

## Trend of lung cancer in AL-Diwanyah teaching hospital (chest department)

Abdulraheem H.Albadri,MD(Respiratory medicine) &  
Sabah Mohsen Alzamily F.I.C.M.S.  
(Community medicine)  
Al-Diwanyah teaching hospital

### Background:

Lung cancer is responsible for the most cancer deaths in both men and women throughout the world. Deaths from lung cancer (160,440 in 2004, according to the National Cancer Institute) exceed the number of deaths from four other major cancers combined (breast, colon, pancreatic and prostate).

### Objective:

To assess the behavior and the approaches of lung cancer in a sample of Iraqi patients.

### Methods:

This descriptive retrospective study was performed using the records of 450 patients proved to have lung cancer that had attending the chest department in ALdiwanyah teaching hospital for the period from January,1<sup>st</sup>,2003 December,31<sup>st</sup>,2018.

### Results:

The results of this study revealed that 70% of the patients were male, with a mean age of 63 years. The majority of the patients (96%) were smokers, the number of cases increases with the increase in the duration of smoking or the amount of daily cigarette smoking. ,that can be calculated into tow groups(more than 20 pack-year were 80% while less than 20 pack-year were 16%).

### Conclusions:

Lung cancer is an important and serious public health problem with an increasing in incidence and prevalence in Iraq; cough is the most common clinical finding, found in 60% of patients, followed by chest pain (22%); cigarette smoking is responsible for the at least 95% of its etiology. Squamous cell carcinoma is the most common type of primary lung cancer in Iraq (44%) with prominence in male gender; adenocarcinoma is the second common type(30%). Key words: Lung cancer, Bronchogenic carcinoma,Tumor

### Introduction:

Lung cancer or bronchogenic carcinoma ("carcinoma" is another term for cancer), is a term to define the malignant tumors which arise from the respiratory epithelium, and comprise of more than 90% of all primary lung tumors [1] . It is the most malignant tumor in man and the second (after the breast cancer) in women. It is estimated that 10 million new lung cancer cases are diagnosed each year worldwide (2) In Iraq, lung cancer is the most commonly occurring cancer in men (16.7%) and the fifth in women

(4.2%) for the period of 1995-1999 (3). Cigarette smoking is by far the most important single factor in the causation of lung cancer; it is directly proportional for 90% of lung carcinomas. The risk being proportional to the amount smoked, the tar content of the cigarette, and the duration of the smoking (4) The relative risk of developing cancer is increased about 12 folds by active smoking and 1.5 fold by long term passive exposure to cigarette smoke (5) . Exposure to naturally occurring radon has been estimated to cause 5% of lung cancer. The

incidence of lung cancer is also slightly higher in urban than in rural dwellers, this may reflect differences in atmospheric pollution (including tobacco smoking) or occupation since number of industrial products (e.g., asbestos, beryllium, cadmium, and chromium) are associated with lung cancer (6). The common cell types are squamous cell carcinoma (35%), adenocarcinoma (30%), and small cell carcinoma (20%), and large cell carcinoma (15%). These histological types have an important bearing on the clinical presentation, prognosis, and response to treatment (6). The majority of the tumor arising in the main bronchus or in one of its primary or secondary divisions. They produce bronchial irritation and ulceration at early stage and frequently give rise into bronchial obstruction and the patient with carcinoma of the lung present most commonly with symptoms reflect local involvement of the bronchus such as cough, haemoptysis, breathlessness, but the symptoms may also arise from the spread to the chest wall or mediastinum, from distant blood born, or less commonly as the result of a variety of non metastatic para-neoplastic syndrome [7]. The main aims of investigation are to confirm the diagnosis, establish the histological cell type, and define the extent of the disease. Several diagnostic tools have been used but chest x-ray, sputum cytology, bronchoscope, and recently Computerized Tomography (CT)-scan and Magnetic Resonance Imaging (MRI) are the most useful to reach the diagnosis in majority of cases (8). The best way of management can be only achieved by early diagnosis and surgical resection, but unfortunately majority of cases (85%) is not operable at time of diagnosis. Chemotherapy, radiotherapy, laser therapy, and recently immunotherapy are the alternative types of management [9]. The over all prognoses in lung cancer is very poor with around 80% of patients dying within a year of diagnosis, and less than 5% of patients surviving 5 years after diagnosis (10).

The purpose of this study is to assess the clinical presentation, investigation of lung cancer in a sample of Iraqi patients.

**Methods:** This descriptive retrospective study was performed using the records of (450) patients with lung cancer (proved by histo-

pathological examination) that had attending the chest department in AL Diwanyah teaching hospital for the period from January, 1st, 2003 to December 31st, 2018. This department has Bronchoscope unit and it's the referral center for the majority of lung cancer cases from other hospitals all over AL Diwanyah province. The results of clinical presentation, Investigation, and management were obtained from their case records; organization, summarization and statistical analysis of the data were done by using descriptive statistics (frequency and percentages).

## Results

The results of this study were based on the analysis of (450) case-records for patients who had proven to have lung cancer. **Sex distribution:**

The majority of the patients (70%) were male with male: female ratio 2.3: 1, as shown in Table-1

### Age distribution:

The age of the patients ranged between 35-89 years with a mean of 63 years, 83.3% of the patients were 50 years old or above as shown in Table- 2.

### The residence distribution:

of the study sample regarding their residence is nearly equal as shown in Table- 3.

### Smoking habit:

This habit was found in the majority of the patients (96%), while only 4% was never smoked. The number of cases increases with the increase in the duration of smoking or the amount of daily cigarettes) as shown in Tables - 4

### Clinical findings:

Cough is the most common clinical finding, found in 60% of patients, this findings is shown in Table- 5.

### Investigation:

-Chest X-ray; the results of postero-anterior and lateral views were abnormal in 97.4% of patients The cancer is more in the central area (55.5%) and peripheral (18.8%). The main chest x ray findings were showed in Table-6

Bronchoscopy; was done in 382 (84.8%) patients (who were fit for the procedure) and

revealed abnormalities in 252 patients 65.9% as shown in **Table- 7**.

Sputum cytology; was done in ( 110 ) patients (24.4%) with positive results in 25 patients (22.7%) and it was squamous cell carcinoma in 80% of the positive findings -Pleural fluid cytology; was done in 65 patients (14.4%) with positive results in 15 patients (23%).

-Lymph node biopsy; was done in patients with palpable cervical lymph nodes, they were 50 patients with 90% positive results. It was small cell carcinoma in 75% of patients.

-Trans-thoracic fine needle aspiration; was done in 85 patients with peripheral carcinomas, with positive

results in 70 patients (82.3%).. Histo-pathological results; This revealed that the squamous cell carcinoma is the most common type in Iraq , it was found in 198 patients(44%), followed by adenocarcinoma in 135 patients (30%), followed by small cell carcinoma in 85 Patients (18.8%), then large cell carcinoma in 14 patients (3.1%). The diagnosis in the reminder 18 patients was undifferentiated tumor. The distribution of the histological types regarding the sex is shown in Table- 8

## Discussion

The perceived impression about cancer being predominantly a disease of developed and affluent societies is a common misconception. In 1994, over half of the annual world total of 5.8 million new cancer cases was reported from developing countries [5]. Primary carcinoma of the lung is a major health problem with a generally grim prognosis. However, an orderly approach to diagnosis and management based on proper knowledge of the clinical behavior of the lung cancer combined with a critical review of prevention and clinical treatment trials allows selection of the best steps in prevention and management [6]. This approach should be multidisciplinary, involving the interaction of medical internists, or chest physician, thoracic surgeon, radiation oncologist, pathologist, as well as the epidemiologist. [10]

In order to study the clinical behavior of lung cancer in Iraq, we select 450 records of those patients proved to have this disease histo-

pathologically. The male: female ratio of the study sample is 2.3:1; this result is close to the result of Iraqi cancer registry center (2.9:1), and to other Iraqi studies conducted by Elhassani [11], Al-alusi [12], Al-Kafaji [13] and Al-Qassir [14]. This result is also identical to other Asian countries as in China 2.6:1, Japan 2.8:1, and Korea 3:1[15], but differs from the Western countries as in USA 2:1, and England 1.8:1. [16]. From other hand, El-hassani in 1987 found the ratio was 9:1 [17], this mean a dramatic increase in the incidence and prevalence of lung cancer among Iraqi women mostly due to the invasion of smoking habit into female gender. The increment in the incidence and the prevalence have been also occurred in men as lung cancer was the second most common cancer (11.9%) after bladder cancer(13.1%)in Iraqi male for the period 1980-1984 [3] and this probably due to the increase in the number of male smokers or the amount of daily consumption. The mean age of the patients is 62 years, 83.2% of them was 50 years old and above. This finding is agreed with other studies conducted by Al-alusi[12], Al-Kafaji [13] and Al-Qassir [14], as it is well known there is an exponential increase in incidence rates with age for most adult malignancies and most cancers develop in the sixth, seventh, and eighth decades of life [5].

The distribution of the patients regarding their residence is nearly equal in urban and rural, this may be explained by the spreading of the smoking habit to the rural areas which is agree with other national studies[12, 13, 14 and18]. However, in USA and England the incidence of lung cancer is higher in urban than in rural inhabitants, this may be due to the effect of environmental pollution [16]. The percentages of smokers is 96%,This result is higher than those of other Iraqi studies [12, 13, 14, and 18], which may be related to method of data obtaining. American Thoracic Society comments that; smoking account for 80% - 90% of all cases of lung cancer, and it is easier to prevent than cure [16].

Cough is the most common clinical findings, found in 60% of patients, followed by chest pain (22.2%),dyspnea (10%), and haemoptysis (6.6%). findings agree with all other studies and identical to that found in medical and surgical textbooks [1, 2, 4, 6, 9,12, 13, 14 and 18].

Chest x-ray remain the simplest & cheapest sensitive investigation for suspicion in lung cancer detection, it was abnormal in 98% of the patients. with predilection of central location These findings agree with all other studies and identical to that found in medical and surgical textbooks [1, 2, 4, 6, 9, 12, 13, 14 and 18]. The diagnosis of lung cancer always requires confirmation of malignant cells by a pathologist, even when symptoms and x-ray studies are suspicious for lung cancer [9]. The simplest method to establish the diagnosis is the examination of sputum under a microscope. If a tumor is centrally located and has invaded the airways, this procedure, known as a sputum cytology examination, may allow visualization of tumor cells for diagnosis. This is the most risk free and inexpensive tissue diagnostic procedure, but its value is limited since tumor cells will not always be present in sputum even if a cancer is present. Also, non-cancerous cells may occasionally undergo changes in reaction to inflammation or injury that makes them look like cancer cells [5]. The sensitivity of sputum cytology ranging from 20%-80%, the least for peripheral and the greatest for central, especially if associated with haemoptysis [15]. The findings of this study agree with the above fact. Bronchoscope is usually the most useful investigation as it can provide tissue (biopsies and bronchial **brush** samples) for pathological

examination and allow direct visualization of the tracheo-bronchial tree including abnormalities such as tumors [5]. But unfortunately not all patients usually fit for this procedure and its sensitivity ranges between 20%- 80%. In this study, bronchoscope was done in 84.8% of the patients and revealed abnormalities in 65.9 % of them. These results agree with the previous Iraqi studies [12, 13, 14, and 18]. Squamous cell carcinoma is still the most common type of primary lung cancer in Iraq (44%) with a predominance in male gender, adenocarcinoma is the second common and more distribution in male also, this findings agree with the previous Iraqi studies [12, 13, 14, and 18], except Al- Azawi in 1995 [18], who found adenocarcinoma was predominant in female which may be explain by the type of his study sample etiology.

#### Conclusions:

Lung cancer is an important and serious public health problem with an increasing in incidence and prevalence in Iraq; the male: female ratio is 2.3:1 with mean age of 62 years. Cough is the most common clinical findings, found in 60% of patients, followed by chest pain (22%); cigarette smoking is responsible for more than 95% of its

#### Recommendations

Lung cancer is a preventable disease. Primary prevention of lung cancer by smoking cessation (implementation of national program for smoking cessation), while secondary prevention by early diagnosis (screening person with high risk) and management. This is done in specialized center established for this purpose

(Table-1) Sex distribution of the study sample

Sex	No.	%
Male	315	70
Female	135	30
<b>Total</b>	<b>450</b>	<b>100</b>

*(Table- 2): Age distribution of the study sample.*

Age groups(years)	No.	%
30-39	25	5.5
40-49	50	11.1
50-59	125	27.7
60-69	170	37.7
70-79	60	13.3
80-89	20	4.4
	<b>Total 450</b>	<b>100%</b>

*Table(3) The distribution of the study sample regarding their Residence*

Residence	No.	%
Urban	230	51
Rural	220	49
<b>Total</b>	<b>450</b>	<b>100</b>

*(Table 4) The distribution of the smokers and non -smokers regarding the duration of the smoking habit.*

	No.	%
Smoking ( more than 20 pack-year)	360	80
( Less than 20 pack-year)	72	16
Non-smoking	18	4

*(Table- 5) The distribution of the study sample by their main clinical findings.*

Clinical findings (n = 450)	No.	%
Cough	270	60
Chest pain	100	22.2
Dyspnea	45	10
Haemoptysis	30	6.6
Incidentally	5	1.1

*(Table- 6) The main Chest X-ray findings of the study sample.*

Findings	No.	%
Central shadow	250	55.5
Peripheral Pulmonary shadow	85	18.8
Pleural effusion	70	15.5
Collapse	45	10

*(Table 7) Bronchoscope findings of 382 patient with carcinoma of the lung.*

Bronchoscope findings	No.	%
Vocal cord paralysis	20	5.2
Involvement of the trachea	10	2.6
Tumor deposit on carina (widen carina)	20	5.2
Involvement of the main bronchus	130	34
Mucosal congestion of the trachea and/or bronchial tree	72	18.8
No abnormality	130	34
<b>100%</b>	<b>Total</b>	<b>382</b>

*(Table-8) The distribution of the histological types regarding the sex of the study sample*

Tumor's type	Male (%)	Female (%)	Total	%
sequamous cell carcinoma	125 ( 63.1 )	73(36.8 )	198	44
Adenocarcinoma	75 (55.5)	60 ( 44.4)	135	30
Small cell carcinoma	55(64.7 )	30(35.2)	85	18.8
Large cell carcinoma	5 (35.7)	9 (64.2)	14	3.1
Undifferentiated	10 (55.5)	8 (44.4)	18	4
<b>Total</b>	<b>270(60)</b>	<b>180(40)</b>	<b>450</b>	<b>100%</b>

**References:**

- 1- Miller Y., Respiratory diseases; in Cecil Textbook of Medicine. 20th edition, WB Sanders Company Philadelphia, P. 436, 1996.
- 2- Murry J.F. and Nadal J.A., Textbook of Respiratory Medicine. 3rd edition. W.B Saunders. Vol.2, chap. 44, PP. 1375-1380, 2000.
- 3- MOH. Iraqi Cancer Registry, Baghdad, Iraq , 2002.
- 4- Parsons P.E. and Heffner J.E., Pulmonary/Respiratory Therapy Secrets. 1st edition. Lee Chiong. PP: 330-336, 1997.
- 5- Diana C.F. and David B.T., Cancer; in Maxy-Rosenau Public Health & Preventive medicine. 14th edition, Robert B, PP: 909-912, 1998.
- 6- Minna J.D., Neoplasm of the lung: in Harrison's principles of internal medicine. 15th edition. Braunwald E., PP: 562-571, 2001.
- 7- Valeric W. and Robert R. Carcinoma of the bronchus: in Schwartz Principles of Surgery. 7th edition. Rush W., PP: 749-764, 1999.
- 8- Trespere T. and Anderson J.R., Carcinoma of the bronchus: in Belly and Love short practice of surgery. 22<sup>nd</sup> edition. CV Man., PP: 563-564, 1995.
- 9- Morris P.J., Carcinoma of the bronchus; in Oxford Textbook of Medicine. 3rd edition. Oxford University Press. P: 2884, 1996.
- 10- El-hassani N.B., "Carcinoma of the lung". J. Fac. Med. Bag., 34, 3 PP: 313-319, 1992.
- 11- Al-Alusi F.A. & Al-Azawi M.M., The trend in incidence & prognosis of lung cancer in Iraq 1996-2000. J.Fac. Med. Bag., P: 43 , 2002.
- 12- Al-Kafaji A.R. Lung cancer in Iraq 2001-2003. A dissertation submitted to the College of Medicine –Bag. University: 65, 2004.
- 13- Al-Qassir AH., Bronchogenic Carcinoma, presentation, radiological findings, & operability.
- 14- A dissertation submitted to the Iraqi Commission for Medical Specialization, 1999.
- 15- Ali H.H., "Sputum Lung Cancer". J. Fac. Med. Bag., 34, 5 P: 415, 1992.
- 16- American Thoracic Society/ European Respiratory Society. "Lung Cancer", Vol. 156, p. 320-332, April 1997.
- 17- El-hassani N.B., "Bronchogenic Carcinoma in Iraq". J. Fac. Med. Bag., 29,1, PP: 87-93 , 1987.
- 18- Al- Azawi A. Lung cancer in Iraqi young patients under the age of 40. Dissertation submitted to the Iraqi Commission for Medical Specialization., P: 42, 1995.
- 19- Eman J. A. The Role of Spiral CT in the Evaluation of Bronchogenic Carcinoma. Diploma dissertation, Bag. University, P: 46, 2002.
- 20- Hirmiz N.H. & Al-Ani M.S. Surgical aspect of bronchogenic carcinoma. A dissertation submitted to the Iraqi Commission for Medical Specialization, PP: 26-28, 1998.