

Lung Cancer at a Medical Center in Southern Taiwan

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Background: In Taiwan, lung cancer is the second most common cause of cancer death and its incidence has been rising for the last 50 years. Shifts in histological types and differences in gender distribution have also accompanied the changed incidence of lung malignancies.

Methods: A total of 590 lung cancer patients were interviewed at Kaohsiung Chang-Gung Memorial Hospital, a medical center of Southern Taiwan, in 1997 and 2002. A retrospective investigation confirmed the age-adjusted incident rate in the hospital and demographic variations by different histological types for both genders. The statistical differences were evaluated using the heterogeneity chi-squared test and Cox regression.

Results: Results indicated that from 1997 to 2002, the age-adjusted rates of lung cancer decreased by 3.64% at the hospital. The largest percentage of increases in the age-adjusted rate was observed for small cell lung cancer (approximately 8.18%), whereas it decreased by 31.2% for squamous cell carcinoma and increased by 1.62% for adenocarcinoma. Female patients were found to be younger and had longer survival duration. The frequency was the highest for lesions in the upper lobe and patients had more advanced stage in all histological types. The 6-month relative survival rate between the two time-periods did not change appreciably.

Conclusions: The age-adjusted incidence rate of adenocarcinoma at the hospital has increased, as well as small cell lung carcinoma. During the study period, early-staging diagnosis and 6-months survival rate did not change appreciably for the different histological lung cancer patients, suggesting that therapeutic and diagnostic advances, prevention or screening procedures had mild effects in southern Taiwan. Further studies are needed for confirmation of our results.

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Key words: lung cancer, Taiwan.

According to the publications from the Department of Health, Executive Yuan, Taiwan, R.O.C, lung neoplasia was the second most common cause of cancer death in Taiwan. In 2003 alone, it accounted for an estimated 6900 deaths, representing

21% of cancer deaths in men (ranked 2nd) and 16% in women (ranked 1st).⁽¹⁾ With a wealth of epidemiological studies on lung cancer in the literature, evidence has shown the changes in the epidemiological background of these patients. During the last several

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decades, the rising incidence of lung cancer has been associated with shifts in histological distribution by gender. It is well known that lung cancer incidence is gradually leveling off in men in the United States but it is continuing to rise at a steady rate among women in the United States. In addition, it was noted with regard to the rise in adenocarcinoma which started during the mid-1970s.^(2,3) Vincent et al. found that by 1974, adenocarcinoma had overtaken squamous cell carcinoma as the predominant form of carcinoma among their male cases while continuing to be the major histological type among the women in data obtained from 1962 through 1975 from 1682 cases at the Roswell Park Memorial Institute.⁽⁴⁾ In our study, we reviewed data of lung cancer patients collected in 1997 and 2002 by the cancer-registration system at Kaohsiung Chang-Gung Memorial Hospital. We compared selected demographic characteristics of the different histological types defined by the WHO classification from 1999.⁽⁵⁾ Finally, we examined our data to determine the correlate histological changes with gender distribution, and various epidemiological factors as well as diagnostic and prognostic practices.

METHODS

A retrospective study was carried out at the Kaohsiung Chang-Gung Memorial Hospital. We used the database for lung cancer patients from the cancer-registration system. Each patient included in this report was histologically confirmed initially by the Pathology Department in 1997 and 2002. For the purpose of this research, histological diagnoses were grouped as squamous cell carcinoma (SCC), adenocarcinoma, small cell lung carcinoma (SCLC), large cell carcinoma and other rare carcinoma using the WHO classification of 1999.⁽⁵⁾ Population-based lung cancer incidence data were analyzed for changes according to different histological types occurring initially during two 1-year periods (1997 and 2002). The incidence rates in the hospital were age-adjusted subsequently using the proportion of the 1970 US population within each age group and expressed with per 100000 person-years for different histological types in men and women. Data were also reviewed by gender, age, initial symptom, diagnostic tool, survival time, staging, and lobe distribution. Initial symptoms consisted of primary tumor related

(cough, dyspnea, chest pain and hemoptysis), extrapulmonary, or asymptomatic. There were four main diagnostic procedures available at our hospital: surgical exploration, bronchoscopy, trans-thoracic procedures, and sputum cytology. Lobe distribution was divided into upper, middle, and lower. Disease staging was evaluated using the International System for staging of lung cancer revised in 1997.⁽⁶⁾ Early-stage was defined as resectable NSCLC (stage I-IIIa) or limited stage of SCLC. Thus, advanced lung cancer included locally advanced unresectable (stage IIIB) and distant extra thoracic (stage IV) NSCLC or extensive stage of SCLC.^(7,8) Our data were used to compare major demographic characteristics of lung cancer in gender distribution and the statistical differences were evaluated using the heterogeneity chi-square analysis, as described by Sheehe.⁽⁹⁾ Survival duration by gender difference was calculated using Cox regression. We also calculated the frequency of the involving lobe, disease stage, and 6-months survival rate among the different pathological types in the two study periods.

RESULTS

In 1997 and 2002 the numbers of patients with lung carcinomas were 282 and 308, respectively. The crude incidence and age-adjusted rates (AAR) by histological type in each of the two calendar year intervals are shown in Table 1. From 1997 through 2002, the age-adjusted incidence rate for lung cancer decreased by 3.64% even though the crude incidence rate increased (1.30% vs. 1.37%). The largest percentage increase in the shift of AAR over time was noted for SCLC, which increased about approximately 8.18%, whereas a much smaller increase was observed for adenocarcinoma (+1.62%). In SCC, the AAR decreased markedly by about 31.2%.

The shifts of AAR with the different histological types by different gender group are summarized in Table 2. Both the AAR for total lung cancer and lung adenocarcinoma increased in women (+21% and +20%, respectively) and decreased in men (-14% and -18%, respectively). The AAR of men and women both decreased in SCC (-36% and -2.3%, respectively), however, both men and women showed increases in SCLC (+4.1% and +12%, respectively). In brief, the incidences of all lung cancers decreased in men except for SCLC and the incidences of all lung can-

Table 1. Lung Cancer: Number, Frequency, Crude Incidence and Age-adjusted Rate per 100000 Population in the Hospital for Both Genders in 1997 and 2002

Histological type	1997			2002		
	No. (%)	Incidence*	AAR	No. (%)	Incidence*	AAR
Total	282	1.30	1.4983	308	1.37	1.4437
SCC	90 (31.9)	0.41	0.4890	70 (23.0)	0.31	0.3362
Adenocarcinoma	121 (42.9)	0.56	0.6404	141 (45.8)	0.63	0.6508
SCLC	31 (11.0)	0.14	0.1675	37 (12.0)	0.16	0.1812
Large cell carcinoma	3 (1.1)	0.01	0.0145	4 (1.3)	0.01	0.0183
Other rare carcinoma†	37 (13.1)	0.17	0.1891	56 (18.2)	0.25	0.2568

Abbreviations: AAR: age-adjusted incidence rates (rate per 100,000); SCC: squamous cell carcinoma; SCLC: small cell lung cancer.

* Crude incidence: number per 100,000 populations.

† Others: include rare and undistinguishable carcinoma.

Table 2. Lung Cancer: AAR by Histology and Gender in 1997 and 2002

Histological type	Male		Female	
	1997	2002	1997	2002
Total	1.0624	0.9095	0.4438	0.5370
SCC	0.4053	0.2575	0.0885	0.0865
Adenocarcinoma	0.3641	0.2974	0.2721	0.3569
SCLC	0.1601	0.1666	0.0125	0.0140
Large cell carcinoma	0.0145	0.0134	0	0.0048
Other rare carcinoma	0.1184	0.1745	0.0707	0.0747

Abbreviations: AAR: age-adjusted incidence rates (rate per 100,000); SCC: squamous cell carcinoma; SCLC: small cell lung cancer.

cers increased in women except for SCC.

Unadjusted comparisons of demographic characteristic between male and female patient groups are shown in Table 3. In the age distribution, the proportion of women under 54 years old was greater than the proportion of men in 1997. The proportion of women under 64 years old surpassed than that of men in 2002. However, the statistically significant difference only existed in 2002 ($p = 0.046$) and not in 1997 (N.S.). The proportion of cough patients was the greatest in the five initial presentations (> 30% exclusively) and at least three-fourths of the patients developed initial symptoms due to the direct effects of their primary tumors (cough, dyspnea, chest pain or hemoptysis) in the four study groups. Patients without symptoms at diagnosis were rare (< 10% exclusively) for both genders, in both 1997 and 2002, and the proportion of asymptomatic patients in the female groups seemed to be higher than in the male groups for both years (9.5% vs. 4.0%, 9.6% vs. 6.2%, respectively). However, the gender differences

in the initial symptoms was only statistically significant in 2002 ($p < 0.05$) according to the chi-square analysis. The proportion of patients who underwent bronchoscopy techniques as diagnostic tools was the greatest in the male groups in 1997 and 2002 (47.4% and 55.2%, respectively). In the female groups, the proportion was 25% in 1997, 37.9% in 2002 and it was almost surpassed by percutaneous procedures (38.1% and 37.4%). In the chi-square test, the differences in diagnostic tools between men and women were both statistically significant in 1997 and 2002 ($p = 0.008, 0.037$, respectively). With regard to survival distribution, the statistical difference between gender was only significant in 2002 ($p = 0.036$) by Cox regression and the female group had better survival.

The frequency for pulmonary malignancies according to the lobe of the lung and histological type are shown in Table 4. The percentage of lobe distribution has shown no obvious changes for SCC, adenocarcinoma and SCLC between 1997 and 2002. The percentage was the highest for lesions in the upper lobe and the lowest for those in the middle lobe for all pathological types. Among the different histological types, patients with SCC had the highest percentage of upper lobe distribution in 1997 and 2002 (46.7% and 48.8%, respectively).

The differences in the proportion of various disease staging at initial diagnosis according to the four histological types in 1997 and 2002 are summarized in Table 5. More patients with SCC were in the early stages of the cancer (27.8%) than the patients with other histological types in 1997, however, SCC was surpassed by SCLC (29.7%) in 2002. In patients with SCC, no differences were noted in the early staging

Table 3. Differences in Demographic Data for Lung Cancer Patients between Men and Women in 1997 and 2002

	1997		2002	
	Male 198 (%)	Female 84 (%)	Male 193 (%)	Female 115 (%)
Age (years)				
<45	4.5	11.9	7.3	11.3
45~54	12.1	20.2	9.3	14.8
55~64	27.3	21.4	17.6	26.1
65~74	39.4	31.0	39.9	28.7
>75	16.7	15.5	25.9	19.1
	NS		$p = 0.046^*$	
Symptoms				
Cough	31.3	35.7	32.1	36.5
Dyspnea	17.2	15.5	15.5	20.9
Hemoptysis	18.2	9.5	13.0	1.7
Chest pain	10.6	10.7	14.0	13.9
Extrapulmonary [†]	18.7	19.0	19.2	17.4
None	4.0	9.5	6.2	9.6
	NS		$p < 0.0001^*$	
Diagnostic tools				
Surgical [‡]	18.7	25.0	10.9	16.4
Bronchoscopically	47.4	25.0	55.2	37.9
Percutaneously [¶]	26.3	38.1	30.6	37.4
Sputum cytology	2.0	1.2	0	0.9
Others ^π	5.6	10.7	3.6	6.9
	$p = 0.008^*$		$p = 0.037^*$	
Survival time (months)				
<6	54.9	42.0	64.5	45.3
7~12	22.2	24.6	12.0	18.6
13~18	11.1	10.1	8.4	5.8
19~24	2.6	8.7	3.6	8.1
>25	9.2	14.5	11.4	22.1
	NS		$p = 0.036^{**}$	

* Statistically significant, $p < 0.05$; NS: not significant (chi-square test).
[†] Extrapulmonary, include constitutional symptoms (ie, fatigue and weight loss), and/or organ specific symptoms (ie, bone pain and neurologic symptoms).
[‡] Surgical, include open lung biopsy and video assisted thoracoscopic surgery.
[¶] Percutaneously: imaging modalities are computed tomography and ultrasound.
^π Others, include a fine needle aspiration or a needle/surgical biopsy of a site of metastasis.
^{**} Re-evaluated by Cox regression, statistically significant, $p < 0.05$.

proportion between 1997 and 2002 (27.8% vs. 28.4%). Among patients with SCLC, the proportion of patients in the early stage in 2002 was greater than

Table 4. Lung Cancer: Percentage of Lobe Distribution by Histological Type, Both Genders, in 1997 and 2002

Histological type	Lobe distribution	Upper	Middle	Lower	Undefined
		No. (%)	No. (%)	No. (%)	No. (%)
SCC	1997	42 (46.7)	5 (3.6)	34 (37.8)	9 (10.0)
	2002	34 (48.8)	6 (8.6)	26 (37.1)	4 (5.7)
Adenocarcinoma	1997	47 (38.8)	13 (10.7)	37 (30.6)	24 (19.8)
	2002	52 (36.9)	16 (11.3)	48 (34)	25 (17.7)
SCLC	1997	13 (41.9)	2 (6.5)	10 (32.3)	6 (20)
	2002	18 (48.6)	4 (10.8)	12 (32.4)	3 (8.1)
Large cell CA	1997	1 (33.3)	0 (0)	1 (33.3)	1 (33.3)
	2002	2 (50)	0 (0)	2 (50)	0 (0)

Abbreviations: SCC: squamous cell carcinoma; SCLC: small cell lung cancer; CA: carcinoma.

Table 5. Lung Cancer: Percent Stage Distribution by Histological Type, Combined Both Genders, in 1997 and 2002

Histological type	Stage	Early*	Advanced [†]	Unstaged
		No. (%)	No. (%)	No. (%)
SCC	1997	25 (27.8)	60 (66.7)	5 (5.6)
	2002	19 (28.4)	44 (65.7)	4 (6.2)
Adenocarcinoma	1997	28 (23.1)	84 (69.4)	9 (7.4)
	2002	23 (16.7)	104 (75.4)	11 (8.0)
SCLC	1997	5 (16.1)	23 (74.2)	3 (9.7)
	2002	11 (29.7)	23 (62.2)	3 (8.1)
Large cell CA	1997	1 (33.3)	2 (66.7)	0 (0)
	2002	0 (0)	3 (75)	1 (25)

Abbreviations: SCC: squamous cell carcinoma; SCLC: small cell lung cancer; CA: carcinoma.

* Early stage, include stage IA~IIIA in NSCLC and limited stage in SCLC.
[†] Advanced, include Stage IIIB~IV in NSCLC and extensive stage in SCLC.

the proportion in 1997 (16.1% vs. 29.7%). To our surprise, the early staging proportion of adenocarcinoma at the time of diagnosis decreased markedly from 1997 to 2002 (25.2% vs. 16.7%).

The 6-month relative survival rates for total lung cancers and each histological type during the study periods are shown in Table 6. Patients with SCLC had the best 6-month survival rate (63%) compared with other types in 1997, whereas those with adenocarcinoma experienced the best outcome (50%) in 2002. However, the 6-month survival rate for all lung cancer patients did not change appreciably between 1997 and 2002.

Table 6. Lung Cancer: Survival More than 6 Months by Histological Type, Combined Both Genders, in 1997 and 2002

Histological type	1997	2002
	6 Ms survival/total No. (%)	6 Ms survival/total No. (%)
SCC	41/73 (56.2)	26/59 (44.1)
Adenocarcinoma	51/90 (56.7)	54/108 (50)
SCLC	17/27 (63)	8/32 (25)
Large cell CA	2/1 (50)	1/3 (33.3)

Abbreviations: SCC: squamous cell carcinoma; SCLC: small cell lung cancer; CA: carcinoma.

DISCUSSION

This study was based on 590 lung cancer patients presented to the Kaohsiung CGMH in 1997 and 2002. We presented the age-adjusted incidence rate (AAR) for the total lung cancer patients and different histological types in the hospital using the current World Health Organization (WHO) classification.⁽⁵⁾ In Table 1, NSCLC accounts for at least 70% of all lung cancers in both study years⁽¹⁰⁾ and we were impressed with the consistency of the findings with regard to the largest number and the increasing rate of adenocarcinoma starting during the mid-1970s.^(2,3) Although improvement in diagnostic methodology of trans-thoracic needle biopsy and trans-bronchial biopsy may have influenced these divergences because of the quick access to the periphery of the lung,⁽¹¹⁾ we are inclined to believe that a substantial portion of the changes are real. Of particular note are our findings in Table 2 of the decreasing AAR of adenocarcinoma in men from 1997 to 2002. Therefore, we know that the rate of increase in adenocarcinoma came from women exclusively. If technological advances are the sole cause of the observed increase, the rates of change should have been uniform in both genders. We also found the greatest increased rate in SCLC, whereas there were decreases in total lung cancer and SCC. Given that smoking is the most important risk factor for the development of lung cancer and the risk appears stronger for SCC and SCLC than for adenocarcinoma,⁽¹²⁾ perhaps the peripheral lung has less exposure to tobacco smoke particles and patients with SCC or SCLC had more central lesions. Thus, the number for SCC and lung cancers fell rapidly after cessation of smoking or reduced tar and nicotine levels in cigarette smoke

during the past few years. We also believe that some factors, except for smoking, influenced the changes due to the increasing number of SCLC. Because a small number was coded with large cell carcinoma, we cannot comment on the divergence for this histological subtype.

Our data reveals the differences in AAR of lung cancer between male and female patients in Table 2. As in previous studies, lung cancer has always been and continues to be more common in men than women, but the magnitude of this difference is decreasing. Although there is gender difference in the magnitude of the relationship between smoking and lung cancer, it is projected that the prevalence of smoking in women may surpass that in men in the future in Taiwan, as reported in the United States.⁽¹³⁾ The most common histological types continue to be adenocarcinoma among women. Therefore, there may be hormonal factors, metabolic effects and detoxification ability or environmental factors related to lung cancer that are unique to women when you exclude smoking.^(14,15) We found it interesting that SCC was substituted by adenocarcinoma as the most common type in men from 1997 to 2002. The result comes mainly from the greater decrease of SCC than adenocarcinoma in men. At the same time, we also found that the incidence of SCC decreased for both genders but predominantly in men. The gender difference may come from the differences of smoking patterns or the slower decline in smoking prevalence among women than among men and the effects of tobacco carcinogens on women has gradually approached and, in fact, may soon surpass those of men.⁽¹⁶⁾ It is interesting that SCLC increased without gender differences even in decreased smoking prevalence. Although it was known that 98% of cases of SCLC are attributed to cigarette smoking,⁽¹⁷⁾ we suggest that genetic or environmental factors also have additional risk.

Our data also showed relative differences in demographic characteristics between male and female patients. Although the difference in age distribution was only statistically significant in 2002, female patients tended to be younger for both years. It is a well-established fact that women are more susceptible to the effects of tobacco carcinogens than men due to variations in physiologic mechanisms, such as differences in metabolic activation and detoxification of lung carcinogens.⁽¹⁴⁾ Thus, women

may have lung cancer early in their life. Regarding the presentation of symptoms, more than 90% of patients with lung cancer were symptomatic at presentation.⁽¹⁸⁾ The symptoms are due to the direct effects of the primary tumors, to the effects of the metastatic tumors in other parts of the body, or to the malignant disturbances of their hormones, blood, or other systems. The prognosis was clearly related to the type of presenting symptoms. There was a better 5-year survival in asymptomatic patients while those with symptoms indicating metastatic disease had the worst outcomes.⁽¹⁹⁾ In our study, there were no statistically significant differences of symptom distribution between women and men in 1997, but there were differences in 2002. Patients with symptoms related to their primary tumors, including cough, dyspnea, chest pain or hemoptysis, were more common than that with extra pulmonary symptoms or being asymptomatic. Cough was the most common presenting symptom for both genders in 1997 and 2002. Patients who presented without any symptoms and were identified incidentally constituted only a minority of the patients (< 10% in the four groups). It contributed to the poor outcomes of lung cancer patients due to delayed diagnosis and was being compatible with the 5-year mortality rate of approximately 85 to 90% from the time of presentation in previous studies.⁽²⁰⁾ We noted the higher proportion (18.2%, 13.0%) of hemoptysis in the male patients than that in the female patients. The higher incidence of SCC in men and the characteristic of easy-central location or possible cavity in the SCC might reasonably explain a higher proportion of hemoptysis in men.⁽²¹⁾ Despite continuous improvements in imaging technology and better understanding of molecular changes in lung carcinoma, a definite diagnosis continues to rest on the demonstration of invasive tumor cells in the tissues and fluids. Thus, lung cancer can be confirmed in one of four ways once it has been suggested: examination of the sputum can show cancer cells, fiberoptic bronchoscopy, percutaneous needle procedures, and excision or surgical removal of the suspected mass.⁽²²⁾ The choice of diagnostic procedures depends on the type of lung cancer, the size and location of the primary tumor, the presence of metastasis, and the overall clinical status of the patient. In a patient with a central lesion, bronchoscopy is the most sensitive way to confirm a diagnosis and achieve staging. In patients with

peripheral lesions or accessible pleural effusions, trans-thoracic procedures have much higher sensitivities than bronchoscopy. The results of our study were consistent with those characteristics of lung tumors. Male patients receiving bronchoscopy were the highest number in 1997 and SCC was the most common lung cancer in men at that time. In addition, adenocarcinoma was the most frequently diagnosed lung cancer among women and trans-thoracic procedures were the most reliable tools. In 2002, the number of female patients receiving bronchoscopy was almost equal to those receiving trans-thoracic procedures. This might be due to the prevalence of trans-bronchial biopsy and needle aspiration or for the purpose of staging.⁽²³⁾ In survival duration after initial presentation, women had better outcomes than men in 1997 and 2002, even though the statistically significant difference only existed in 2002. The results were similar to the asymptomatic patients in the female group.

The chest radiography plays a pivotal role in the recognition of lung cancer. The clues from the chest radiography may not only suggest the diagnosis of lung cancer, but may also point toward the histological subtype.⁽²⁴⁾ It is well known that adenocarcinoma has been more frequently seen peripherally and SCC typically has arisen in the central bronchi and commonly extended into the hilum and mediastinum.⁽⁴⁾ The predilection for the upper lobes of all histological subtypes of lung cancer that we observed in this study has been described previously.⁽²⁵⁾ Our findings suggested that this occurs more commonly in SCC patients regardless whether in 1997 or 2002. In addition, there were no changes in the upper lobe distribution percentage of the histological types between 1997 and 2002. Several theories have been proposed to attempt to explain this finding. Preferential deposition of inhaled particles in the upper lobes could result in greater carcinogen exposure to this region of the lung. Higher tissue oxygen levels exist in the upper lobes that could lead to higher free radical formation and increased tumor infiltration. It has also been speculated that scarring and subsequent carcinoma might occur more frequently in the upper lobes due to prior tuberculosis infections or inhalation of fibrogenic particles.^(26,27) Regardless of these theories, no standard explanation has been found for the predilection of lung cancer for the upper lobe.

The American Joint Committee on Cancer

defined NSCLC as consisting of four stages and SCLC as consisting of limited, extensive stages. Stage I, II and III in NSCLC were further subdivided into group A and B due to differences in survival statistics.⁽⁶⁾ There is no doubt that survival following treatment in this disease is stage related, and that patients in the lower stage the disease represent those with the best chance for curative treatment. Lung cancer, like most other solid tumors, is unfortunately usually recognized late in its natural history. The National Cancer Institute Surveillance, Epidemiology and End Results Program recently published data regarding patients with NSCLC in U.S.A. from 1986 through 1996. In this analysis, 15% of patients were found to have "localized" rather than "regional", or "distant" tumors.⁽²⁸⁾ However, among patients with adenocarcinoma, the percentages decreased from 1997 to 2002. Thus, the focus of secondary prevention aims at diagnosis of preclinical or early stage of lung cancer tended toward the peripheral type. Recent developments in the detection of peripherally located lung cancer by low-dose CT or positron emission tomography (PET) were reviewed by Pastorino et al. and several other authors.^(29,30) Of course, the detection of centrally located lung cancer is still important. Sutedja had already reviewed new techniques such as fluorescence bronchoscopy and innovative sputum screening for this purpose.⁽³¹⁾

Our findings indicated that there were no improvements in the overall 6-month survival rate for any of the histological types of lung cancer between 1997 and 2002. There were still some histological differences, and patients with SCLC had the best survival in 1997, but those with adenocarcinoma had better outcomes in 2002. We believe that there is evidence of slow progress in improving the treatment for patients with lung cancer, like video-assisted thoracotomy, radiotherapy or new novel chemotherapy. However, the lack of improvement in survival underscores the importance of lung cancer prevention and screening.^(32,33)

There were limitations in our study. First, the AAR is based on the population of a hospital; it is not a national-based study. However, our population represented 5% of the total national cases of lung cancer; our findings may represent the changes that are occurring in Taiwan. Second, we just studied two 1-year intervals, which represented the shift in a 5-

year interval, thus, the bias may have occurred. A further study based on national levels and more study intervals are needed.

In summary, adenocarcinoma has already replaced squamous cell carcinoma as the most frequent histological subtype since the mid-1970s. Its AAR continues to increase with a female predominance. SCLC also increased in a steady manner regardless of influence from gender or smoking. These shifts in histological types by sex may be related to the differences in exposure to tobacco products, dietary or hormonal factors, environmental or occupational carcinogens, and host characteristics. Of course, the changes in use of diagnostic methodology may have also influenced these variations of demographic data. However, early-staging and 6-month survival rate did not change appreciably during the study period for all lung cancer patients, suggesting that therapeutic or diagnostic advances may have mild effects and there is a need for further improvement of lung cancer prevention or screening procedures.

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肺癌在南台灣醫學中心：590例的分析

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背景：近數十年來，歐美國家的肺癌病人顯著增加，台灣也是如此，並高居癌症死亡率的第二名。本篇報告的目的在研究某南台灣醫學中心肺癌盛行率與流行病學特徵在各組織學和性別的差異。

方法：在1997年和2002年在高雄長庚醫院共診斷出來590例肺癌病例。利用四種主要肺癌組織學的流行病學特徵來做回溯性分析。

結果：從1997年到2002年，肺癌的年齡標準化發生率減少3.64%。肺小細胞癌增加最多約8.18%而鱗狀細胞癌卻顯著減少31.2%，肺腺癌增加1.62%而以女性為主。而女性肺癌患者似乎年齡層較低，有較長存活時間。肺癌位置則以上肺葉居多。另外，早期診斷率和6個月存活率並無顯著改善。

結論：肺腺癌與肺小細胞癌發生率仍持續上升中。需要更好的預防計劃、篩檢步驟、檢查技術和治療方法來改善早期診斷率與降低致死率。
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關鍵字：肺癌，台灣南部。

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