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Profile of Lung Cancer: A One-Year Report

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Abstract:

Background: *Lung cancer has been the most common cancer in the world since 1985 and the leading cause of cancer death. Worldwide it is by far the most common cancer of men and increasingly being recognized in Bangladesh.*

Objective: *To observe the profile of lung cancer patients and the outcome of chemotherapy.*

Method: *In one year (1st January'08 to 31st December'08) the lung cancer patients who attended the dept. of Medical Oncology were included in this study. The patient's history, clinical evaluation, previous treatment record (surgical intervention, chemotherapy and radiotherapy), histopathology and other investigation reports were documented. Chemotherapy and or supportive and symptomatic treatment carried out in the department were noted and response of the treatment were observed and documented.*

Result: *Total number of patients was 701.Of them, 608 males and 93 females; male female ratio: 6.53:1. Common occurrence (> 85%) at and above 50 years of old; age range 25 years to 95 years and mean age 62 years; 44% was illiterate and 40% had primary school education; more than 82% belonged to poor and bellow average socioeconomic status.*

Previous records showed 524 patients (about 75%) attended after diagnosis and 177 cases (25%) had had prior treatment (6 by surgery, 22 by radiotherapy and 147 by chemotherapy). On clinical evaluation, almost all patients were symptomatic with WHO Grade-2 (44.51%) and Grade -3 (26.68%) performance status. Right lung was affected more (55%). Pathologically non-small cell carcinoma was 81.45% and small cell carcinoma 18.55%. But histopathology differed by sex; squamous cell carcinoma (43.42%) was most common in male but in female it was adenocarcinoma (55.92%). All most all cases were at inoperable stage (locally advanced/metastatic cancer/ medically unfit). Thirty percent of male patients and 45% of females dropped out after first and second visit. Around 20% patients got only supportive symptomatic management in both sexes and 326 patients (296 male and 30 female) were treated by chemotherapy. Within three to six months of treatment, 10% of the patients showed complete symptomatic relief, weight gaining and radiological disappearance of tumor and all most all patients benefited of some sorts of symptoms relief.

Conclusion: *The lung cancer patients were at inoperable stages with WHO Grade 2 and Grade 3 performance status in most of the cases; needed much more supportive and symptomatic treatment. Chemotherapy was effective; complete clinical and radiological response in 10% of cases and others got benefit with some sorts of symptoms relief and radiological improvement.*

Keyword: *Lung cancer, Bangladesh, squamous cell carcinoma, adenocarcinoma metastatic cancer, Chemotherapy, Bangladesh.*

Introduction:

The lung cancer is the major health problem worldwide. It is the most common cause of cancer mortality for both men and women, causing approximately 1.2 million deaths per year. [1] Both the absolute and relative frequency of lung cancer has raised dramatically.[2] According to the Hospital Cancer Registry of National Institute of Cancer Research & Hospital, Dhaka, Bangladesh, the occurrence of lung cancer is 16.7% of all cancers and the most common cancer (25%) among the male cancer patients, 6.1:1 male female ratio. [3]

Approximately 95 percent of all lung cancers are classified as either small cell lung cancer (SCLC) or non-small cell lung cancer (NSCLC). This distinction is essential for staging, treatment, and prognosis. Other cell types comprise about 5 percent of malignancies arising in the lung. Surgery is the treatment of choice for NSCLC if the primary tumor is

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resectable and if metastatic disease is absent. Chemotherapy and radiation therapy are used to treat tumors that are unresectable because of intrathoracic spread or distant metastases. Small cell lung cancer (SCLC), which metastasizes early and has a worse outcome than NSCLC, has a separate staging system. [1-3]

Lung cancer has one of the lowest survival outcomes of any cancer because over two-thirds of patients are diagnosed at a late stage when curative treatment is not possible.[4] Despite the advances in imaging techniques and treatment modalities, the prognosis of lung cancer remains poor, with five-year survival of 14% at early stages and less than 5% in locally advanced stages. [5] In our country the patients mainly attended the hospital at the late stage of the disease. Main reason for late presentation is poor health awareness, delayed recognition and poor referral to the specialized centre.

This study was undertaken to analysis the demographic pattern, clinical presentation, and pathological characteristics of lung cancer as well as the outcome of chemotherapy used in Lung cancer patients.

Materials and methods:

In one year (1st Jan 08 - 31st Dec 08), the diagnosed lung cancer patients who had faced the multidisciplinary tumor board of National Institute of Cancer Research and Hospital, Dhaka, Bangladesh and selected for chemotherapy or palliative care were registered in the Dept. of Medical Oncology. Each patient was interviewed according to a preformed questionnaire. The particulars of the patients, complete clinical history, previous treatment record specially already done surgical notes, radiological and imaging study, histopathology report, complete blood count, liver function, kidney function test, other biochemical laboratory studies, tumor marker were documented in the record file. The patients were categorized into operated and inoperable group. According to performance status, hematological parameters, cardiac function, liver function, kidney function test, chemotherapy was prescribed and carried out. The patients unfit for chemotherapy were treated symptomatically. After completion of the chemotherapy, the patients were advised for follow up six/eight weekly. Those who are only supportive and symptomatic care were advised to come whenever they faced the deteriorating sign symptoms. All the documents were compiled with patients database accordingly. Ethical clearance was taken from the ethical review committee and informed writhen consent was taken from each patient.

Result:

Total 701 lung cancer patients attended: male-608 and female-93; male to female ratio-6.15:1; age range 25 years to 95 years and mean age 62 years; more than 85% of the patients at and above 50 years. The patients are illiterate (44%) and belonged to poor families (13%) and bellow average families (70%). Occupationally male patients were farmer (71%) and all females were housewife (Table-I).

Table-I

Patients characteristics (n=701)

Gender	
Male	608 (86.73)
Female	93 (13.27)
Age groups (yrs)	
< 40	10 (1.42)
40-49	93 (13.27)
50-59	275 (39.23)
60-69	211 (30.09)
70- 95	112 (15.99)
Occupation	
Farmer	437 (71.87)
Service	74 (12.17)
Business	63 (10.36)
Male	
Day lab our	34 (05.59)
Housewife	93 (100) - Females
Education	
Illiterate	145 (44.47)
Primary	128 (39.37)
Secondary School Certificate & above	53 (16.16)
Habit of smoking & or with betel nut tobacco sewing	
*Yes	640 (91.30)
No	61 (07.30)
Histology	
Non Small cell lung cancer	571 (81.45)
Small cell lung cancer	130 (18.55)
Site of lesion	
Right lung	337 (55.21)
Left lung	271 (44.79)
WHO Performance status	
0- (Asymptomatic)	008 (1.14)
1- (Symptomatic but ambulatory)	156 (22.25)
2- (Symptomatic but in bed <50% of time	312 (44.51)
3- (Symptomatic in bed >50% of time but not bedridden	187 (26.68)
4- in bed 100% of time	038 (05.42)

*Smoking (male-341+female-12) =353; Smoking & Betel nut tobacco sewing (male-215 + female-8)= 223; Betel nut tobacco sewing / Gul user (male-8+female-56)=64

* Sign of Arsinocosis: 16 patinets (male 9 + female 7)

All patients presented with multiple symptoms (respiratory and systemic) bearing performance status WHO grade 2 (44.81%) and Grade 3 (26.68%). Right lung was affected more (55%). All most all patients presented at inoperable stage (99.14%) and only 6 patients attended after surgery. On broad histological classification, lung cancer was mostly non small cell carcinoma (NSCLC) 81.45% and small cell carcinoma (SCLC) 18.55%. In male, squamous cell carcinoma (43.42%) was the most common and in female, it was adenocarcinoma (55.92%) (Table-I).

After attending the department, 45% of female patients and 30% of male patients dropped out out after first and second visit, 48% of male and 32% of female were treated by chemotherapy and the remaining around 20% of both sexes were treated by supportive and symptomatic treatment. Chemotherapy was effective. About 10% of them showed complete clinical and radiological response and others benefited with some sorts of symptoms relief and radiological improvement. The result of the study is given in tables and charts.

Table-II

Common clinical presentation

Symptoms	No. of patients (%)
Cough with expectoration	205 (29.24)
Cough with chest pain	144 (20.54)
*Mixed symptoms	132 (18.83)
Respiratory distress	91 (12.98)
Cough with haemoptysis	73 (10.42)
Hoarseness of voice	56 (07.99)

*Mixed symptoms -chest complaints with fever, weight loss, anorexia, headache, pain and ache all over body, weakness, pain abdomen, loose motion, constipation, vertigo.

All most all patients presented with anorexia and weight loss.

Figure-1 showing Histopathology of lung cancer differed by sex.

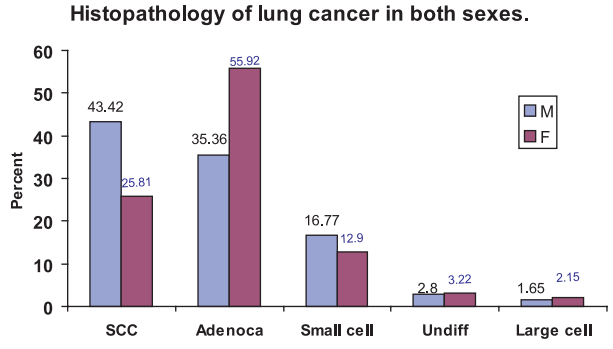

Fig.-1: *Histopathology of lung cancer differed by sex.*

Male: Squamous cell carcinoma (SCC)-264 (43.42%), Adenoca-215 (36.36%), Small cell-102 (16.77%), Undiff.ca-17 (2.8%), Large cell ca.-10 (1.65%).

Female: Adenoca.-52 (55.92%), Squamous cell carcinoma (SCC)-24 (25.81%), Small cell-12 (12.9%), Undiff.ca-3 (3.22%), Large cell ca.-2(2.15%).

Table-III

Chemotherapy treatment carried out according to the following schedules.

Chemotherapy schedule	No. of patients	Percent
Cisplatin/Etoposide	173	53.06
Peclitaxel/Carboplatin/cisplain	65	19.93
Gemcitabine/Carboplatin	54	16.56
Oral Etoposide	15	04.60
Oral Lomustine	8	02.45
Gefitinib	5	01.53

Total 326 cases were treated by chemotherapy. More than half of them (53.06%) were treated by Cisplatin +Etiposide, 65 (19.93%) by Peclitaxel+ Carboplatin, 54 (16.56%) by Gemcitabine +carboplatin.

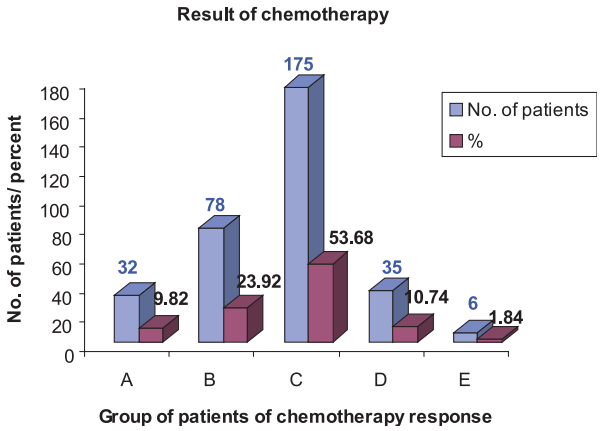

Fig.-2:

Total 326 lung cancer patients were treated by chemotherapy. The patients were evaluated between 3 moths to 6 months of treatment. They were categorized into A,B,C,D,&E according to symptoms relief, weight gain and treatment response (Fig.-II).

A=Complete relief of symptoms, weight gain, radiological disappearance of lung lesion.

B= Complete relief of symptoms, weight gain, radiological improvement of lung lesion

C= Partial relief of symptoms, weight gain, radiological improvement of lung lesion

D=Partial relief of symptoms, no radiological improvement

E= No relief of symptoms, no weight gain, no radiological improvement of lesion

Discussion:

The lung cancer is number one cancer problem comprising of 16.7% of all cancers of Bangladeshi people[3]. In our study, there was male preponderance (81.56%) as compared with female (13%). This picture is more or less similar with India.[6] Increasing age is a risk factor for lung cancer. It is less common in people under age 40. More diagnoses occur after age 45 and a larger number over age 65 years. [8] In the present study, common occurrence of this disease was found at and after 50 years and least common (1.42%) before 40. On risk assessment, it had been found that more than 90% of our patients were habituated with smoking, betel nut tobacco sewing and gull user (tobacco leaf powder used in root of teeth). Though around 20% of female patient was smoker but 62% of them had the long history of betel nut tobacco sewing and gull use. Sixteen patients had the cuteneous sign of arsenicosis. Smoking is an established cause of lung cancer. Regarding occupation, more than 70% of our study male patient was farmer, 74 service holder (12%), 22 patients were motor vehicle drivers and 34 day labor workers mainly worked in building construction, painting, and carpenter (Table-I). The above-mentioned occupations are considered as exposed workers for lung cancer in different studies.[9] There was increased risked of lung cancer for the exposed workers[10].

There are two main types of lung cancer; non-small cell lung cancer (NSCLC) 80.4% and small cell carcinoma (SCLC) 16.8 percent.[11] In the present study, NSCLC was 81.45% and SCLC 18.55%. The World Health Organization classification for primary lung cancer recognizes four major histologic cell types such as adenocarcinoma, squamous cell carcinoma, small cell carcinoma and large cell carcinoma. Squamous cell carcinoma (SCC) was the most frequent histologic type of lung tumor in nearly all studies done prior to the mid-1980s. More recent reports have noted a shift in the relative frequency of lung carcinoma tumor types such that adenocarcinoma now is more common than squamous cell carcinoma, particularly in women.[12] In our study, squamous cell carcinoma was most frequent (43.42%) type among the males but in females, 55.92% lung cancer was adenocarcinoma (Figure-1).

An analysis of the presenting symptoms, cough and expectoration was most common (29.24%), cough and chest pain (20%) and mixed symptoms in 18% of the patients (Table-II) Almost all patients were diagnosed after onset and long duration of their symptoms. So the 99.14% of the disease was detected at inoperable stage. Our patients were not aware about their health because 44.47% was illiterate, 37.29% had primary education and 82% of them belonged to poor and bellow average socioeconomic status. At the time of diagnosis, the performance status of the patients was WHO Grade2 (44.51%) and Grade 3 (26.68%). The delay in diagnosis occurs because of the fact that the most of the symptoms of lung cancer, chronic bronchitis and pulmonary tuberculosis are similar and most patients received anti tubercular drugs, antibiotics for chronic bronchitis for varying period of time before a definitive diagnosis could be made. Moreover diagnostic facility like fiber optic bronchoscope and other invasive procedures like fine needle aspiration cytology/ biopsy are not available uniformly through out the country. In India also lung cancer patients present mostly at advanced stage and less than 5% cases at operable stage. However, because of associated smoking, chronic obstructive pulmonary disease (COPD) and other cardio-vascular causes, some of the operable cases cannot be taken up for surgical treatment .[13]

Lung cancer remains highly lethal disease. In United States, five-year survival is 15%, best recorded at population level, average survival in Europe is 10%, not much better than 8.9% in developing countries. [1] The situation is similar in India. The published reports do not mention about the five-year survival rate. One-year survival has been 9.8 percent.[14] In the present study, about one-third of male and 45% of female patients drop out after first and second visit due to advanced stage, poor performance status and poor socioeconomic condition.

Because of the advanced stage of the disease, the only option is the systemic chemotherapy. Radiotherapy can be used as an adjuvant and localized form of treatment. It is well established that chemotherapy is better than best supportive care[15,16]. In the present study, 326 patients were treated by chemotherapy according to standard schedule (Table .3). About 10% of the patients showed complete response (symptomatic and radiological) and others benefited with some sorts of symptomatic improvement. (Figure.2).

Our study revealed that, lung cancer patients attended at inoperable stage with male preponderance bearing performance status WHO grade 2 and grade 3 in 70% of cases. Squamous cell carcinoma (43.42%) was the most common type in male but adenocarcinoma (55.92%) in female. One third of male and 45% of female patients drop out, around 20% of both sexes received supportive and symptomatic treatment; chemotherapy was carried out in 48.68% of male and 32.26% of female patients. Chemotherapy was effective with some sorts of symptoms relief in all most all patients.

In conclusion, it can be commented that the lethal nature of lung cancer is overlooked. We need to focus more on its prevention as treatment modalities are limited.

Conflict of Interest: None

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