up to 5 yrs)	4(3.7%)	4(6.5%)
Illiterate	35(32.1%)	24(38.7%)
Primary	20(18.3%)	16(25.8%)
Junior secondary	8(7.3%)	7(11.3%)
S.S.C	28(25.7%)	4(6.5%)
H.S.C	9(8.3%)	6(9.7%)
Graduate/Above	5(4.6%)	1(1.6%)
Occupation		
Not Applicable	8(7.3%)	4(6.5%)
Service	21(19.3%)	1(1.6%)
Business	1917.4%)	
Agriculture	31(28.4%)	
Day Labourer	3(2.8%)	2(3.2%)
House Wife		45(72.6%)
Retired/Aged	19(14.7%)	1(1.6%)
Industrial Worker	2(1.8%)	
Student	9(8.3%)	9(14.9%)

Table 2: Percentage (%) of incidence of cancer in patients according to their age

Age (In year)	% of cancer incidence in patients
<10	5.3
10-19	8.7
20-29	11.1
30-39	12.3
40-49	17.0
50-59	26.3
>60	19.3

Table 3: System wise distribution of all cancers

Primary site	Number	Percentage
Respiratory tract	35	20.4
GIT	31	18.1
Female genital organs	18	10.5
Head and neck	12	7.0
Breast	14	8.2
Lymphatic and lymph node	5	2.9
Kidney and related organs	3	1.8
Eye, Brain and CNS	5	2.9
Bones	9	5.3
Skin	3	1.8
Male genital organs	7	4.1
Endocrine glands	2	1.2
Leukemia	14	8.2
Non specific organs	13	7.6
Total	**171**	**100**

Table 4: Top 10 malignancies in both sexes.

Male (%)	Site	Position	Site	Female (%)
30(28.4%)	Lung	1	Breast	13(21%)
14(12.8%)	Head and Neck	2	Cervix	12(19.4%)
10(9.2%)	Stomach, leukemia	3	Stomach	7(11.3%)
9(8.3%)	Colorectal	4	Colorectal	6(9.7%)
7(6.4%)	Male genital organ	5	Ovary, Oral Cavity	5(8.1)%
6(5.5%)	Bone	6	Leukemia	4(6.5)
5(4.6%)	Kidney and related organ, Brain	7	Bone	3(4.8)
4(3.8%)	Lymphatic and lymph node	8	Lung, esophagus	2(3.2%)
3(2.8)	Liver	9	Lymphatic and lymph node	2(3.2%)
2(1.8%)	Oral cavity	10	Brain	1(1.6)

Table 5: Treatment pattern in various hospital

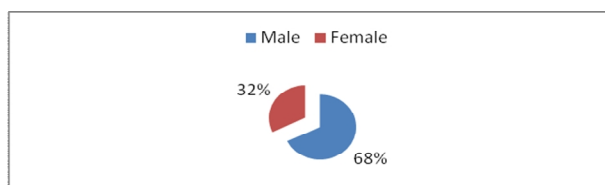| Nature of treatment	Number	Percentage
Surgery	24	14.0
Chemotherapy	69	40.4
Radiotherapy	12	7.0
Surgery and chemotherapy	40	23.4
Surgery and radiation	8	4.7
Chemotherapy and radiation	9	5.3
Surgery and chemotherapy and radiation	9	5.3
Total	**171**	**100**

Figure 1: Distribution of cancer in male and female cancer patients of various hospitals of Dhaka division, Bangladesh