Lung Cancer in Maharaj Nakorn Chiang Mai Hospital: Comparison of the Clinical Manifestations between the Young and Old Age Groups

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Objectives: *To examine and compare the clinical manifestations of lung cancer between the age groups of 40 years or less and over 40 years at Maharaj Nakorn Chiang Mai Hospital from January 2002 - December 2003.*
Material and Method: *Six hundred and nineteen patients with confirmed pathological cell type lung cancer were newly registered.*
Results: *The mean age was 60.1 years and male to female ratio 1.79:1. Their smoking history was presented in 72% of patients, with cough being the most common symptom followed by weight loss, dyspnea, chest pain, and hemoptysis with a median duration of 2 months. Mass or nodule was the most common radiographic finding, and adenocarcinoma was the most common pathological cell type. Most of the patients (82.4%) presented in the advanced stage. There were 19 patients (3.1%) aged equal to 40 years or less. In this group, chest pain and adenocarcinoma were presented more significantly, while a smoking history was found to be less significant in females. The duration of symptoms in this group tended to be shorter (1.3 months), but not statistically significant. More than 80% of both patient groups presented in the advanced stage.*
Conclusion: *Lung cancer in the young is uncommon, but most clinical manifestations are not different from older patients. The less significant smoking history, especially in females, tendency of shorter duration of symptoms, and more frequent adenocarcinoma in the younger patients may have some factors that are associated and should be studied further.*

Keywords: *Lung cancer, Clinical manifestation, Young age*

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Cancer is defined as one of the major health problems in Thailand and has been the most common cause of death since 1999[1]. The incidence of lung cancer in Thailand is the second most common cancer in males after liver cancer and the fourth in females after cervix, breast and liver cancer. There is a higher incidence rate of lung cancer in northern Thailand than other areas[2]. In Maharaj Nakorn Chiang Mai Hospital, which is a university and tertiary hospital located in northern Thailand, the incidence of lung cancer is most common in males and third in females after cervix and breast cancer. Lung cancer is also the leading cause of cancer death in both sexes[3].

Patients with lung cancer are commonly found to be aged more than 50 years and present in the advanced stage (metastasis and locally advanced). Lung cancer in the young (aged less than 40 years) is uncommon. However, a study from Europe showed that there were a rising number of young females diagnosed with lung cancer from 1986-1995. One-third of young female cases had a history of cancer in first relatives[4]. Some studies reported that the clinical manifestations in young patients were more aggressive with poor prognosis compared to older patients[4,5], but in other studies no difference was found in clinical manifestations and survival between the two groups[6,7].

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The objective of the present study was to examine and compare the clinical manifestations of lung cancer between patients with age equal to 40 years or less and over 40 years of age at Maharaj Nakorn Chiang Mai Hospital.

Material and Method

The retrospective analysis in the present study was based on the data of Chiang Mai Cancer Registry, Maharaj Nakorn Chiang Mai Hospital and the medical records of patients from January 2002 - December 2003.

This study was approved by the research ethics committee, Faculty of Medicine Chiang Mai University.

The clinical records of the patients were reviewed for demographic data (such as sex, age), smoking history, family history of cancer, duration of symptoms, symptoms and signs, radiographic findings, pathological findings, and clinical staging of lung cancer. Only patients with a confirmed pathological cell type and adequate medical records were included for analysis.

The patients' clinical data for comparing clinical manifestations were divided into 2 groups: age equal to 40 years or less and over 40 years.

Statistical Analysis

The SPSS program version 10.0 for Windows was used for the analysis. Chi-squared test or Fisher's exact test was used for categorical data, and student's t-test for odd ratio and 95% confidence interval were presented to show the relationship. A p-value of less than 0.05 was consi-dered as statistically significant.

Results

During this 2-year period, 1,151 patients with lung cancer were newly registered in this hospital, but only 619 were included for analysis.

In 619 patients, the mean age was 60.1 years with SD 10.6 years (range 17-86 years) and the distribution of age is shown in Table 1.

The male to female ratio was 1.79: 1 and most common in age group of 61-70 years both sexes. Seventy-two percent had a history of smoking (77.6% males, 61.7% females), while 2.1% had a family history of cancer.

The median duration of symptoms was 2 months (range 0-48 months). The most common presenting symptom was cough (52.3%) followed by weight loss (50.4%), dyspnea (26.8%), chest pain (23.7%), and hemoptysis (21.6%). Massive hemoptysis was presented in 5 cases.

The radiographic findings of the chest were mass or nodule (65.3%), pleural effusion (6.6%), atelectasis (3.2%), and pulmonary infiltration (2.9%). Twenty percent of cases (124 patients) had more than one radiographic finding.

Adenocarcinoma was the most common pathological cell type (42.6%), followed by squamous cell carcinoma (33.0%), small cell carcinoma (12.4%), and large cell carcinoma (2.9%). Other non-small cell carcinoma (NSCLC) and unclassified cell types were found in 9.1%.

Most of the patients (82.4%) presented in the advanced stage (stage IIIB and IV for non-small lung cancer, 86.0%; and extensive disease for small cell lung cancer, 57.1%) (Table 2).

Smoking was significantly related with squamous cell carcinoma, but not with adenocarcinoma, while small cell carcinoma was strongly related with smoking (Table 3).

Mass or nodule and atelectasis were more likely to be squamous cell carcinoma than adenocarcinoma, while pleural effusion was more likely to be adenocarcinoma than squamous cell carcinoma (Table 4).

Table 1. The age distribution of 619 patients with lung cancer

Age	Male (%)	Female (%)	Total (%)
11-20	0	1 (0.4%)	1 (0.2%)
21-30	0	2 (0.9%)	2 (0.3%)
31-40	12 (3.0%)	4 (1.8%)	16 (2.6%)
41-50	66 (16.6%)	46 (20.7%)	112 (18.1%)
51-60	100 (25.2%)	63 (28.4%)	163 (26.3%)
61-70	146 (36.8%)	77 (34.7%)	223 (36.0%)
71-80	70 (17.6%)	27 (12.2%)	97 (15.7%)
81-90	3 (0.8%)	2 (0.9%)	5 (0.8%)
Total	397 (64.1%)	222 (35.9%)	619 (100%)

Table 2. Staging of 619 patients with lung cancer

Non-small cell lung cancer	Number (%)	Small cell lung cancer	Number (%)
Stage I (A & B)	29 (5.3%)	Limited disease	33 (42.9%)
Stage II (A & B)	22 (4.1%)	Extensive disease	44 (57.1%)
Stage IIIA	25 (4.6%)		
Stage IIIB	176 (32.5%)		
Stage IV	290 (53.5%)		
Total	542 (100%)	Total	77 (100%)

Table 3. Relationship between smoking and pathological cell type

Pathological cell type	OR (95%CI)	p-value
Adenocarcinoma	0.26 (0.14-0.48)	<0.001
Squamous cell carcinoma	2.14 (1.07-4.28)	0.03
Small cell carcinoma	4.13 (0.98-17.29)	0.04

OR = odds ratio, CI = confidence interval

Table 4. Relationship between radiographic findings and pathological cell type

Radiographic findings	Squamous cell carcinoma		Adenocarcinoma	
	OR (95%CI)	p-value	OR (95%CI)	p-value
Mass or nodule	1.49 (1.03-2.16)	0.03	0.68 (0.48-0.95)	0.02
Atelectasis	6.43 (2.30-17.96)	<0.001	0.23 (0.07-0.79)	0.01
Pleural effusion	0.15 (0.05-0.48)	<0.001	4.60 (2.20-9.58)	<0.001

OR = odds ratio, CI = confidence interval

Nineteen patients (3.1%) aged equal to 40 years or less (group 1), and the reminder of patients aged over 40 years (group 2) were compared for clinical manifestations as shown in Table 5.

When comparing the two groups, the male to female ratio was not different. The smoking history was significantly less frequent in group 1 (42.1%) than in group 2 (72.8%) ($p < 0.001$), and predominantly less frequent in females (14.3% vs 63.3%) ($p = 0.01$). One patient in group 1 had a family history of cancer. The mean duration of symptoms was shorter in group 1 (1.3 months) than in the other group (2.3 months), but not statistically significant ($p = 0.20$). Only chest pain was found to be more significant in group 1 (47.4%) than in group 2 (23.0%) ($p = 0.01$). The radiographic findings in both groups were not statistically different. Adenocarcinoma was the most common pathological cell type in both groups, and was found with more significant frequency in group 1 (68.4%) than in group 2 (41.8%) ($p = 0.02$). More than 80% of the patients in both groups presented in the advanced stage. In patients aged equal to 40 years or less, there was no a statistically different pathological cell type or staging between the sexes.

Discussion

From the present study, 619 patients with lung cancer were newly registered in this hospital during the 2-year period. The mean age of the patients was 60.1 years and most of them (78.8%) were aged more than 50 years, which was no different from previous studies in Thailand[8-12] and other countries[4,6]. There was a higher percentage of females in the present study (Male:Female = 1.79:1) and other studies from northern Thailand: Chiang Mai (Male:Female = 1.48:1)[8] and Lampang (Male:Female = 1.84:1)[9], than that from other parts of Thailand (male to female ratio, range 2.79-3.90:1)[10-14]. This may be explained by the higher prevalence of smoking in northern Thailand, as shown

Table 5. The clinical manifestations between patients aged equal to 40 years or less and over 40 years

Clinical manifestations	Group 1 (Age ≤ 40 yr.)	Group 2 (Age > 40 yr.)
Number of patients	19	600
Sex		
Male	12 (63.2%)	385 (64.2%)
Female	7 (36.8%)	215 (35.8%)
Smoking history*	8 (42.1%)	437 (72.8%)
Male	7/12 (58.3%)	301/385 (78.2%)
Female*	1/7 (14.3%)	136/215 (63.3%)
Family history of cancer	1 (5.3%)	12 (2.0%)
Mean duration of symptoms	1.3 months	2.3 months
Symptoms		
Cough	9 (47.4%)	315 (52.5%)
Hemoptysis	3 (15.8%)	131 (21.8%)
Chest pain*	9 (47.4%)	138 (23.0%)
Dyspnea	4 (21.1%)	162 (27.0%)
Weight loss	12 (63.2%)	300 (50%)
Radiographic findings		
Mass or nodule	9 (47.4%)	395 (65.8%)
Pleural effusion	3 (15.8%)	38 (6.3%)
Atelectasis	1 (5.3%)	19 (3.2%)
Infiltration	0	18 (3.0%)
Combination	6 (31.6%)	118 (19.7%)
Pathological cell types		
Adenocarcinoma*	13 (68.4%)	251 (41.8%)
Squamous cell CA	3 (15.8%)	201 (33.5%)
Large cell CA	1 (5.3%)	56 (9.3%)
Small cell CA	2 (10.5%)	75 (12.5%)
Staging of lung cancer		
IIIB-IV (NSCLC) or Extensive (SCLC)	17 (89.5%)	493 (82.2%)

* p-value < 0.05

in the smoking history of the female patients (61.7%), or the exposure of air pollution, occupational exposure, or ionizing radiation such as radon, which was relatively high in concentration inside the patients' homes[15].

Adenocarcinoma was more prevalent than squamous cell carcinoma in the present study, which was similar to those from Siriraj Hospital[10], Central Chest Hospital[12], and Songklanagarind Hospital[13]. However, data from the previous study from this hospital[8], Lampang Hospital[9], and Chulalongkorn Hospital[11] demonstrated a higher prevalence of squamous cell carcinoma. This difference may be due to the different pattern of smoking, urbanization that exposes the patients to other carcinogens or risk factors, or a complex interaction among gender, race, smoking status, and cell type in the development of lung cancer[16]. In the present study, there were 19 patients (3.1%) aged equal to 40 years or less, which was no more than in the previous studies from this hospital[8], Lampang[9], and Bangkok[10,11] (range 4.2-10.3%). When comparing the two groups, there was no difference in male to female ratio, but less frequent smoking history, especially in females, and more frequent adenocarcinoma in the younger patients. Thus, there might be factors other than smoking that contribute to lung cancer in the younger group such as genetic predisposition[4,17], which was found in one patient with a family history of cancer, or exposure to environmental factors like air pollution and radon.

There was a trend toward a shorter duration of symptoms in this younger group. This may be due to the severity of disease[4,5], which was not shown differently in the present study, or the symptoms of chest pain was more statistically frequent and might alert the patient to seek medical advice.

In conclusion, lung cancer is uncommon in young patients, and most of the clinical manifestations

are not different from older patients. The less frequent smoking history, especially in females, shorter duration of symptoms, and more frequent adenocarcinoma may have some factors that are associated and should be studied further.

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มะเร็งปอดในโรงพยาบาลมหาราชนครเชียงใหม่: เปรียบเทียบลักษณะทางคลินิกระหว่างกลุ่มผู้ป่วยที่มีอายุน้อยและมาก

อรรถวุฒิ ดีสมโชค, นำพร เดชายนต์บัญชา, สุมิตรา ทองประเสริฐ

วัตถุประสงค์: *เพื่อศึกษาและเปรียบเทียบลักษณะทางคลินิกของมะเร็งปอดระหว่างผู้ป่วยที่มีอายุน้อยกว่า หรือ เท่ากับ 40 ปี และ มากกว่า 40 ปี ของโรงพยาบาลมหาราชนครเชียงใหม่ ระหว่างเดือนมกราคม พ.ศ. 2545 - ธันวาคม พ.ศ. 2546*

วัสดุและวิธีการ: *มีผู้ป่วยมะเร็งปอดจำนวน 619 ราย ที่ได้รับการวินิจฉัยโดยมีผลการตรวจทางพยาธิวิทยายืนยัน*

ผลการศึกษา: *อายุเฉลี่ย 60.1 ปี อัตราส่วนระหว่างชายต่อหญิง 1.79: 1 มีประวัติสูบบุหรี่ร้อยละ 72 อาการไอเป็นอาการที่พบได้บ่อยที่สุด ตามด้วยน้ำหนักลด หายใจเหนื่อย เจ็บหน้าอก และ ไอเป็นเลือด โดยมีระยะเวลามัธยฐาน 2 เดือน ก้อนเป็นลักษณะทางรังสี และ มะเร็งชนิดอะดีโนเป็นลักษณะทางพยาธิวิทยาที่พบได้บ่อยที่สุด ร้อยละ 82.4 ของผู้ป่วยมาพบแพทย์ในระยะที่เป็นมาก มีผู้ป่วย 19 ราย (ร้อยละ 3.1) ที่มีอายุน้อยกว่าหรือเท่ากับ 40 ปี ซึ่งในกลุ่มนี้จะพบอาการเจ็บหน้าอกและมะเร็งชนิดอะดีโนได้บ่อยกว่า ในขณะที่มีประวัติสูบบุหรี่น้อยกว่าอย่างมีนัยสำคัญในผู้หญิง ระยะเวลาที่มีอาการมีแนวโน้มที่จะสั้นกว่า (1.3 เดือน) แต่ไม่มีนัยสำคัญทางสถิติ ผู้ป่วยมากกว่าร้อยละ 80 ของทั้ง 2 กลุ่มมาพบแพทย์ในระยะที่เป็นมาก*

สรุป: *มะเร็งปอดในผู้ป่วยอายุน้อยพบได้น้อย แต่ลักษณะทางคลินิกส่วนใหญ่ไม่มีความแตกต่างกัน การที่พบมีประวัติสูบบุหรี่น้อยกว่าโดยเฉพาะในเพศหญิง ระยะเวลาที่มีอาการสั้นกว่า และพบมะเร็งชนิดอะดีโนได้มากกว่านั้น อาจมีปัจจัยบางอย่างที่เกี่ยวข้องและต้องการการศึกษาเพื่อค้นหาปัจจัยนั้นต่อไป*