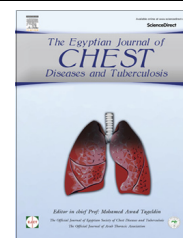




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ORIGINAL ARTICLE

Pattern of treatment and clinico-epidemiological analysis of 804 lung and pleura cancer patients treated in radiation oncology department, NCI-Egypt



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KEYWORDS

Lung cancer;
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Abstract *Background:* Epidemiological profile and treatment outcomes of Lung and pleural malignancies vary among different geographical regions. The aim of the study is to analyze the clinico-pathological profile and pattern of treatment of lung and pleural cancers at the Radiation Oncology department, NCI, Cairo University.

Materials and methods: A review of 804 clinical patient records with 770 pathologically/cytologically confirmed patients from Jan 2008–December 2012 was performed. Patients were evaluated (clinical, demographic and pathological profiles) in addition to the treatment adopted.

Results: Median age was 56 years with a male: female ratio of 4:1. Smoking was reported in 63% of patients. Dyspnea and chest pain were the most presenting symptoms (53%). Among lung cancer patients; 78% were NSCLC and 12% SCLC with mesothelioma comprising 10%. Among NSCLCs, adenocarcinoma and large cell undifferentiated carcinoma were the commonest histological subtype (72%). Among NSCLC, 58% cases were of stage IV while among SCLC 73% cases had extensive stage disease. Chemotherapy was administered to 47% (55% vs. 67%, and 35% vs. 31% among non-metastatic lung cancer, mesothelioma patients and metastatic lung cancer and mesothelioma patients respectively). Distant metastases (brain 48%, bone 36%) were reported in 45% of patients. The pattern of treatment intent was palliative (88%) vs. 12% treated with radical intent.

Conclusions: Advanced stages at presentation reflect the palliative pattern of treatment. Hypo-fractionated radiotherapy for lung and pleura malignancies as a palliative measure is

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the current practice. Implementation of early palliative care should be considered for metastatic patients.

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Introduction

Lung cancer is the most lethal newly diagnosed cancer. Its high mortality and low 5 years survival rates (< 14%) pose a major challenge in addition to the sharp rise in its incidence among all age groups. The reported median age of lung cancer patients is 65–70 years [1–4]. Untreated lung cancer patients live on an average for 7 months [5].

Estimated new cancer cases of lung cancer is estimated to be approximately 15% among males and 14% among females; ranking second after prostate and breast for both genders; while ranking first for estimated new cancer deaths with a 31% and 26% death rates among males and females respectively [6].

In Egypt, according to the Gharbia population based and National Cancer Institute; Cairo University cancer registries lung cancer ranks 5th and 7th among both genders with a 5% and 4% incidence respectively. Pleural malignancy constitutes 1.4% ranking 16th [7,8].

Tobacco smoking (cigarette); the leading cause for lung cancer, is responsible for about 83% and 90% of females and males lung cancer, respectively. Passive-smokers are also at increased risk of developing lung cancer [4]. Heavy smoking (>20 cigarettes/day) has been shown to confer a risk of between 15- and 25-fold relative to nonsmokers [9,10].

Lung cancer is pathologically classified into SCLC (15%) and NSCLC types (>85%). Two thirds of NSCLC have non-resectable disease on initial presentation and less than one third of patients with SCLC have limited-stage disease at presentation. Reported survival rates are commonly very poor even in patients with non-metastatic disease [11–13].

Symptomatic lung cancer patients often presents in a locally advanced or metastatic disease status [14]. Depending on the stage of the disease, therapy is planned with treatment intents either to palliate specific tumor-related symptoms (pain medications/low dose radiotherapy) or local tumor control by trimodality therapy or combinedchemoradiation [15].

Patients presenting with locally advanced or metastatic lung cancer are best treated with palliative-intent radiotherapy (RT); known to be effective in alleviating symptoms resulting from intrathoracic disease, such as hemoptysis, cough, chest pain, dyspnea, and airway obstruction. Short RT fractionation schedules have been recommended by many guidelines [16–21]. The estimated prognosis after diagnosis of advanced disease stage has been reported to be less than 1 year [22,23].

Brain metastasis is reported to be 30–60% among patients diagnosed with lung cancers. Whole brain radiation therapy (WBRT) alone was offered as first-line therapy for the management of brain metastases with reported median survival of 5–6 months [24,25].

Mesothelioma was described as an insidious neoplasm with long latency period (up to 40 years) after exposure to asbestos. Concomitant smoking enhances the risk of malignancy in an asbestos worker, with a 60-fold increased risk of developing

NSCLC. Males were three times more likely to be diagnosed than females, and more than half of the patients presented with stage III or stage IV disease [26]. Peak incidence occurs in the 5th and 6th decades of life. Surveillance Epidemiology and End Results (SEER) registry data report approximately 3300 new cases annually, compared to nearly 200,000 cases of lung cancer [27].

Radiotherapy alleviating pain or reducing transient chest wall masses; which has seldom demonstrated significant response as the primary modality for intrathoracic disease did not improve survival [28]. The value of RT in patients with unresectable mesothelioma is controversial, with little evidence supporting RT in the management of mesothelioma [29] Expected median survival in patients treated with chemotherapy is 12 months; and approximately 17 months after administering chemotherapy and RT after Extra Pleural Pneumonectomy [30].

Materials and methods

A retrospective review of lung and pleural cancer patients ($N = 804$) from the database of the Department of Radiation Oncology – NCI, Cairo University who were treated from January, 2008 through December, 2012; aiming to identify pattern of treatment and analyze their clinical and epidemiological characteristics was performed.

Parameters reviewed in the patients' clinical records included demographic data, presenting symptoms, complete history and physical examination, routine laboratory results, histocytopathological reports, and CT scan of the chest, abdomen, and pelvis; in addition to the treatment adopted. After reviewing patients' records some data were missing due to limitations in the context of the nature imposed by the retrospective study. Most of the patients were treated as a free section with only 27% being referred from insurance hospitals for radiotherapy.

Brain CT/MRI was routinely done at our institution for patients with neurological symptoms or signs. A histological diagnosis of non-small/small cell lung carcinoma was required for treatment unless metastatic disease was evident in the presence of a lung mass upon presentation in a patient with poor performance; therein treatment was started on palliative basis to control symptoms and sputum cytology was requested to reach a diagnosis.

Most of the patients were treated by multidisciplinary approach (free section patients) while those referred from Insurance hospitals; mostly were referred for radiotherapy due to the deficiency of Radiation therapy facility. Treatment protocols included neoadjuvant chemotherapy followed by RT for medically fit patients, while palliative chemotherapy and RT were adopted for medically unfit or patients presented with extra thoracic metastases with poor performance (Appendix 1).

Non-metastatic lung cancer patients were treated by chemo-radiotherapy. Radical RT implemented for curative treatment of patients with un-resectable NSCLC was a 60 Gy total dose and fractionation of 1.8–2.0 Gy per fraction, with one fraction per day, 5 days a week.

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