

## Clinical Manifestation and Survival of Primary Lung Cancer Patients in Maharat Nakhon Ratchasima Hospital

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### Abstract

**Objective:** To study clinical presentation, chest imaging finding, histological data, treatment and survival of patients with primary lung cancer. **Patients and Method:** This retrospective study was conducted in Maharat Nakhon Ratchasima Hospital between October 1, 2007 to September 30, 2008. One hundred and seventy patients with histologically proven lung cancer during the study period were enrolled. Data analysis was done using STATA 11.0 and survival was evaluated using Kaplan-Meier curve. **Results:** There were 121 (71%) men and 49 (29%) women with a mean age of 60 years. Smoking history was found in 73% of patients. The common symptoms were cough (75%), weight loss (38%) and dyspnea (35%) with a mean duration of 2.7 months. The radiological findings of the chest were mass lesion in 133 cases (78%), pleural effusion in 29 cases (17%) and pulmonary infiltrate in 4 cases (2%). One hundred and fifty-eight patients (92%) had histopathology of non-small cell lung cancer (NSCLC). In the NSCLC group, adenocarcinoma was the commonest histological subtype. Most of the patients (88%) presented in the advanced stage. The 1-year survival rate for advanced-stage patients receiving platinum-based chemotherapy was 52%, compared with 23% for patients receiving supportive treatment. **Conclusion:** Since most patients are not diagnosed until the late stages of the disease, lung cancer is associated with poor low survival rates. Platinum-based chemotherapy improves survival in advanced-stage lung cancer.

**บทคัดย่อ** ลักษณะทางคลินิกและอัตราการรอดชีวิตของผู้ป่วยมะเร็งปอดในโรงพยาบาลมหาราชนครราชสีมา  
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เวชสาร โรงพยาบาลมหาราชนครราชสีมา 2554; 35: 23-9.

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**วัตถุประสงค์:** เพื่อศึกษาลักษณะทางคลินิกและอัตราการรอดชีวิตของผู้ป่วยมะเร็งปอด ในโรงพยาบาลมหาราชนครราชสีมา **ผู้ป่วยและวิธีการ:** ศึกษาย้อนหลังผู้ป่วยมะเร็งปอด จำนวน 170 รายที่มีผลการตรวจทางพยาธิวิทยา ยืนยันการวินิจฉัย ระหว่าง วันที่ 1 ต.ค. พ.ศ. 2550 ถึง 30 พ.ย. 2551 **ผลการศึกษา:** พบผู้ป่วยส่วนมากเป็นชายอายุเฉลี่ยเท่ากับ 60 ปี ผู้ป่วยส่วนใหญ่ (ร้อยละ 73) สูบบุหรี่ อาการสำคัญที่พบบ่อยที่สุดคือ อาการ ไอ พบร้อยละ 75, น้ำหนักลด พบร้อยละ 38 อาการเหนื่อย พบร้อยละ 35 และ อาการ ไอมีเสมหะปนเลือด พบร้อยละ 27 ความผิดปกติจากภาพรังสีทรวงอกที่พบบ่อยที่สุดคือลักษณะที่เป็นก้อนในปอด (ร้อยละ 78) โดยตำแหน่งที่พบบ่อยที่สุดคือ กลีบบนขวา (ร้อยละ 36) ความผิดปกติลักษณะมีน้ำในช่องเยื่อหุ้มปอดพบ ร้อยละ 17 ผู้ป่วย 158 รายมีลักษณะทางพยาธิสภาพเป็นมะเร็งปอดชนิดไม่ใช้เซลล์ขนาดเล็ก (ร้อยละ 92) ผู้ป่วย 12 ราย มีลักษณะทางพยาธิสภาพเป็นมะเร็งปอดชนิดเซลล์ขนาดเล็ก (ร้อยละ 8) ในกลุ่มผู้ป่วยมะเร็งปอดชนิดที่ไม่ใช่เซลล์ขนาดเล็ก ส่วนใหญ่เป็นเซลล์มะเร็งชนิดอะดีโน (ร้อยละ 60) ผู้ป่วยส่วนใหญ่อยู่ในระยะลุกลามหรือแพร่กระจาย (ร้อยละ 88) มีผู้ป่วยระยะที่ 1 และระยะที่ 2 รวมกัน จำนวน 12 ราย ผู้ป่วย 11 ราย ได้รับการรักษาด้วยการผ่าตัด มีผู้ป่วยได้รับการรักษาด้วยยาเคมีบำบัด 124 ราย อัตราการรอดชีวิตที่ 1 ปี ของผู้ป่วยระยะลุกลามหรือแพร่กระจาย ที่ได้รับยาเคมีบำบัดที่มีส่วนประกอบของแพลตทินัม เท่ากับ ร้อยละ 52 และเท่ากับร้อยละ 23 ในผู้ป่วยที่ไม่ได้รับยาเคมีบำบัด **สรุป:** ผู้ป่วยมะเร็งปอดส่วนใหญ่มีอาการเมื่อโรคลุกลามมากแล้ว จึงมักได้รับการวินิจฉัยในระยะลุกลามหรือแพร่กระจาย ทำให้มีอัตราการรอดชีวิตต่ำ ผู้ป่วยระยะลุกลามหรือแพร่กระจายที่ได้รับการรักษาด้วยยาเคมีบำบัดที่มีส่วนประกอบของแพลตทินัมมีอัตราการรอดชีวิตดีกว่าผู้ป่วยที่ไม่ได้รับยาเคมีบำบัด

## Introduction

Lung cancer is the most common cause of cancer deaths in both men and women worldwide. In Maharat Nakhon Ratchasima Hospital, a tertiary hospital located in northeastern part of Thailand, lung cancer is the second common cancer after the cervical cancer. The incidence of lung cancer is the most common cancer in male, followed by colorectal and liver or biliary duct cancers and the fifth in females after cervix, ovary, breast and colorectal cancers<sup>(1)</sup>.

Lung cancer is divided into two morphological types: non-small cell lung cancer (about 85% of all lung cancers) and small-cell lung cancer (about 15%)<sup>(2)</sup>. Non-small cell lung cancer (NSCLC) can be subdivided by histological type into adenocarcinoma, squamous cell carcinoma and large cell carcinoma. The most common

histological type is adenocarcinoma, particularly in women. Smoking causes all types of lung cancer but is most strongly linked with small cell lung cancer and squamous cell carcinoma. Patients with small cell lung cancer (SCLC) are generally more sensitive to a variety of cytotoxic drugs and radiation therapy compared with NSCLC patients.

When feasible, surgical resection remains the single most consistent and successful option for cure. Unfortunately, the patients with primary lung cancer are commonly present with locally advanced or metastatic disease at the time of diagnosis.

The objective of this study was to investigate the clinical manifestation, radiological finding, histological data, treatment and survival of patients with primary lung cancer.

## Patients and Method

### Study Population

Between October 1, 2007 and September 30, 2008, a retrospective study of 170 patients with pathologically confirmed and adequate medical record at Maharat Nakhon Ratchasima Hospital were conducted.

Information abstracted from medical records for each patient included demographic data, history of tobacco exposure, duration of symptom, radiographic findings, lung cancer pathology, clinical staging, treatment and survival. Clinical staging was according to the TNM stage as proposed in 1997<sup>(3)</sup>. Diagnosis of tissue subtypes was based on cytological or histological examination, supplemented by ancillary immunohistochemistry techniques in some cases. The advanced stage disease was defined as stage IIIB or IV in NSCLC and extensive disease in SCLC.

Early stage tumors were treated with surgical resection. If the patients refused or were medically unfit for surgery, they would be treated with chemotherapy. Radiotherapy was used for palliative management of symptoms due to hemoptysis, severe pain or tumor compression. The symptomatic treatment was offered for the patients who refused chemotherapy treatment.

The tracing of patient vital status was performed via the patient's medical record, civil registration, National Health Security Office database and telephone contact with patients or family members.

### Statistical analysis

The Kaplan Meier method was used to calculate survival which was reported as 1-year and 2-year survival. A value of  $p < 0.05$  was considered statistically significant. Survival was calculated from the diagnosis

date to date of death or date of censoring on October 1, 2010. Statistical analysis was performed using STATA version 11.0 software (license serial No. 40110519742).

## Results

During this 1-year period, 329 patients had primary lung cancer but only 170 patients were histologically proven lung cancer and had adequate medical records for clinical and radiological data.

Of 170 patients eligible for analysis, 121 (71%) were men and 49 (29%) were women. The age ranged from 35-83 years with a mean age of 60 years. The characteristics of the patients were summarized in Table 1.

Seventy-three percent of the patients had a history of smoking. The mean duration of symptom was 2.7

**Table 1** Demographic data of the 170 patients

Mean age (range)	60 (35-83)
Sex	
- Male	121 (71%)
- Female	49 (29%)
Histological type	
Small cell carcinoma	12 patients
Non-small cell carcinoma	
- Unclassified	68 patients
- Classified	90 patients
Adenocarcinoma	54 patients (60.0%)
Squamous cell carcinoma	30 patients (33.3%)
Large cell carcinoma	4 patients (4.4%)
Adenosquamous cell carcinoma	2 patients (2.2%)
Stage	
NSCLC Stage I	5/158 patients (3.2%)
NSCLC Stage II	7/158 patients (4.4%)
NSCLC Stage IIIA	7/158 patients (4.4%)
NSCLC Stage IIIB	99/158 patients (62.7%)
NSCLC Stage IV	40/158 patients (25.3%)
SCLC (extensive disease)	12/12 patients (100%)

months. The most common presenting symptom was cough (75%) followed by weight loss (38%) and dyspnea (35%). Hemoptysis was presented in only 27%.

The radiological findings of the chest were mass lesion in 133 cases (78.2%). The common sites of lung mass were 36% in the right upper lobe and 33% in the left upper lobe. (Table 2)

In the NSCLC group, adenocarcinoma was the commonest histological subtype, i.e. adenocarcinoma 60%, squamous cell carcinoma 34%, large cell carcinoma 4% and adenosquamous cell carcinoma 2%.

Most of the patients (88%) presented in the advanced stage disease. Twelve patients (7%) presented with stage I or II disease. All patients with SCLC presented in the extensive stage. (Table 2)

Eleven patients (6.4%) underwent surgery. Chemotherapy was used in 124 cases (72%). Forty-six cases (28%) received supportive treatment. The most common chemotherapy regimen was cisplatin plus etoposide and the second was carboplatin plus etoposide.

**Table 2** Abnormal chest imaging

Mass	133 (78.2%)
- Mediastinal or hilar mass	24
- Lung mass	109
Site of lung mass (n=109)	
RUL	39 (35.8%)
LUL	36 (33.0%)
RML	12 (11.0%)
RLL	11 (10.1%)
LLL	11 (10.1%)
Pleural effusion	29 (17.0%)
Infiltration	4 (2.4%)
Pleural effusion+lung mass	2 (1.2%)
Atelectasis	1 (0.6%)
Multiple lung nodule	1 (0.6%)

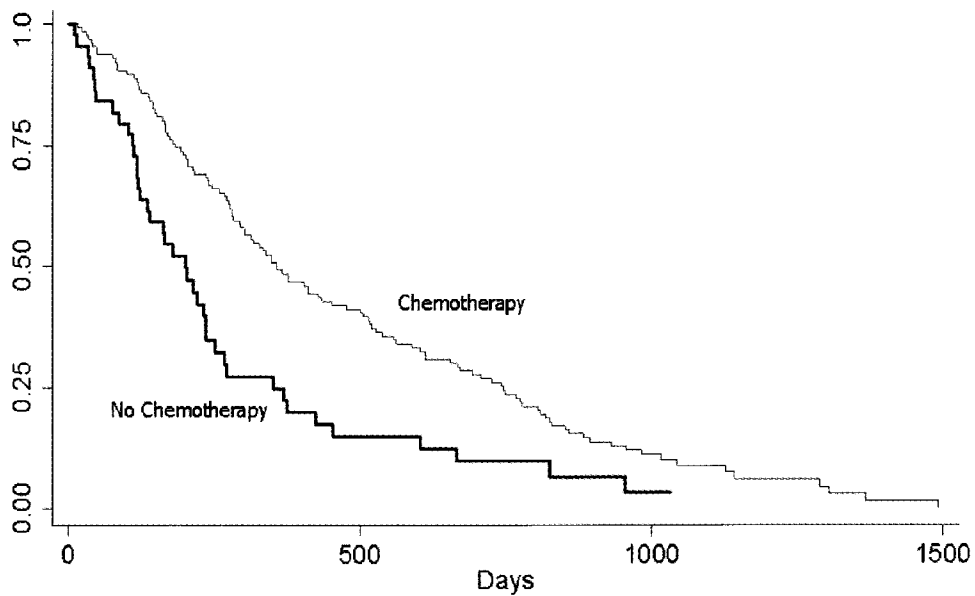
In the advanced stage patients, the 1-year and 2 year survival probabilities were 52% and 28% for patients receiving platinum-based chemotherapy, compared with 23% and 5% for patients receiving only supportive treatment. The difference in survival of patients between chemotherapy group versus supportive treatment group was statistically significant ( $p<0.05$ ). (Fig 1)

In the present study, there were 66 patients receiving cisplatin-containing chemotherapy and 51 patients receiving carboplatin-containing chemotherapy. When comparing the two groups, there was no difference in 1-year and 2-year survival. (Fig 2)

## Discussion

In this study population, we found the incidence ratio of male to female was 1.8:1, confirming a narrowing ratio among gender. The ratio decreased markedly from 1:6.8 in 1957 through 1960 to 1:1.8 in 1977 through 1980<sup>(4)</sup>. Adenocarcinoma was more prevalent than squamous cell carcinoma in the present study, which was similar to those from the previous studies from Central Chest Hospital<sup>(5)</sup> and Songklanagarind Hospital<sup>(6)</sup>.

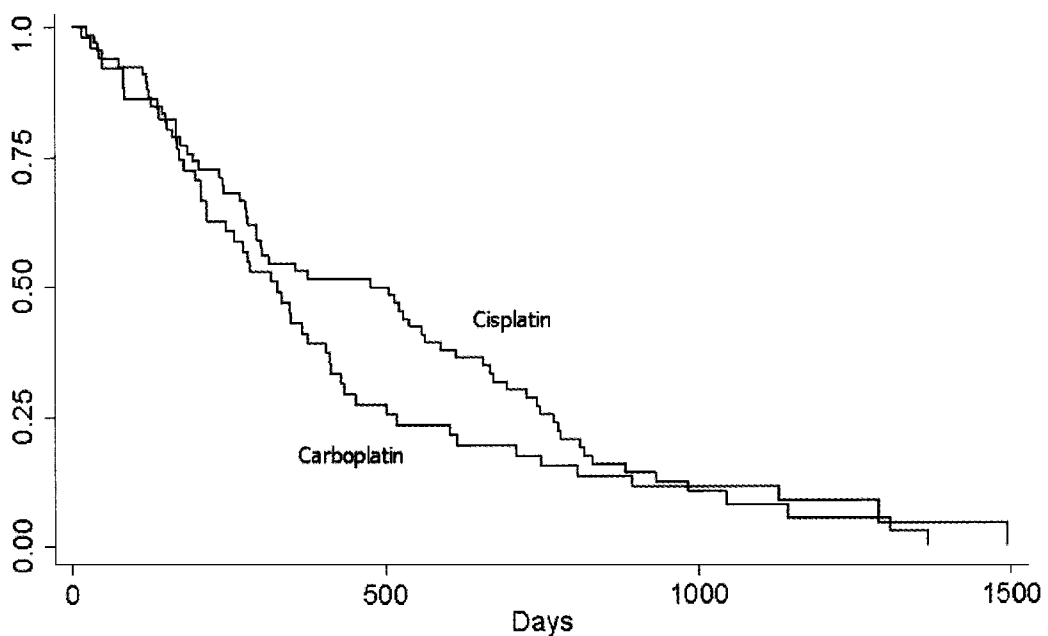
Lung cancer, unfortunately, is usually recognized late. Most patients in this study had advanced disease at presentation. Patients with lung cancer usually present with multiple symptoms, both respiratory related and constitutional. There is usually a time delay between symptom recognition by the patient and the disease recognition by the physician. An understanding of how patients with lung cancer initially present will possibly allow the earlier identification of this increasing common disease.



**Fig 1** A comparison of survival of advanced lung cancer between platinum-base chemotherapy and supportive treatment groups

Cough is reported to be the most common presenting symptom of lung cancer<sup>(7)</sup>. It is also the most common symptom, occurring in 75% of cases in this

study. Cough is the common symptom seen in primary care. It is therefore reasonable to suggest a chest radiograph for the patients with unexplained cough that has persisted for 3 weeks or more.



**Fig 2** A comparison of survival of advanced lung cancer between cisplatin-base regimens and carboplatin-based regimen groups

The other respiratory-related symptoms are dyspnea and hemoptysis. Dyspnea is a common symptom among smokers with COPD, but dyspnea can also be caused by lung cancer. The failure of acute exacerbation of COPD to clear should raise the suspicion of the presence of neoplastic disease. The symptoms alerting the patients and/or the doctors were bloody sputum, found as the initial symptom of disease in 27% of these study patients. Hemoptysis is rarely severe and usually consists only of blood streaking of the sputum. The chest radiograph finding is usually abnormal in patients with hemoptysis from lung cancer. Hemoptysis has low sensitivity for a primary lung cancer because of its frequent association with respiratory tract infection. However, when hemoptysis is unexplained by respiratory tract infection or other local factors, imaging studies should be done to identify or exclude the underlying malignancy cause.

Any classical symptoms and signs of lung cancer were not identified in this study. These include hoarseness, stridor, superior vena cava obstruction, or shoulder pain from a Pancoast tumor. Most of these presentations usually are features of late cancer so the positive findings of these could not be used to improve early detection.

The predilection of lung cancer for the right lung and upper lobes had been documented by previous report<sup>(8)</sup>. In general, lung cancers present more often on the right side than the left, and in the upper lobes more than in the lower lobes. The previous report found 60% of bronchogenic tumors located in the right lung with 60% affecting the upper lobes<sup>(8)</sup>. In our study 57% of the tumors were in the right lung compared with 43% in the left lung, with 69% affecting upper lobe.

The study also found the most patients were diagnosed as an advanced stage disease. The survival outcome in advanced lung cancer was poor. We found a very low proportion of patients with potentially operable lung cancer, i.e. only nine patients (4%) undergoing surgical resection of their tumors. For patients with advanced-stage lung cancer, chemotherapy improves survival. The platinum-based chemotherapy comprises the standard option for patients with advanced NSCLC and good performance status. The combination of one or more of active chemotherapeutic agents with a platinum compound has resulted in an improvement in survival in patients with advanced NSCLC, producing objective response rate of 30-40%, a median survival time of 8-10 months and 1-year survival rate of 30-40%<sup>(9)</sup>. Our advanced-stage patients who received chemotherapy had a 1-year cumulative survival of 52%, which is comparable to data from a previous study<sup>(6)</sup>. We found that comparing the platinum-based chemotherapy to supportive treatment in advanced lung cancer showed the improvement in survival (Fig 1).

The most common chemotherapy regimen in our hospital is etoposide plus cisplatin (or carboplatin). Comparing survival for cisplatin-containing regimen and carboplatin-containing regimen revealed no significant difference (Fig 2). Our results confirmed the effects of treatment for patients with advanced stage lung cancer, treated with platinum-based chemotherapy and no statistically significant difference in survival between cisplatin and carboplatin-based regimens.

We conclude that platinum-based chemotherapy is the best offering for the fittest patients with advanced, inoperable lung cancer. Given the palliative nature of chemotherapy in advanced-stage patients and the

unquestionable practical advantage of carboplatin in terms of ease of administration, carboplatin has since become the favorite drug for the first line treatment of patients with advanced lung cancer.

### Conclusion

Adenocarcinoma is the commonest histologic subtype of bronchogenic carcinoma diagnosed in Maharat Nakhon Ratchasima Hospital. The patients in this study present with relatively advanced disease. There is an urgent need to engage the public and health care workers in raising the awareness for lung cancer and the strategies to diagnose an early stage of lung cancer should be the top priorities.

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