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Epidemiological profile and survival of metastatic lung cancer in the Pulmonology unit of the Avicenne Military Hospital, Marrakech

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ABSTRACT

The lung cancer is the first cause of death by cancer in the world. Smoking represents the main risk factor. Materials and methods: We present a retrospective study performed in the Pulmonology unit of the military hospital in Marrakech over 6 years from January 2008 to December 2013. 54 metastatic lung cancer patients with suitable files were studied. Results: the study concerned 53 males and one woman with 98 % of smokers. The diagnosis was mainly performed by bronchoscopy (48 %). NSLC represented 80 % of all patients and SCLC 16 %. 86 % of the NSCLC and 100 % of the SCLC underwent chemotherapy. The survival was poor for both groups: median was 5 months for SCLC and 6 months for NSCLC. Discussion: we compare our epidemiological and survival results with the literature.

Key words: lung cancer, small cells, non small cells, metastases, chemotherapy

INTRODUCTION

Lung cancer is the leading cause of cancer death in the world. In 2008, it represented 18.2 % of the deaths attributed to cancer (1.38 million) [1]. The main risk factor is smoking, but occupational factors are also frequent. Non small cell lung cancer represents 80% of lung cancers with a predominance of adenocarcinoma, while the small cell cancer accounts for only 15%. Lung cancer is often discovered at a metastatic stage with a usual poor survival. Diagnostic and pre-treatment steps must be stringent in order to better determine the treatment to be administered to the patient based on his prognosis.

Aim of the study:

The objective is to determine the epidemiological, histological and prognostic profile of the metastatic lung cancer in the Pulmonology department of the Military Hospital, Marrakech.

MATERIALS AND METHODS

This is a retrospective study of the overall incidence of lung cancer and survival of metastatic stages over a period of 6 years in Pulmonology department of the Military Hospital Avicenne in Marrakech. Between January 2008 and December 2013, 128 patients were supported for bronchial

carcinoma in the unit. The incidence of lung cancer has not changed much in our unit in 6 years, with 14 cases in 2008, 24 in 2009, 27 in 2010, 25 in 2011, 22 in 2012 and 30 in 2013. Of these patients, 54 cases of metastatic cancer whose files are usable were studied.

RESULTS AND DISCUSSION

All patients were male, except a non-smoking lady. The average age was 60 years (range 34 years-80 years) .The smoking was found in 98% of cases. Revealing symptoms were respiratory in 85% of the patients. The diagnosis was obtained by fiberoptic bronchoscopy in 48% of cases (26 patients), CT guided biopsy in 18% of cases (10 patients), thoracotomy in 3 patients, and biopsy of a metastatic site in 29% of cases (13 patients). Two patients died before diagnosis. Histologically, it was a non small cell lung carcinoma (NSCLC) in 80% of cases (43 patients). The small cell lung cancer (SCLC) accounted for 16% of cases (9 patients). Among NSCLC: 32% of squamous (14 patients), 44% of adenocarcinoma (19 patients), and 23% without differentiation (10 patients). The therapeutic attitude was for NSCLC chemotherapy alone for 37 patients and symptomatic treatment for 6 others and for SCLC, chemotherapy alone for the 9 patients. Survival was generally poor: for the SCLC, the median of survival was 5 months, and the 9 months and 12 months average survival were respectively 33%, and 0%. For the NSCLC, median of survival was 6 months, and the 9 months and 12 months average survival were respectively 27% and 20%.

Discussion:

In our series, bronchoscopy allowed a diagnosis in only 48% of cases, this being due to a conventional technique. Endoscopy tends to progress in industrialized countries with finer tubes and biopsies guided by electromagnetic navigation coupled with CT scan allowing access to very peripheral nodules [2,3]. Moreover, other samplings are possible by modern endoscopes using endobronchial or endooesophageal ultrasound (EBUS and EUS) for biopsy of lymph nodes and peripheral nodules with an excellent sensitivity [4,5,6]

The survival rates found in our series are of course lower than those of western and Japanese publications. In the literature, diffuse SCLC median survival is 10 to 12 months and metastatic NSCLC 9 to 10 months for the old series. In more recent series, this median is closer to 12 to 14 months, thanks to targeted therapies and new radiotherapy techniques for brain metastases [7,8]. The targeted therapies are particularly effective in adenocarcinoma occurring in non-smokers, women and Asian people [9].

In our study, a patient with lung adenocarcinoma with vertebral metastases survived 37 months after diagnosis, with a spectacular initial response to gefitinib (tyrosine kinase inhibitor). The difference in median survival between our series and the Western series is mainly due to late diagnosis and the delay between the onset of symptoms and the first consultation. Patients whose survival does not exceed three months in our series had mostly brain metastases at diagnosis at a time when radiation was not yet available in Marrakech.Furthermore, the incidence of lung cancer has increased markedly in 9 years in our unit. In 2005, only 4 patients were treated in our unit against 30 in 2013. In addition, lung cancer as well as smoking is still masculine in our country, while it tends to feminize in industrialized countries.

Histologically, the proportions in our series are broadly equivalent to those in the literature with a clear predominance of NSCLC compared with the SCLC and a slight predominance of ADK compared to squamous cell carcinoma.

A question has long been asked, whether to treat or not metastatic NSCLC by chemotherapy. Some studies compared chemotherapy and best supportive care in patients with good condition (PS $\leq$ 2) they are unanimous in proposing a cure when the general condition permits with a benefit in

survival and quality of life [10,11].the treatment of metastatic non-small cell lung cancer tends to personalize. The researchers are moving more and more towards targeted treatments oriented by molecular biology. Besides, a few years ago, chemotherapy drugs for ADK and squamous cell carcinoma were the same. Actually, some drugs are exclusively given to ADK or non squamous cell carcinomas (tyrosine kinase inhibitors, pemetrexed, bevacizumab) [7,12].

The survival of NSCLC, particularly metastatic has long stagnated without clear progress despite the different combinations of anticancer drugs. Like other cancers such as breast cancer, the survival tends to improve in recent years, thanks to new screening and treatment techniques (targeted therapies, radiotherapy particle accelerators ...)

The small cell lung has a different evolution. It is characterized by faster cellular proliferation and more frequent metastatic development. We distinguish localized forms accessible to local treatment, usually chemotherapy and radiotherapy (the operable forms are very rare) and diffuse forms processed by exclusive chemotherapy. SCLC is very chemosensitive but relapses are frequent and fast. Prophylactic brain radiation therapy is systematically performed especially in localized forms [13] .The median of survival is about 9 to 14 months for diffuse forms and 18 to 24 months for localized ones [14]. No targeted therapy has proven effectiveness in this type of cancer.

Table 1: Diagnostic features

Patients (N=54)	**Number**	**Percentage**
Mean age	60 years old (34 to 80 years)	
Sexe		
-Male	53	98 %
-Female	1	2 %
Risk factors		
- Tobacco	53	98 %
- Occupational	None	
- Unknown	1	2 %
Diagnostic means		
- Bronchoscopy	26	48 %
- Biopsy by CT scan	10	18.5 %
- Thoracotomy	3	5.5 %
- Metastasis biopsy	13	24 %
- No diagnosis	2	3.7 %

Histology		
- Adénocarcinoma	19	35 %
- Epidermoïd	14	26 %
- Indifferentiated NSCLC	10	18.5 %
- SCLC	9	16.6 %

Table 2: Treatment and survival features

Patients (N=54)	**Number**	**Percentage**
Treatment		
SCLC		
-Chemotherapy	9	100 % of SCLC
-Exclusive best supportive care	None	
NSCLC		
-Chemotherapy	37	86 % of NSCLC
-Exclusive best supportive care	6	13.9 % of NSCLC
Survival		
SCLC		
-Average at 9 months		33 %
-Average at 12 months		0 %
-Median	5 months	
NSCLC		
-Average at 9 months		27 %
-Average at 12 months		20 %
-Median	6 months	

CONCLUSION

Despite good progress in understanding the lung cancer with new therapeutic targets and new diagnostic and therapeutic techniques, this cancer remains dreadful with a very poor survival, usually caused by late diagnosis.

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