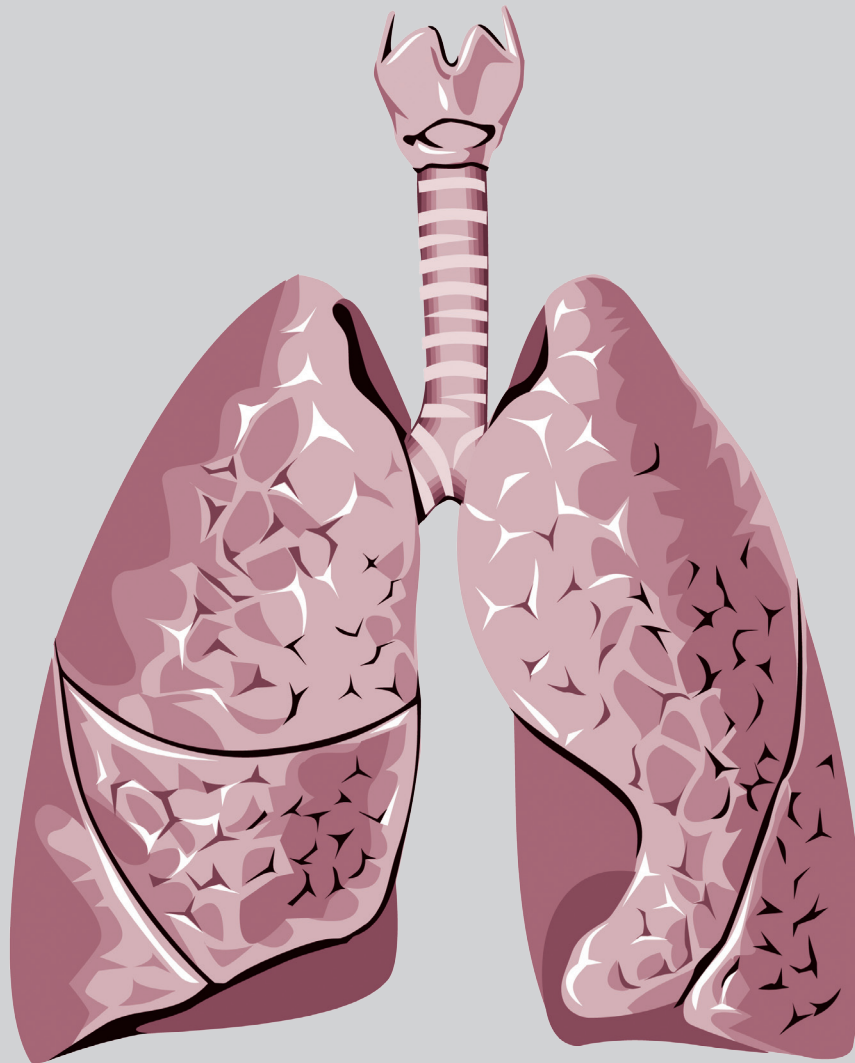


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Determinants for Concurrent Use of a Long-Acting β -2 Agonist and a Long-Acting Muscarinic Antagonist in COPD Management: A Retrospective Cross-Sectional Study

Yu-Cheng Wu¹, Ming-Feng Wu^{1,2}, Jeng-Yuan Hsu¹, Hui-Chen Chen¹,
Wei-Chang Huang^{1,3,4,5}

Introduction: Although co-administration of a long-acting β 2-agonist (LABA) and a long-acting muscarinic antagonist (LAMA) is more effective in managing stable chronic obstructive pulmonary disease (COPD) than either LABA or LAMA alone, it is costlier and only provides a small increase in the number of responders with clinically important improvements. This study aimed to investigate determinants for concurrent use of a LABA and a LAMA, as considered by physicians actively involved in COPD management.

Methods: This was a retrospective cross-sectional study. The data, collected from electronic medical records, were managed and analyzed.

Results: Of 757 participants, 29.8%, 27.2%, 31.4%, and 31.5%, in groups A, B, C, and D, respectively, were co-administered LABA and LAMA with and without inhaled corticosteroids as the maintenance pharmacological treatment (LABA/LAMA combination users). Moreover, the low-risk group, high-risk group, fewer-symptoms group, and more-symptoms group comprised 28.9%, 31.4%, 30.5%, and 30.0%, respectively, of LABA/LAMA combination users. The logistic regression model found that a positive bronchodilator test (BT), post-BT forced expiratory volume in 1 second/forced vital capacity ≤ 60 , and having any hospitalization for a COPD exacerbation within the last year were significant determinants associated with the prescription of a LABA/LAMA combination therapy.

Conclusion: Our findings provide useful information for future cost-effectiveness analysis of using a LABA and a LAMA concurrently when managing stable COPD patients. (*Thorac Med* 2020; 35: 152-164)

Key words: bronchodilator combination therapy, COPD, long-acting β 2-agonist, long-acting muscarinic antagonist

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Low-Dose Computed Tomography for Lung Cancer Screening in the General Population: Experience at a Local Hospital in Taitung, Taiwan

Chiu-Fan Chen^{1,2}, Wei-Lun Huang³, Chih-Hsun Lin², Chia-Hao Chan⁴

Introduction: Lung cancer screening with low-dose computed tomography (LDCT) has been shown to effectively reduce lung cancer mortality in heavy smokers. However, evidence on the benefits of using LDCT to survey a general population, including non-smokers, in Taiwan is limited.

Methods: We enrolled patients receiving LDCT during the year 2016 at a local hospital in Taitung City. Our aim was to analyze the features of pulmonary nodules found by LDCT in a general population, and to evaluate the follow-up results.

Results: A total of 371 patients were collected. The mean age was 59.2±11.9 years. Ninety patients (24.3%) were smokers. A total of 252 patients (67.9%) had pulmonary nodules ≥ 2 mm on LDCT. Smoking status was not significantly different between patients with and without pulmonary nodules. Of the nodules < 6 mm with LDCT follow-up, 73.6% showed a stable size for 1~2 years, 17.2% showed regression, and only 1.1% had nodule progression (5 mm ground-glass nodule progression to 6 mm with density increase at 24 months); 8% had follow-up of < 1 year. The overall lung cancer detection rate was 1.3%.

Conclusion: This study found that pulmonary nodules < 6 mm are very common in the general population of Taitung undergoing LDCT. Up to 1/4 of patients were found to have pulmonary nodules ≥ 6 mm on LDCT. The cancer detection rate in this study was similar to that of LDCT screening for heavy smokers in the United States. LDCT may be an effective tool for lung cancer screening in the general population in Taiwan. (*Thorac Med* 2020; 35: 165-177)

Key words: low-dose computed tomography, lung cancer screening, pulmonary nodule

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Change in End-Expiratory Lung Volume in Response to PEEP Adjustment and Extubation Outcome among Mechanically Ventilated Patients

Shih-Yu Chen¹, Hui-Chuan Chen², Sheng-Yuan Ruan¹, Chun-Ta Huang¹
Jung-Yien Chien¹, Ping-Hung Kuo¹, Huey-Dong Wu¹

Introduction: End-expiratory lung volume (EELV) is measured at the average end-expiratory level in patients on mechanical ventilation. EELV may substantially change after altering positive end-expiratory pressure (PEEP) levels. The change in EELV between different PEEP levels before extubation may serve as a predictor for extubation outcome.

Methods: This prospective observational study enrolled 75 intubated patients ready for extubation. EELV was measured at different PEEP levels before extubation using the nitrogen breath washout method. Areas under the receiver operating curve (AUROC) were used to evaluate the discriminative capacity of EELV for extubation outcome.

Results: The median age of the study cohort was 71 [IQR, 58-81] years, and pneumonia (60%) was the leading cause of respiratory failure. After extubation, 12 patients (16%) required reintubation within 48 hours. The EELV measured at a PEEP of 5 cm H₂O was significantly higher than that measured at zero-PEEP (25.5 mL/Kg versus 23.3 mL/Kg, $p < 0.001$). The successfully extubated patients had a greater change in EELV than those with extubation failure (2.8 mL/Kg versus 0.9 mL/Kg, $p = 0.09$). The discriminative capacity for the change in EELV was only acceptable in the total cohort (AUROC, 0.65, 95% CI, 0.49-0.82). Subgroup analysis was performed for different etiologies of respiratory failure.

Conclusion: The change in EELV in response to PEEP adjustment was not a good predictor for extubation outcome in an unselected population, although the change in EELV appeared greater in successfully extubated patients than in patients with extubation failure. (*Thorac Med* 2020; 35: 178-185)

Key words: mechanical ventilation, end-expiratory lung volume (EELV), functional residual capacity (FRC), weaning parameters

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Management for Recurrent Primary Spontaneous Pneumothorax after Repeated Surgery

Chen-Hao Hsiao^{1,2}, Jin-Shing Chen³

Introduction: Conservative treatment is advised mainly for the first episode of primary spontaneous pneumothorax. Surgery is reserved for recurrence, or in some instances, for the first episode of primary spontaneous pneumothorax. Repeated surgery is also suitable for treating recurrent pneumothorax after the initial surgery. Nevertheless, some patients still experience subsequent recurrence even after having undergone repeated surgery. Our aim in this study was to investigate the proper treatment for these patients.

Methods: Primary spontaneous pneumothorax patients were retrospectively reviewed from January 2005 to December 2009. Patients who developed subsequent recurrence after repeated surgery for pneumothorax were included. Patients then received conservative treatment or underwent surgery. All patients were followed up for 5 years or until there was a subsequent recurrence. Recurrence-free survival was analyzed.

Results: A total of 38 patients were included in our study. Twenty patients underwent surgery, and 18 received conservative treatment. Twelve patients developed subsequent recurrence. The median body mass index was significantly lower in patients with recurrence than in those without (p value=0.026). Thirty percent of patients who underwent surgery developed subsequent recurrence, and 33.3% of those who received conservative treatment developed subsequent recurrence. The 5-year recurrence-free survival rate was not significantly different between the surgery and conservative treatment groups (p value=0.707).

Conclusion: Patients rarely develop recurrence after repeated surgery for pneumothorax. The patient's body mass index might be associated with subsequent recurrence. Conservative treatment might be an alternative that is not inferior to surgery in preventing subsequent recurrence in these patients. (*Thorac Med* 2020; 35: 186-195)

Key words: pleural disease, pneumothorax

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Endobronchial Leiomyoma -- A Rare Endobronchial Tumor with Recurrent Hemoptysis

Meng-Cheng Ko, Chen-Yiu Hung, Shu-Min Lin, MD

A 69-year-old female with underlying diabetes mellitus, dyslipidemia, and hypertension, presented with recurrent mild hemoptysis for 1 week. Bronchoscopy exam revealed an endobronchial tumor at the proximal edge of RB8 that did not show in the chest X-ray or on high-resolution computed tomography. The nodular lesion presented a magenta color with loss of normal green autofluorescence under autofluorescence imaging bronchoscopy. The final diagnosis was confirmed by pathology, which showed a benign spindle cell tumor – an endobronchial leiomyoma. (*Thorac Med* 2020; 35: 196-199)

Key words: benign endobronchial tumor, leiomyoma, hemoptysis

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Blurred Vision as the Initial Presentation of Choroidal Metastasis of Lung Cancer in a 40-Year-Old Man– A Case Report

Po-Chuan Shen¹, Chih-Yen Tu¹, Te-Chun Hsia¹, Ning-Yi Hsia²

Choroidal metastasis (CM) from primary lung cancer is uncommon and has a poor prognosis. It can be treated with an external beam of radiation or by laser photocoagulation. However, visual defects and blindness are possible complications after radiotherapy. Systemic chemotherapy for such a condition would be a better choice, if no targeted therapy or immunotherapy could be used. We reported a 40-year-old patient who had CM with the initial presentation of blurred vision. Fundoscopy, fluorescence angiography and optic coherence tomography indicated CM of the right eye. He was then referred to the chest outpatient department where an endobronchial ultrasound biopsy for a right middle lobe nodule was performed. The pathology showed adenocarcinoma without epidermal growth factor receptor mutation, and PD-L1 expression was weakly positive (20%). We prescribed 6 cycles of systemic chemotherapy with carboplatin, pemetrexed and bevacizumab. A follow-up examination revealed complete remission of the CM. He then underwent a lobectomy for the primary site. Due to disease progression with bone metastases in October 2018, he received chemotherapy and immunotherapy with Taxotere and pembrolizumab combined with denosumab. Herein, we report this case of CM of lung cancer in a 40-year-old man with the initial presentation of blurred vision. (*Thorac Med* 2020; 35: 200-204)

Key words: choroidal metastasis, lung adenocarcinoma, pembrolizumab

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Metastatic Adenocarcinoma of the Lung with Small Bowel Perforation Complicated with Sepsis - A Case Report

Chen-Yu Kao, Mei-Yin Chen, Ching-Min Tseng, Chi-Wei Tao

Lung cancer is the most common cause of cancer-related death, according to the statistics of the by Ministry of Health and Welfare in Taiwan. The incidence of gastrointestinal metastases from lung cancer is low; however, when it occurs, it is usually asymptomatic and fatal. We present the case of a 62-year-old patient with ileal perforation and intestinal metastases of adenocarcinoma of the lung. Tracing his medical history, he had unresectable adenocarcinoma of the right upper lobe of the lung, with right middle lobe and bilateral adrenal metastases that was proven about 1 month prior to this admission. He developed generalized abdominal pain 3 days after chemotherapy. Abdominal computed tomography scan revealed bowel perforation. Emergency exploratory laparotomy revealed diffuse purulent peritonitis and a perforated ileal tumor; a segmental small bowel resection with end-to-end anastomosis of the perforated bowel was then performed. Histological and immunohistochemical findings were consistent with metastatic adenocarcinoma of the lung. Despite adjuvant treatment, the patient died of progressive disease 1 month after surgery. (*Thorac Med* 2020; 35: 205-208)

Key words: intestinal metastasis, intestinal perforation, lung adenocarcinoma

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Acute Ischemic Stroke and Myocardial Infarction during Bronchoscopy

Wei-Wei Ng¹, Diana Yu-Wung Yeh^{1,2}, Chen-Chun Lin^{1,2}

Acute ischemic stroke coinciding with myocardial infarction has rarely been reported. We report a 74-year-old gentleman who lost consciousness in the middle of a bronchoscopy examination. Subsequent work-up revealed both an acute ischemic stroke and myocardial infarction. The patient recovered fully with minimal neurological sequelae after thrombolytic therapy. Vasovagal response during the invasive procedure may have induced cardiac arrhythmia, leading to both myocardial infarction and stroke. (*Thorac Med* 2020; 35: 209-212)

Key words: acute ischemic stroke, myocardial infarction, bronchoscopy

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