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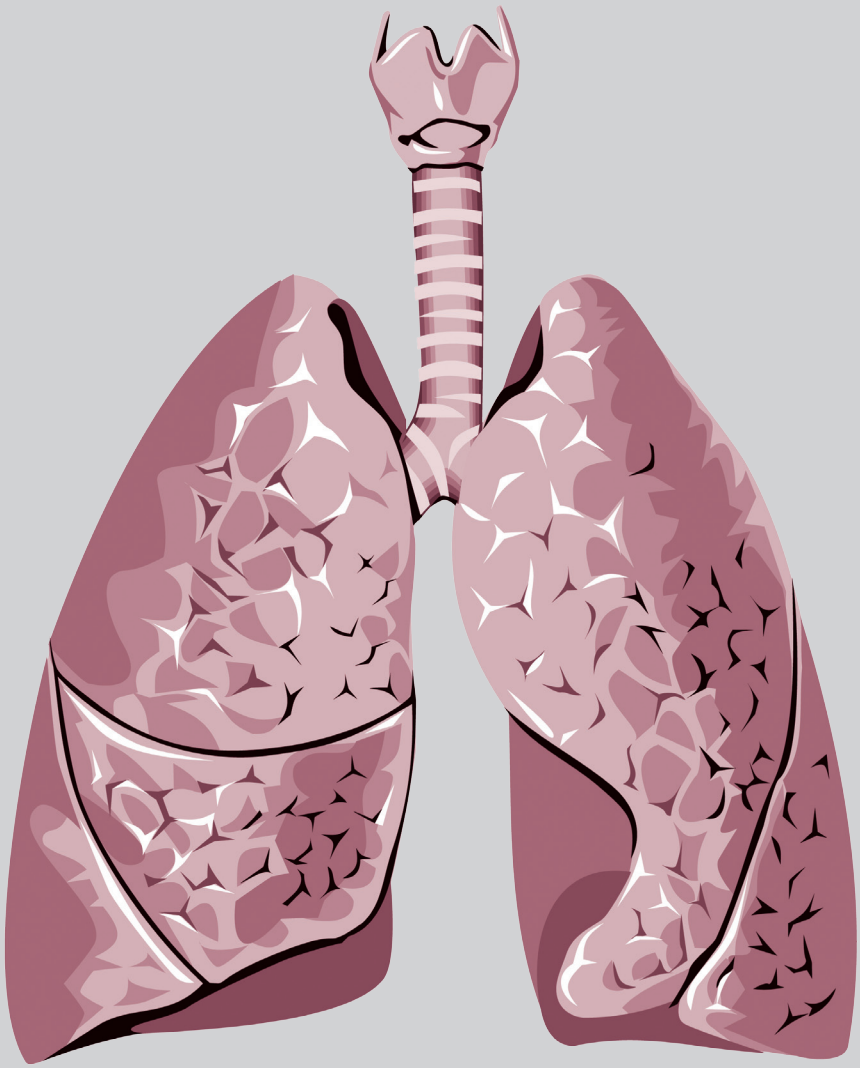

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Clinician and Pharmacist Participation in a Multidisciplinary Team-Care Model to Improve the Rate of Correct Inhaler Usage and Medication Adherence in COPD Patients

Pei-Chia Mai[1], Chia-Chen Huang[1], Ho-Shen Lee[1], Yu-Feng Wei[3,4], Jung-Yueh Chen[1,2]

Introduction: Inhaler therapy is a cornerstone of treatment for patients with chronic obstructive pulmonary disease (COPD), and symptomatic patients always need long-term inhaler usage. However, poor therapeutic adherence and poor inhaler usage techniques are challenges to treatment efficacy. The participation of a clinician and a pharmacist in COPD management has been discussed in recent years. Some previous studies have provided evidence that such models could have positive effects on medication adherence and correct inhaler usage.

Methods: This was a single-center study conducted in southern Taiwan. The COPD care service was provided by a multidisciplinary team, including a clinician, a pharmacist and a case manager as the core members. Patients with COPD (group B, C or D) were enrolled into the intervention group (clinician and pharmacist care service model) or the control group (standard care). We evaluated the patients' inhaler use technique and medication adherence by assessing the percentage of inhalation steps performed correctly and using the Morisky Medication Adherence Scale (MMAS-8), respectively, at both baseline and 12 months after study enrollment.

Results: A total of 692 patients with stable COPD were recruited for our study; 118 patients (17%) were enrolled into the intervention group and 574 patients (83%) into the standard care group. The intervention group showed significant improvement in their inhaler technique total score compared with the standard care group (92.7±10.4 vs 88.5±13.4, P<0.01). Medication adherence was also improved in the intervention group (percentage of high adherence patients increased from 22 (18.6%) to 26 (22%)). However, there was no significant improvement in the rate of correct inhaler usage after a 12-month interval in both groups.

Conclusion: The multidisciplinary team-care model, with clinician and pharmacist participation, may result in improvement in inhaler usage and medication adherence in patients with COPD. In the intervention group, there was similar correct inhaler usage with all of the different devices. ***(Thorac Med 2022; 37: 154-165)***

Key words: Chronic obstructive pulmonary disease; multidisciplinary team-care model; inhaler technique; inhaler adherence

Effect of ALK Fusion Variants on ALK Inhibitor Treatment in Patients with Non-small Cell Lung Cancer: A Systematic Review and Meta-analysis

Hsin-Pei Chung[1,2], Yu-Chu Ella Chung[3], Ying-Chih Cheng[4,5]

Background: Echinoderm microtubule-associated protein-like 4 (*EML*)-anaplastic lymphoma kinase (*ALK*) rearrangement variants have been shown to influence the treatment outcomes of tyrosine kinase inhibitors (*TKI*). However, due to small sample sizes and differences in methodology between previous studies, the results are still inconclusive. Therefore, the aim of this study was to investigate the association between *EML4-ALK* fusion variants and *ALK* inhibitor treatment outcomes using a meta-analysis approach.

Methods: We systematically searched 5 electronic databases, including PubMed, the Cochrane Library, Embase, Medline, and ClinicalTrials.gov, for clinical trial publications. *EML4-ALK* fusion variants were categorized into 2 subtypes: (1) *ALK* variant 1 carriers and non-variant 1 carriers; and (2) long form and short form. Clinical efficacy outcomes including objective response rate (ORR), disease control rate (DCR) and progression-free survival (PFS) were analyzed. A random-effects model was applied to aggregate risk ratios. Sensitivity and funnel plot analyses were also conducted to clarify possible bias in the meta-analysis process.

Results: No significant results were observed in the association between variants and ORR. There was no significant difference in DCR, except for a trend toward the long form group. However, there was a significant improvement in PFS in the *ALK* variant 1 carriers and in the long form group. Overall, no obvious bias was derived from a single study or publication process.

Conclusion: The current study suggests that *EML4-ALK* variants affect PFS with *ALK* inhibitor treatment. Future *TKI* therapeutic strategies with a focus on personalized medicine should be developed. ***(Thorac Med 2022; 37: 166-179)***

Key words: EML4-ALK variant 1, EML4-ALK non-variant 1, long form variant, short form variant, ALK TKI, ALK-positive NSCLC

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Inhaled Nitric Oxide in the Management of Severe COVID-19 Pneumonia-related Hypoxemic Respiratory Failure

Jenn-Yu Wu[1,2], Chien-Ting Pan[3], Sheng-Nan Chang[2,3], Chi-Ying Lin[4], Yen-Fu Chen[1,2], Chung-Yu Chen[1,2], Juey-Jen Hwang[2,3]

Previous experience with the 2003 Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) infection suggested the potential role of inhaled nitric oxide (NO) as a supportive measure for patients with respiratory failure. Treatment with inhaled NO reversed pulmonary hypertension, improved severe hypoxemia, and shortened the length of ventilator support in severe SARS patients. Inhaled NO can reduce inflammatory cell-mediated lung injury and lower pulmonary vascular resistance. Clinical use of inhaled NO may become an alternate treatment before extracorporeal membrane oxygenation for the management of acute respiratory distress syndrome in patients with COVID-19. Two patients with severe COVID-19 pneumonia-related hypoxemic respiratory failure were intubated with mechanical ventilator support and were treated with inhaled NO in our hospital. The patients showed improvement in oxygenation and were weaned successfully from the mechanical ventilator. ***(Thorac Med 2022; 37: 180-185)***

Key words: COVID-19; respiratory failure; inhaled nitric oxide; critical care

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Positive Correlation between Pendelluft and Breathing Effort in a Case of Severe Acute Respiratory Distress Syndrome

Chien-Ming Chiang[1], Chien-Yu Lin[2], Chang-Wen Chen[2]

Sedation and paralysis are often required for patients with moderate to severe acute respiratory distress syndrome. Daily interruption of sedation and paralysis is a standard of care in the current concept. However, physicians may be concerned that the excessive breathing effort generated by the patients themselves following discontinuation of a muscle relaxant could be harmful. The phenomenon of pendelluft is hypothesized to be associated with such hazards, but the association of pendelluft and breathing effort has not been well established. Here, we report a patient with severe acute respiratory distress syndrome who underwent an electrical impedance tomography recording with simultaneous esophageal manometry monitoring during daily interruption of sedation and paralysis. A positive correlation between the volume of pendelluft, the global inhomogeneity index and breathing effort was noted. ***(Thorac Med 2022; 37: 186-191)***

Key words: pendelluft, acute respiratory distress syndrome (ARDS), electrical impedance tomography (EIT)

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Pulmonary Cryptococcosis Presenting with Multiple Cavitary Nodules in an Immunocompetent Patient: a Case Report

Sheng-Wei Gao[1], Erh-Lun Chen[1]

Pulmonary cryptococcosis can occur in immunocompetent individuals, and most are asymptomatic. We report a 48-year-old male without significant underlying risk factors who presented with multiple nodules scattered in the lung parenchyma and several eccentric cavities with an irregular wall in the bilateral upper lobes and right lower lobe. Broncho-alveolar lavage culture yielded Cryptococcus grubii. High-risk patients, including patients with diabetes, immunosuppressed patients, and patients with T lymphocyte deficiency, leukemia, AIDS or other immunodeficiencies, are the most common groups to develop pulmonary cryptococcosis infection. Similar to our patient, immunocompetent hosts with pulmonary cryptococcosis may present a wide variety of radiographic abnormalities, including nodules and cavitation. ***(Thorac Med 2022; 37: 192-197)***

Key words: immunocompetent patient, pulmonary cryptococcosis

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Acute Eosinophilic Pneumonia after Use of E-cigarettes: A Case Report

Po-Wei Hu[1], Fang-Chi Lin[1]

Use of electronic cigarettes (e-cigarettes) can have serious adverse effects on the respiratory tract. This is termed e-cigarette or vaping product use associated lung injury (EVALI). EVALI involves more than 1 mechanism, and reflects a spectrum of disease processes. Acute eosinophilic pneumonitis (AEP) is a relatively uncommon pattern of EVALI. Here, we reported a previously healthy young man who developed AEP following vaping for 4 months. ***(Thorac Med 2022; 37: 198-204)***

Key words: e-cigarette, vape, e-cigarette or vaping product use associated lung injury (EVALI), acute eosinophilic pneumonia (AEP)

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Endobronchial Actinomycosis — a Case Report

Ko-Ling Chien[1], Chi-Li Chung[1,2], Chi-Long Chen[3]

Endobronchial actinomycosis is a rare manifestation of thoracic actinomycotic infection that can mimic malignancy, tuberculosis, fungal infection or lung abscess, and thus usually leads to a misdiagnosis. Here, we reported an unusual case of actinomycosis with endobronchial involvement that was initially misdiagnosed as a lung abscess with organizing pneumonia. Endobronchial actinomycosis was confirmed by bronchial pathology, and the patient was treated successfully with a 6-month course of antibiotics, showing both marked symptomatic and image improvement. The follow-up bronchoscopic image revealed nearly total resolution of the endobronchial nodule and no evidence of obscure abnormalities. This case highlights the critical role of bronchoscopy, rather than conventional chest computed tomography only, in the definite diagnosis of endobronchial actinomycosis. Repeated bronchoscopy following treatment is mandatory, given the close association of endobronchial actinomycosis with a broncholith, inhaled foreign body and lung cancer. ***(Thorac Med 2022; 37: 205-210)***

Key words: pulmonary actinomycosis, endobronchial actinomycosis, bronchoscopy

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Successful Management of Tracheobronchial Injury with Endobronchial Stenting in an Adult with Thoracic Trauma

Tse-Bin Yang[1], Hsiu-Ling Cheng[2], Yun-Hsiang Chan[1], Shuenn-Wen Kuo[3]

Tracheobronchial injury (TBI) is a serious condition caused by blunt or penetrating trauma. Prompt diagnosis after the initial insult can sometimes be difficult due to subtle air-leakage. The management of TBI includes conservative treatment, endobronchial stenting and surgical repair. Here, we describe the case of a 27-year-old man who suffered from thoracic trauma with TBI and who was successfully managed with endobronchial stenting. ***(Thorac Med 2022; 37: 211-216)***

Key words: tracheobronchial injury, pneumothorax, pneumomediastinum, endobronchial stenting

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Pulmonary Amyloidosis Mimicking Multiple Lung Metastasis – A Case Report

Cheng-Hsiang Chu[1], Lu-Jen Chen[2], Yen-Hsiang Huang[1], Tsung-Ying Yang[1]

Pulmonary amyloidosis was previously recognized as a benign disorder. However, both its clinical and its radiologic presentations could mimic malignancies. We reported the case of a 76-year-old woman with the initial presentation of a tongue tumor 8 years ago, and who developed progressive dyspnea on exertion 2 years previous to this evaluation. The chest X-ray and computed tomography (CT) scan of the chest showed multiple lung nodules. The patient was told she likely had stage IV tongue cancer with lung metastasis, but she declined any biopsy. However, massive hemoptysis occurred, complicated with respiratory failure, so she was referred for further surveillance and treatment. The follow-up CT of the chest revealed increasing numbers and sizes of calcifications, consolidations, cystic lesions and slow-growing nodules. Pulmonary amyloidosis was highly suspected, so tissue proof was strongly suggested. The patient finally agreed to undergo tissue biopsy, and the pathologic report confirmed the diagnosis of amyloidosis. ***(Thorac Med 2022; 37: 217-222)***

Key words: Pulmonary amyloidosis; hemoptysis

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Interstitial lung Disease in Systemic Sclerosis and Dermatomyositis Overlap Syndrome: A Case Report

Pi-Hung Tung[1], Chen-Yiu Hung[1], Ning-Hung Chen[1,2,4], Shu-Min Lin[1,2,3]

Connective tissue diseases (CTDs) are frequently associated with interstitial lung disease (ILD), which significantly impacts morbidity and mortality. Organizing pneumonia is a clinical, radiological and histological entity that is classified as an ILD. We report a 68-year-old woman who presented bilateral lower lung consolidation on radiologic imaging, that later progressed to respiratory failure. The lung tissue biopsy pathology showed organizing pneumonia. In addition, the patient had progressive muscle weakness in all 4 limbs. Further investigation revealed a high antinuclear antibodies titer and a positive finding on the myositis panel. Steroid and immunosuppressive agents were used to treat the CTD-ILD; extubation was performed after the patient's clinical condition improved. This report focused on the characteristics of radiological findings and our experience in treating CTD-ILD. ***(Thorac Med 2022; 37: 223-229)***

Key words: Connective tissue disease, interstitial lung disease, systemic sclerosis, dermatomyositis

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Primary Lung Cancer Presenting as Diffuse Tiny Pulmonary Nodules: A Case Report

Ming-Hung Chang[1], Kuo-Hwa Chiang[1]

Primary lung cancer seldom appears as a radiologic pattern with diffuse tiny pulmonary nodules, which may mimic miliary tuberculosis or other malignancies of hematogenous metastatic origin. We report the case of a 57-year-old female patient who was a non-smoker. The initial radiologic image study showed diffuse tiny pulmonary nodules, and the final pathologic study revealed primary lung adenocarcinoma with an epidermal growth factor receptor mutation. This unique radiologic pattern is a diagnostic challenge and further histologic evidence is important for the definitive diagnosis. ***(Thorac Med 2022; 37: 230-235)***

Key words: Lung cancer, adenocarcinoma, miliary metastasis, miliary intrapulmonary carcinomatosis

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Rapid Pulmonary Fibrosis Induced by Oxaliplatin: An Unexpected but Serious Side Effect in Treating Colorectal Cancer

Chieh-Lung Chen[1], Wei-Chih Liao[1,2,3], Shinn-Jye Liang[1], Chih-Yu Chen[1], Chih-Yen Tu[1,3], Wu-Huei Hsu[1]

Drug-induced pulmonary fibrosis is a rare but serious side effect caused by chronic administration of certain drugs, and its actual incidence is unknown. There is an increasing number of reports in the literature on the association of oxaliplatin with pulmonary toxicity. Discontinuation of oxaliplatin often results in clinical and radiological improvement of mild disease. However, most cases of oxaliplatin-induced pulmonary fibrosis had a rapid and fatal course. The efficacy of systemic corticosteroids, antioxidant agents, or anti-fibrotic agents remains unclear. Herein, we present a rare case of rapid pulmonary fibrosis induced by oxaliplatin in a patient who received 11 courses of chemotherapy with 5-fluorouracil, leucovorin, and oxaliplatin (FOLFOX) as adjuvant treatment for resected colorectal cancer, and review the literatureis. ***(Thorac Med 2022; 37: 236-241)***

Key words: Pulmonary fibrosis, oxaliplatin, FOLFOX, colorectal cancer

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Total Laparoscopic Cruroplasty with Gastropexy Using Unidirectional Barbed Suture for a Giant Hiatal Hernia

Xu-Heng Chiang[1], Shun-Mao Yang[2], Huan-Jang Ko[2]

The interrupted knot-tying suture is conventionally used in formal hiatal hernia repair, which consists of cruroplasty and gastropexy. The use of the unidirectional barbed suture is still uncommon in this field. Despite the limited data, barbed suture has been reported as safe and effective in cruroplasty. Here, we describe a case of giant hiatal hernia treated with total laparoscopic reduction of the hiatal hernia, followed by cruroplasty and gastropexy using unidirectional barbed suture. Use of a unidirectional barbed suture during the procedure is completely feasible and time-efficient. ***(Thorac Med 2022; 37: 242-247)***

Key words: Barbed suture, V-Loc, hiatal hernia, cruroplasty, gastropexy

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An Unusual Radiographic Pattern of Organizing Pneumonia: A Case Report

Shu-Hung Kuo[1,2], Chen-Tu Wu[3], Chao-Chi Ho[1]

Organizing pneumonia (OP) is classified as an interstitial lung disease characterized by intra-alveolar granulation tissue. Common clinical presentations of OP include shortness of breath, non-productive cough, fever, malaise, and other nonspecific symptoms, but some cases of OP can be totally asymptomatic. Typical radiographic findings of OP on chest radiographs and computed tomography (CT) scans are multifocal consolidations at the bilateral and peripheral lungs, which are sometimes migratory. Distinguishing OP from other differential diagnoses, such as malignancy or infection, is quite challenging.

We report the case of a 78-year-old man with productive cough for several months. His chest radiograph showed patchy consolidations with a central distribution in the bilateral hilar area. Chest CT demonstrated peribronchovascular consolidations in the bilateral central lungs with enlarged mediastinal lymph nodes. Based on the imaging findings, the first impression was lung cancer or lymphoma. The histopathologic diagnosis of OP was finally confirmed using surgical biopsy. The patient was treated as having cryptogenic OP because no obvious secondary cause was found. There was almost complete remission of the bilateral lesions after corticosteroid therapy. ***(Thorac Med 2022; 37: 248-255)***

Key words: Organizing pneumonia, bilateral patchy pulmonary consolidations, video-assisted thoracoscopic surgery

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