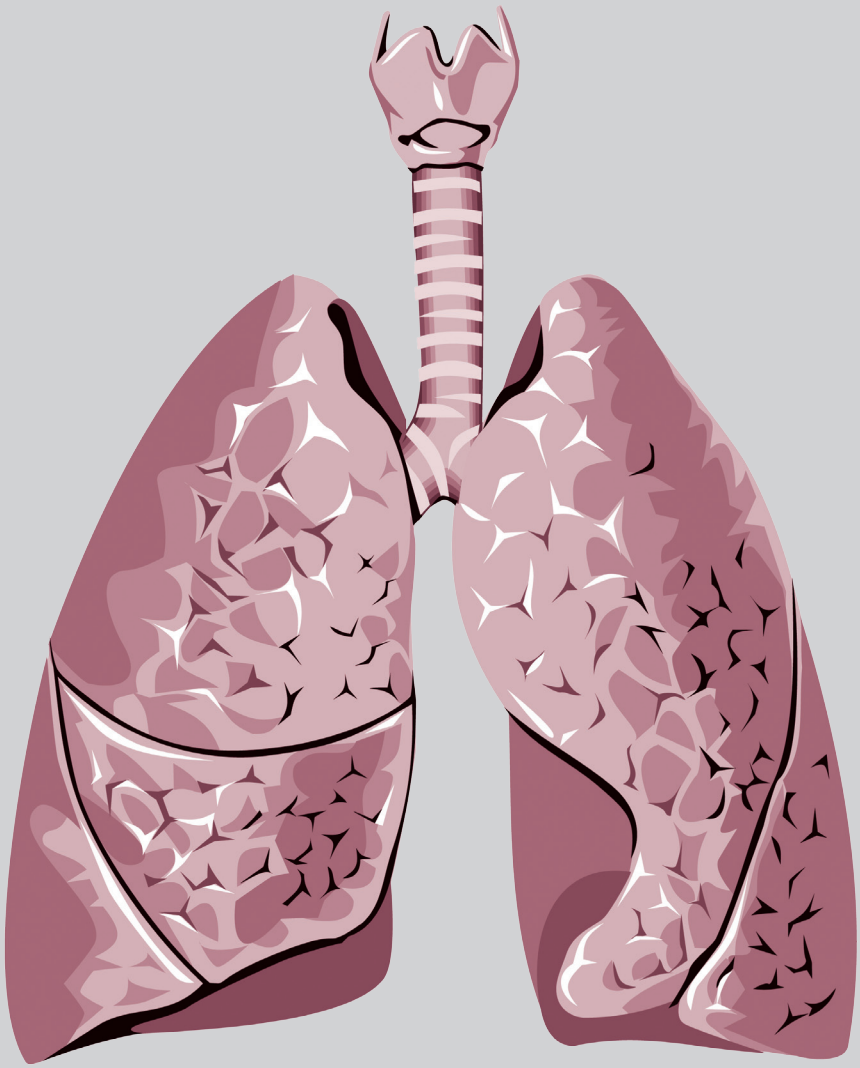
ISSN 1023-9855

Thoracic Medicine

Volume 37 • Number 1 • March 2022



The Official Journal of

Taiwan Society of Pulmonary and Critical Care Medicine

Taiwan Society of Sleep Medicine

Taiwan Society for Respiratory Therapy

Taiwan Society of Tuberculosis and Lung Diseases

Thoracic Medicine

The Official Journal of
Taiwan Society of Pulmonary and Critical Care Medicine
Taiwan Society for Respiratory Therapy
Taiwan Society of Sleep Medicine
Taiwan Society of Tuberculosis and Lung Diseases

Thoracic Medicine

The Official Journal of
Taiwan Society of Pulmonary and Critical Care Medicine
Taiwan Society for Respiratory Therapy
Taiwan Society of Sleep Medicine
Taiwan Society of Tuberculosis and Lung Diseases

Volume 37
Number 1
March 2022

CONTENTS

Long-Acting Beta-2 Agonist and Theophylline Attenuate Cigarette Smoke-Induced Airway Inflammation through Regulation of Cyclic Adenosine Monophosphate

Yu-Jung Lin[1], Kang-Cheng Su[2,3,4], Yi-Han Hsiao[3,4,5]

Introduction: Adding theophylline, a non-selective phosphodiesterase (PDE) inhibitor, to a long-acting beta-2 agonist (LABA) provides an additive bronchodilation effect through preventing cyclic adenosine monophosphate (cAMP) degradation. This procedure has become a common therapeutic choice in the management of chronic obstructive pulmonary disease patients. Emerging studies have shown that the use of a LABA and PDE inhibitor may inhibit airway inflammation, but details of the mechanism require further investigation.

Methods: Mice were exposed to cigarette smoke (CS) for 4 weeks to induce airway inflammation. Indacaterol maleate (IND, a LABA), theophylline, and their combination or a vehicle was given through intraperitoneal injection daily during the 4-week exposure. In addition, human primary bronchial epithelial cells (PBECs) were exposed to cigarette smoke extract (CSE) with or without treatment of IND or theophylline. Interleukin (IL)-8 production and the cAMP level in PBECs were measured. Inhibitors of downstream signaling, including adenylyl cyclase (AC) and protein kinase A (PKA), were used to evaluate the underlying mechanism.

Results: IND, theophylline and their combination reduced CS-induced protein leakage and inflammatory cells accumulation in the bronchoalveolar lavage fluid, as well as lung inflammation and peribronchial collagen deposition in lung sections. IND and theophylline consistently inhibited CSE-induced increases in IL-8 production in PBECs through maintaining the cAMP level. This anti-inflammatory effect was alleviated by adding AC or PKA inhibitor.

Conclusion: Both LABA and theophylline exert a potent inhibitory effect on CS-induced airway inflammation through regulating cAMP and the AC-PKA pathway. ***(Thorac Med 2022; 37: 1-12)***

Key words: long-acting beta-2 antagonist, phosphodiesterase inhibitor, airway inflammation

[1]Department of Chest Medicine, Taipei Veterans General Hospital, Taipei, Taiwan, [2]Division of Clinical Respiratory Physiology, Department of Chest Medicine, Taipei Veterans General Hospital, Taipei, Taiwan, [3]Department of Physiology, School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan, [4]Faculty of Medicine, School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan, [5]Division of General Chest Medicine, Department of Chest Medicine, Taipei Veterans General Hospital, Taipei, Taiwan.
Address reprint requests to: Dr. Yi-Han Hsiao, Division of General Chest Medicine, Department of Chest Medicine, Taipei Veterans General Hospital, 201 Shih-Pai Road, Section 2, Taipei 11217, Taiwan

Clinical Application of High-Flow Nasal Cannula Oxygen Therapy for Patients with Blunt Chest Injury: A Prospective Study

Yin-Chi Lee[1,2,*], Chun-Fu Chang[2,4,5,*], Chien-Ho Tsai[3], Shih-Chieh Chang[2,4,5]
Hsin-Yi Chang[2,6], Yi-Chun Lai[2,4,5]

Introduction: Blunt chest injury (BCI) is associated with a high risk of mortality. High-flow nasal cannula (HFNC) oxygen therapy can be used to reduce the risk of respiratory failure due to hypoxemia, and can significantly reduce the need for intubation compared with general oxygen therapy and the use of a non-invasive positive pressure breathing apparatus. However, it is not widely known whether HFNC can be used in trauma-related hypoxemia.

Methods: We performed a cross-sectional study of patients with BCI but without hypercapnia, and compared HFNC therapy with standard oxygen therapy (control group). The primary outcome was the ratio of the proportion of patients intubated in each group; secondary outcomes included mortality in the intensive care unit (ICU), duration of hospital and ICU stay, and other complications.

Results: A total of 74 patients fulfilled the BCI criteria and were divided into the HFNC and control groups, with 24 and 50 patients, respectively. Findings revealed a lower respiratory failure rate requiring intubation in the HFNC group (4.2% vs. 10%, p=0.657). A trend toward a shorter length of ICU and hospital stay in the HFNC group was noted, as well as lower incidence of pneumonia (25% vs. 40%, p=0.206). Hemodynamic changes in the control group revealed an increased heart rate and respiratory rate 48 hours later, and an increased respiratory rate after 72 hours.

Conclusion: This is the first study in Taiwan to investigate initial HFNC use in patients with BCI. Usage of HFNC for 48 hours exhibited beneficial hemodynamic changes with a lower respiratory and heart rate, and a trend toward a lower rate of intubation, less pneumonia risk, a shorter hospital and ICU stay, and a lower 30-day mortality rate. ***(Thorac Med 2022; 37: 13-20)***

Key words: Blunt chest injury, chest trauma, high-flow nasal cannula, respiratory failure, ventilation

[1]Graduate Institute of Clinical Medical Sciences, College of Medicine, Chang Gung University, Taoyuan, Taiwan, [2]Department of Critical Care Medicine, National Yang-Ming Chiao Tung University Hospital, Yi-Lan, Taiwan, [3]Division of Chest Surgery, Department of Surgery, National Yang-Ming Chiao Tung University Hospital, Yi-Lan, Taiwan, [4]Division of Chest Medicine, Department of Internal Medicine, National Yang-Ming Chiao Tung University Hospital, Yi-Lan, Taiwan, [5]Faculty of Medicine, School of Medicine, National Yang-Ming Chiao Tung University, Taipei, Taiwan, ROC, [6]Graduate Bachelor of Sciences, School of Respiratory Therapy. Taipei Medical University, Taipei, Taiwan.

Address reprint requests to: Dr. Yi-Chun Lai, Division of Chest Medicine, Department of Internal Medicine, National Yang-Ming Chiao Tung University Hospital, Yi-Lan, Taiwan, No. 169, Siaoshe Rd., Yi-lan City, Yi-lan Country 26058, Taiwan (R. O. C.)

*These authors contributed equally to this work.

Initiation of Systemic Corticosteroid Treatment in a Patient with Avian Influenza A (H7N9) Pneumonia, Guided by Blood CD4 Lymphocyte Count and Viral Load

Wei-Hsin Hung[1], Diahn-Warng Perng[2,3], Hsin-Kuo Ko[2,3]

Avian influenza A (H7N9) is a novel influenza A virus that has caused severe human illnesses in China since 2013. Neuraminidase inhibitor (NI) treatment, systemic steroid use, and intensive respiratory care have been used to manage severe avian influenza infection. The timing for initiation of steroid treatment remains uncertain, and the harmful effects of immune suppression and the potential for prolonging viral replication have been reported in the literature. Here, we reported a case of H7N9 influenza infection in a patient with acute respiratory distress syndrome who was supported with extracorporeal membrane oxygenation and given NIs and systemic steroid in accordance with the viral load and the blood CD4 lymphocyte count. ***(Thorac Med 2022; 37: 21-26)***

Key words: influenza, influenza A, H7N9, CD4 lymphocyte count, corticosteroid

[1]Division of Chest Medicine, Department of Internal Medicine, Kaohsiung Veteran General Hospital, [2]Department of Chest Medicine, Taipei Veterans General Hospital, Taipei, Taiwan, ROC, [3]School of Medicine, National Yang-Ming University, Taipei, Taiwan, ROC

Address reprint requests to: Dr. Hsin-Kuo Ko, Chest department, Taipei Veteran General Hospital, No. 201, Sec. 2, Shipai Rd., Beitou Dist., Taipei City 112201, Taiwan (R.O.C.)

Huge Chest Wall and Intrathoracic Desmoid Tumor: A Case Report and Literature Review

Lai-Man Mok[1], Yu-Chao Yu[1], Mei-Lin Chan[1], Wen-Chien Huang[1]

A desmoid tumor of the chest wall is rare. It is a slow-growing soft-tissue tumor, but also has an infiltrative growth tendency, which leads to a higher risk of local recurrence. However, it seldom metastasizes due to its benign nature. Surgical excision is the mainstay of treatment for the disease. Chest wall reconstruction would be necessary when a huge defect or loss of stability result from resection. Thus, a large tumor size and some specific locations would increase surgical complexity, which might lead to morbidity and mortality. We reported a 52-year-old female with a huge intrathoracic tumor. The patient underwent surgery for tumor removal via a sternotomy. The wound was extended to the left lower neck since the tumor was located at the left apex and close to the great vessels. Final pathology proved the diagnosis of a desmoid tumor of the chest wall and thoracic cavity. We presented the clinical features of the desmoid tumor and a discussion on management options and considerations. ***(Thorac Med 2022; 37: 27-32)***

Key words: desmoid tumor, fibromatosis, intrathoracic tumor, chest wall tumor, surgical treatment

[1]Division of Thoracic Surgery, Department of Surgery, Mackay Memorial Hospital, Taipei, Taiwan
Address reprint requests to: Dr. Lai-Man Mok, Division of Thoracic Surgery, Department of Surgery, Mackay Memorial Hospital, No. 92, Chung-Shan North Road, Taipei 104, Taiwan

Intralobar Pulmonary Sequestration with an Aberrant Feeding Artery Arising from the Celiac Trunk – A Case Report and Literature Review

Cheng-Hao Chuang[1], Chih-Hung Cheng[1], Yu-Chen Tsai[1], Ming-Ju Tsai[1,2], Jen-Yu Hung[1,2]

Pulmonary sequestration is an uncommon hereditary pulmonary anomaly that is classified into intralobar and extralobar types, based on whether it is coated with an independent visceral pleura. In patients with the intralobar type, there is abnormal communication with the normal respiratory tract, which easily leads to bacterial infection with clinical symptoms. We report a 25-year-old man who presented with pneumonia in the left lower lung. Tracing back his history, no systemic disease or risk factor for immunodeficiency was present, but he had repeatedly developed pneumonia in the left lower lung. Although his condition improved with antibiotic treatment, the follow-up chest radiograph showed slow improvement of the consolidation in the left lower lung. Computed tomography of the chest with contrast enhancement disclosed intralobar pulmonary sequestration with an aberrant feeding artery arising from the celiac trunk. The patient was treated surgically and had an uneventful recovery without further infection. Our case highlights the importance of an awareness of the presence of anatomical anomalies when physicians treat patients with recurrent pneumonia. ***(Thorac Med 2022; 37: 33-37)***

Key words: pulmonary sequestration; celiac trunk; intralobar type

[1]Division of Pulmonary and Critical Care Medicine, Kaohsiung Medical University Hospital, [2]School of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan

Address reprint requests to: Dr. Jen-Yu Hung, Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, No.100, Tzyou 1st Road, Kaohsiung 807, Taiwan

Diagnosing Mediastinal Metastatic Cholangiocarcinoma Using Eendobronchial Ultrasound-guided Transbronchial Needle Aspiration: A Case Report

Yi-Luen Shen[1], Ming-Huang Chen[2], Heng-Sheng Chao[1]

The diagnosis of a neoplasm in the gastrointestinal tract is usually based on pathologic examination via endoscopic biopsy or endoscopic ultrasound-guided fine-needle aspiration. However, tumor obstruction hinders the detailed tumor assessment and accuracy of endoscopic biopsies or endoscopic ultrasound-guided fine-needle aspiration. We report a rare case with an esophageal mass. While the obstruction prevented successful biopsy via the esophagus, endobronchial ultrasound-guided transbronchial fine-needle aspiration (EBUS-TBNA) was able to obtain adequate tissue samples by puncturing the tracheobronchial wall to the mass lesion outside the subcarinal area. Pathology disclosed adenocarcinoma that was CK7 positive. Based on the pathology and positron emission tomography findings, metastatic cholangiocarcinoma with esophageal metastasis was favored during the cancer multidisciplinary team discussion. EBUS-TBNA would be an effective method to obtain tissues in such situations. ***(Thorac Med 2022; 37: 38-42)***

Key words: endobronchial ultrasound; metastatic cholangiocarcinoma; esophageal neoplasm

[1]Department of Chest Medicine, Taipei Veterans General Hospital, Taipei, Taiwan, [2]Division of Medical Oncology, Department of Oncology, Taipei Veterans General Hospital, Taipei, Taiwan

Address reprint requests to: Dr. Heng-Sheng Chao, Division of General Chest Medicine, Department of Chest Medicine, Taipei Veterans General Hospital, Taipei, Taiwan No. 201, Sec. 2, Shih-Pai Rd., Beitou District, Taipei 11217, Taiwan, ROC

Occult Parathyroid Carcinoma Presenting with Right Hilar Lymph Node Metastasis – A Case Report

Yi-An Hsieh[1], Yi-Chen Yeh[2], Yong-Yang Liu[3]

Parathyroid carcinoma is the rarest endocrine malignancy, and treatment options are limited. In some cases, treatment may be postponed due to misdiagnosis or delayed diagnosis. Most patients present with insidious symptoms of hypercalcemia only. We report a 74-year-old woman with parathyroid carcinoma who had an atypical presentation on a sestamibi (MIBI) parathyroid scan, which showed negative uptake in the primary parathyroid lesion but positive uptake in the metastasized right hilar lymph node. The definitive diagnosis was reached with the assistance of endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) of the right hilar lymphadenopathy. This case report may serve to remind clinicians of the challenges and pitfalls in the diagnosis of occult parathyroid carcinoma and present an alternative approach to reaching a definite diagnosis via EBUS-TBNA. ***(Thorac Med 2022; 37: 43-50)***

Key words: parathyroid carcinoma, hypercalcemia, sestamibi (MIBI) parathyroid scan

[1]Department of Chest Medicine, Taipei Veterans General Hospital, [2]Department of Pathology and Laboratory Medicine, Taipei Veterans General Hospital, [3]Division of Clinical Respiratory Physiology, Department of Chest Medicine, Taipei Veterans General Hospital

Address reprint requests to: Dr. Division of Clinical Respiratory Physiology, Department of Chest Medicine, Taipei Veterans General Hospital, No. 201, Sec. 2, Shipai Rd., Beitou Dist., Taipei City 112201, Taiwan (R.O.C.)

Good Steroid Response in a Patient with Atypical Chronic Hypersensitivity Pneumonitis with Neutrophilia in the Bronchoalveolar Lavage Fluid: A Case Report and Literature Review

Shih-Yu Chen[1], Ping-Hung Kuo[1]

Chronic hypersensitivity pneumonitis (CHP) is a granulomatous disorder. The typical features of CHP include fibrotic changes in the upper or middle lungs on high resolution computed tomography (HRCT) and lymphocyte predominance in the bronchoalveolar lavage (BAL) fluid. In this report, we describe a middle-aged woman presenting with a chronic cough for 2 months. She had a history of exposure to ring-necked pheasants. HRCT revealed reticular opacities and fibrotic change in the bilateral basal lungs. The percentage of neutrophils in the BAL fluid was 75%. She underwent a video-assisted thoracoscopic surgery biopsy and the pathology was consistent with the typical findings of CHP. The patient's symptoms and diffusion capacity responded well to low-dose oral prednisolone treatment, and the follow-up HRCT revealed nearly total resolution of previous lesions. We also review the literature regarding the diagnostic and prognostic impact of atypical presentations of CHP.
(Thorac Med 2022; 37: 51-57)

Key words: chronic hypersensitivity pneumonitis (CHP), bronchoalveolar lavage (BAL), high resolution computed tomography (HRCT)

[1]Division of Pulmonary Medicine, Department of Internal Medicine National Taiwan University Hospital
Address reprint requests to: Dr. Ping-Hung Kuo, Division of Pulmonary Medicine, Department of Internal Medicine, National Taiwan University Hospital, No. 7, Chung-Shan South Road, Taipei 100, Taiwan