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Demographic Profile of Patients with Stage-IV Non-Small Cell Lung Cancer: A Single Center Study in Bangladesh

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Abstract: *Background*: In Bangladesh, stage IV non-small-cell lung cancer (NSCLC) is the second most common cancer in males among top five most frequent cancers and the increase in lung cancer risk among women reflects changes during the 20th century. Prior conception on the demographic profile of patients with Stage-IV NSCLC may be helpful for the good management of such patients. Aim of the study: The aim of this study was to form the demographic profile of patients with stage IV non-small-cell lung cancer. *Methods*: This prospective observational study was conducted in National Institute of Cancer Research & Hospital (NICRH), Dhaka, Bangladesh during the period from September 2019 to August 2020. A total of 108 patients were enrolled purposively. Detailed history taking thorough physical examination was done along with relevant investigations regarding the demographic and clinical status of the participants. Data were collected by semi structured questionnaire and analysis was done with the help of SPSS version 21.0 and MS Office programs as per need. *Results*: In this study, almost two third (62%) patients were from <60 years' age group and the rest 38% were from >60 years' age group. The mean age was found 56.4±12.2 years and the male-female ratio was 4: 1. More than half (52.8%) of the patients came from poor families, 42 (38.9%) were from middle class and the rest 9 (8.3%) were from high class families. More than one third (36.1%) patients were farmer followed by 31 (28.7%) were businessmen, 25 (23.1%) were service holder and the rest 13 (12.1%) were house wife. *Conclusion*: As per the findings of this study we can conclude that, male may be major prone to stage IV non-small-cell lung cancer. The frequencies of mid-aged patients of NSCLC are alarming.

Keywords: Non-Small Cell Lung Cancer, Stage-IV NSCLC, Demographic Profile, Carcinoma

1. Introduction

According to the Global Cancer Statistics 2018 (world), lung cancer is one of the most common cancers worldwide. Like other disease management, prior conception on the demographic profile of patients with Stage-IV NSCLC may be helpful for the good management of such patients. According to Globocan 2018, there are about 1.8 million cancer patients in Bangladesh; in each year, more than 2 lakh people are newly diagnosed with cancer and yearly more than 1.5 lakh people die here from cancer. [1] Age standardized (world)

incidence is 9.4% and mortality rate is 9.0% among top ten cancers (Global Cancer Observatory, 2018). The 5-year survival rate for lung cancer is around 18%, reflecting a slow but steady improvement from 13.7% in the 1970s [2]. In the late 1990s, this histological shift was first observed in Europe and North America, however, this trend has also been evident in developing nations such as China and India [3]. In males, lung and oral cancer along with oropharynx cancer rank as the top 2 prevalent cancers. [4] Surgery, radiotherapy and chemotherapy, targeted therapy and raising immunotherapy remain current treatment options, exhibit limited effectiveness.

Stage IV NSCLC without treatment, the median survival time is only 4-5months with a survival rate at one year of only 10% and the 5-year survival rate is only about 1-2% [5]. In a meta-analysis of 757 NSCLC patients with control of the primary tumor and one to five distant metastases that were all treated with locally ablative therapy, the median OS was 26 months and 5-year OS was 29% [6]. Thus, although the prognosis in stage IV NSCLC is poor, some carefully selected patients with oligometastatic disease may benefit from aggressive treatment [7]. In the United States (US), lung cancer remains the second most commonly diagnosed cancer with approximately 225,000 new cases and 160,000 deaths expected in the year of 2014 [8]. Nearly two-thirds of total patients are diagnosed at age 65 years or older, with an estimated median age at diagnosis of 70 years [9].

2. Objective

The objective of this study was to analysis the demographic profile of patients with stage-IV non-small cell lung cancer.

3. Methodology

This prospective observational study was conducted in National Institute of Cancer Research & Hospital (NICRH), Dhaka, Bangladesh during the period from September 2019 to August 2020. A total of 108 patients were enrolled purposively. Detailed history taking thorough physical examination was done along with relevant investigations regarding the demographic and clinical status of the participants. The total intervention was conducted in accordance with the principles of human research specified in the Helsinki Declaration [10] and executed in compliance with currently applicable regulations and the provisions of the General Data Protection Regulation (GDPR) [11].

Inclusion criteria
1. Age: all patients were between 18 to 75 years of age.
2. Stage-IV diseases, pathologically confirmed diagnoses of NSCLC.
3. WHO performance status up 0 to 4.
4. No prior chemotherapy or radiotherapy.
5. Minimum laboratory criteria.
6. Histological typing of tumors was made according to the recommendation by WHO.

Exclusion criteria
1. Patients who had history of other coexisting or previous cancer.
2. Patient with comorbidities.
3. Patient with history of whole blood transfusion or any other blood components within 10 days.
4. Patient who had taken acetylsalicylic acid drugs one month to the treatment.

All data were tabulated in master data sheet. Data were coded manually and entered into computer. Data cleaning, validation & analysis were performed using the IBM SPSS statistics version 21 & graph by MS Excel 2010. Data were presented by tabular or graphic form. A p- value <0.05 was considered as significant.

4. Results

In this current study, in analyzing the ages of the participants we observed that, almost two third (62%) patients were from <60 years' age group and the rest 38% were from >60 years' age group. The mean age was found 56.4±12.2 years with the range from 35-75 years. Among total 108 participants, 80% were male whereas the rest 20% were female. So male participants were dominating in number and the male-female ratio was 4: 1. More than half (52.8%) of the patients came from poor families, 42 (38.9%) were from middle class and the rest 9 (8.3%) were from high class families. More than one third (36.1%) patients were farmer followed by 31 (28.7%) were businessmen, 25 (23.1%) were service holder and the rest 13 (12.1%) were house wife. In this study, in analyzing the WHO performance status of the study patients, it was observed that, majority (40.7%) patients had symptomatic; in bed >50% of day followed by 29 (26.9%) had symptomatic; in bed <50% of day, 18 (16.7%) symptomatic; fully ambulatory and 17 (15.7%) had bedridden. Among total patients, more than half (59.3%) patients were with <5% weight loss followed by 31 (28.7%) with loss of 5-10% and the rest 13 (12.0%) with loss of >10%. More than two third (69.4%) of our patients had squamous cell carcinoma and 33 (30.6%) had adeno-carcinoma but not found large cell.

Table 1. *Socio-economic status of the Patients (N=108).*

Status	n	%
Lower income	57	52.8
Middle income	42	38.9
High income	9	8.3

Table 2. *Occupational status of patient's (N=108).*

Occupation	n	%
Farmer	39	36.1
Businessman	31	28.7
Service holder	25	23.1
House wife	13	12.1

Table 3. *Distribution of clinical and histological status of patient's (N=108).*

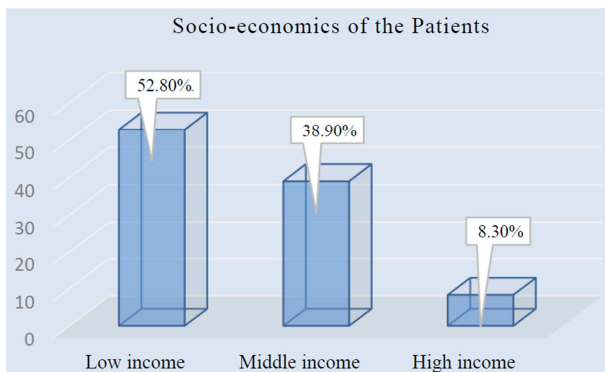| Variables	n	%
WHO performance status		
0 (Asymptomatic)	0	0.0
1 (Symptomatic; fully ambulatory)	18	16.7
2 (Symptomatic; in bed < 50% of day)	29	26.9
3 (Symptomatic; in bed > 50% of day)	44	40.7
4 (Bedridden)	17	15.7
Patients Weight loss status		
<5 kg	64	59.3
5-10 kg	31	28.7
>10 kg	13	12.0
Patient's Carcinoma type		
Squamous cell carcinoma	75	69.4
Adeno-carcinoma	33	30.6
Large-cell carcinoma	0	0.0

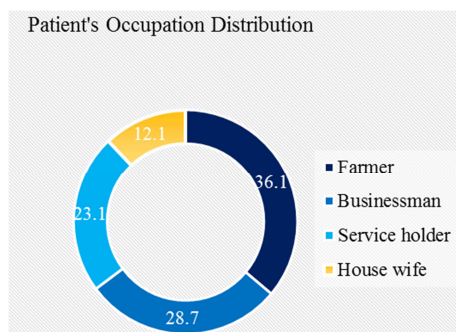*Figure 1. Bar chart showed socio-economic status of the patients.*

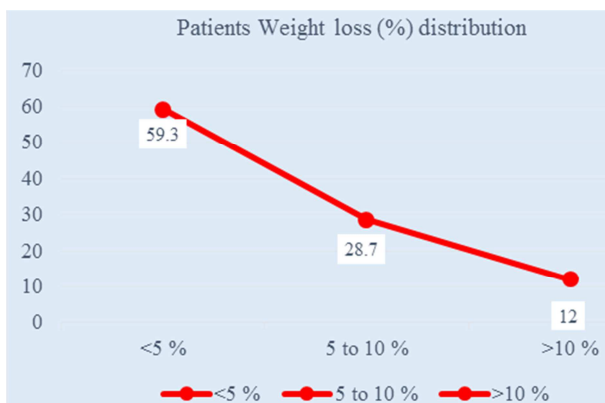*Figure 2. Pie chart showed of patient's occupational status.*

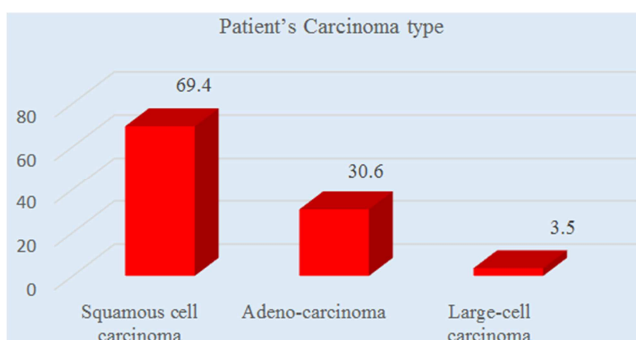*Figure 3. Bar chart showed patient's weight loss status.*

Figure 4. Bar chart showed patient's carcinoma status.

5. Discussion

The aim of this study was to form the demographic profile of patients with stage IV non-small-cell lung cancer. A total of 108 patients were enrolled from indoor and outdoor of Medical Oncology department, NICRH, during September 2019 to August 2020. All patients were between 18 to 75 years of age, stage-IV diseases, pathologically confirmed diagnoses of NSCLC, WHO PS up 0 to 4. No prior chemotherapy or radiotherapy, minimum laboratory criteria (adequate bone marrow function, normal hepatic and renal function), histological typing of tumors was made according to the recommendation of the WHO were included in this study. In this study, it was observed that, at baseline, 47 (62.7%) patient's age was <60 years, had normal and 20 (60.6%) had elevated platelet count level. During 1st follow-up, 41 (66.2%) patients of <60 years had normal and 15 (62.9%) had elevated platelet count level and those were similar to the study conducted by Aoe et al. (2014) [12]. In current study it was observed that, majority (40.7%) patients had symptomatic; in bed >50% of day followed by 29 (26.9%) had symptomatic; in bed <50% of day, 18 (16.7%) symptomatic; fully ambulatory and 17 (15.7%) had bedridden. At baseline, a good number (45.3%) of patients had symptomatic; in bed >50% of day had normal and 10 (30.3%) had elevated platelet count level. In at 1st follow-up. 26 (40.6%) patients had symptomatic; in bed >50% of day had normal and 5 (20.8%) had elevated platelet count level and those findings were similar to the study conducted by Davidov (2014) [13] and Maráz et al. (2013) [14]. Besides these, it was observed that, more than half (59.3%) of the patients had <5% weight loss followed by 31 (28.7%) had loss of 5-10% and 13 (12.0%) had loss of >10%. At baseline, more than two third (69.3%) of our patients with <5 percent weight lost had normal and 12 (36.4%) had elevated platelet count level. At 1st follow-up, 42 (70.0%) patients with <5 percent weight lost had normal and 10 (29.4%) had elevated platelet count level. Those findings were similar to the study conducted by Davidov (2014) [13]. In this study, more than two third (69.4%) patients had squamous cell carcinoma and 33 (30.6%) had adeno-carcinoma but not found large cell carcinoma. These findings are similar to the study done by Davidov (2014) [13] and Maráz et al. (2013) [14]. A contemporary review of treatment of non-small cell lung cancer in Canada based on current best practices. The focus of this review is to highlight recent data in screening for lung cancer, management of patients with early and locally-advanced non-small cell lung cancer, as well as management of patients with metastatic disease. There is a special focus on the incorporation of immunotherapy into practice and its associated toxicities. [15] Specific regimen compositions were defined by using algorithms developed in previous claims-based studies of chemotherapy utilization [16, 17]. For the first, second- and third-line chemotherapy regimens, the treatment methods presented in recent claims-based cancer studies by Ramsey et al. [18] and Weycker et al. is also noticeable [19].

6. Limitation of the Study

The study population was selected from one selected hospital in Dhaka city in Bangladesh, So, that the results of the

study may not be reflect the exact picture of the country. The present study was conducted at a very short period of time. Small sample size was also a limitation of the present study. Recall bias could not be excluded.

7. Conclusion and Recommendation

As per the findings of this study we can conclude that, male may be major prone to stage IV non-small-cell lung cancer. The frequencies of mid-aged patients of NSCLC are alarming. Poor living status may be responsible for increasing the number of non-small-cell lung cancer patients. For getting more specific findings we would like to recommend for conducting similar more studies with larger sized samples in several places.

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