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12 / 7 (Sat)

TIME	301A	301B	304A	304B
08:00-	Registration			
08:30-08:40	Opening	Opening	Opening	Opening
08:40-09:20	Moderator: 蔡煒煌 院長 How to make your patient comfortable and awake in ICU 古世基 主任	Moderator: 林恒毅 院長 The role of microbiome in tuberculosis 陳彥甫 主任	Young investigator Moderator: 林孟志 理事長、陳育民 主任	台灣胸腔外科醫學會 Moderator: 周世華 院長、鄭清源 院長 Management of Lung Nodules: 高雄長庚經驗 / 呂宏益 主任 高醫經驗 / 李憲斌 醫師 高榮經驗 / 湯恩魁 主任 中榮經驗 / 莊政諺 主任
09:20-10:00	Moderator: 陽光耀 教授 MV management in ARDS with vVECMO 高國晉 副部長	Moderator: 曹昌堯 副校長 The role of epigenetics in tuberculosis infection 陳永哲 醫師	台灣呼吸治療學會 Moderator: 朱家成 理事長 Update in aerosolized drug delivery through mechanical ventilation 林蕙鈴 副教授	台灣胸腔外科醫學會 Moderator: 徐紹勛 主任、趙盈凱 主任 Management of Lung Nodules: 中國附醫經驗 / 林昱森 醫師 北榮經驗 / 林逸翰 醫師 馬偕經驗 / 盧梅麟 醫師 臺大經驗 / 陳晉興 主任
10:00-10:30	Coffee break			
10:30-11:10	Moderator: 薛尊仁 教授 The role of pulmonologist in lung transplantation - can we do more 胡漢忠 主任	Moderator: 陳志毅 副校長 The effects of Concurrent Genetic Alterations of advanced NSCLC with EGFR mutation or ALK fusions 蔡俊明 教授	台灣呼吸治療學會 Moderator: 江玲玲 副教授 Update in the mechanism of ventilator-induced lung injury 黃次雄 副秘書長	台灣胸腔外科醫學會 Moderator: 徐中平 副院長、許瀚水 主任 Nanotechnology in Lung Cancer Intervention 奈米科技於肺癌治療的運用 Prof. Kazuhiro Yasufuku 安福和弘 教授
11:10-11:50	職業醫學（職安署） Moderator：林孟志 理事長 The occupation and environment related respiratory diseases and notification system in Taiwan. 莊弘毅 理事長		台灣呼吸治療學會 Moderator: 楊式興 助理教授 Melatonin in the treatment of metastatic lung cancer: preclinical and molecular mechanism study 趙家佳 副教授	11:10-11:40 台灣胸腔外科醫學會 Moderator: 陳晉興 主任、張益誠 主任 Management of lung nodules on LDCT screening: 胸腔內科醫師觀點 / 邱昭華 主任 Small lung nodules: 早期肺腺癌的病理診斷 / 葉奕成 醫師 11:40-12:00 台灣胸腔外科醫學會 Moderator: 方信元 副院長、張宏 副局長 Small pulmonary nodules detected on CT scans: current strategy and potential contribution of AI 電腦斷層偵測的肺小結節：目前的策略及人工智慧可能的貢獻 徐先和 主任
12:00-13:20	荷商葛蘭素史克藥廠股份有限公司台灣分公司贊助 COPD	臺灣阿斯捷利康股份有限公司贊助 Lung cancer	台灣諾華股份有限公司贊助 Lung cancer	友華生技醫藥股份有限公司贊助 COPD
13:30-14:00	會員大會，頒發專科醫師證書			13:20-14:00 台灣胸腔外科醫學會 Moderator: 趙盈凱 主任、林孟暉 醫師 Innovations for Future of Thoracic Surgery 吳士衡 教授
14:00-14:30	【特別演講】Moderator: 林孟志 理事長、林恒毅 院長 Immune Checkpoint Inhibitors in Lung Cancer: Paving a New Avenue of Care / Prof. Leora Horn			
14:30-15:00	【特別演講】Moderator: 林孟志 理事長、林恒毅 院長 Diaphragm Weakness in the Critically Ill: Basic Mechanisms Reveal Therapeutic Opportunities / Prof.Basil J Petrof			
15:00-15:30	【特別演講】Moderator: 林孟志 理事長、林恒毅 院長 Global trends and challenges in the management of asthma / Prof. Guy Marks			
15:30-15:50	Coffee break			
15:50-16:50	Thoracic Oncology Intervention Bronchoscopy Diagnosis 【Oral Presentation】 施金元 教授 夏德椿 主任 楊政達 院長 共同主持	Airway Disease Sleep Medicine Interstitial Lung Disease Other 【Oral Presentation】 彭殿王 主任 李岡遠 主任 黃明賢 教授 共同主持	Respiratory Tract Infections Critical Care Medicine Tuberculosis 【Oral Presentation】 王鶴健 教授 鍾欽文 教授 蘇維鈞 教授 共同主持	15:50-17:00 台灣胸腔外科醫學會 Moderator: 黃文傑 主任、黃建勝 醫師 Percutaneous Localization of Small Lung Nodules 中山經驗 / 林巧峯 主任 彰基經驗 / 王秉彥 主任 臺大經驗 / 蔡東明 醫師 Moderator: 管毅剛 副院長、馮瑤 主任 新光經驗 / 謝陳平 醫師 奇美經驗 / 蘇英傑 醫師 國泰經驗 / 顏銘宏 醫師 北榮經驗 / 洪嘉聰 醫師
17:00-18:20	台灣百靈佳格格翰股份有限公司贊助 Lung cancer, COPD	羅氏大藥廠股份有限公司贊助 Lung cancer	台灣諾華股份有限公司贊助 Airway disease	17:00-17:10 台灣胸腔外科醫學會 Panel discussion 17:10-18:20 台灣胸腔外科醫學會 Moderator: 吳怡成 主任、張晃宙 主任 Endobronchial localization of Small Lung Nodules 林口長庚經驗 / 溫志聰 醫師 馬偕經驗 / 黃文傑 主任 三總經驗 / 黃才旺 主任 Moderator: 賴吾為 主任、謝明儒 主任 胸腔外科困難個案討論會： 北榮經驗 / 簡宏哲 醫師 林口長庚經驗 / 陳維勳 醫師 高醫經驗 / 劉又瑋 醫師 義大經驗 / 高明蔚 醫師
18:30-20:30	晚宴 頒發胸腔醫學雜誌優秀論文獎，頒發 Young Investigator Award / 頒發口頭報告以及海報展示優秀論文獎，資深會員表揚			

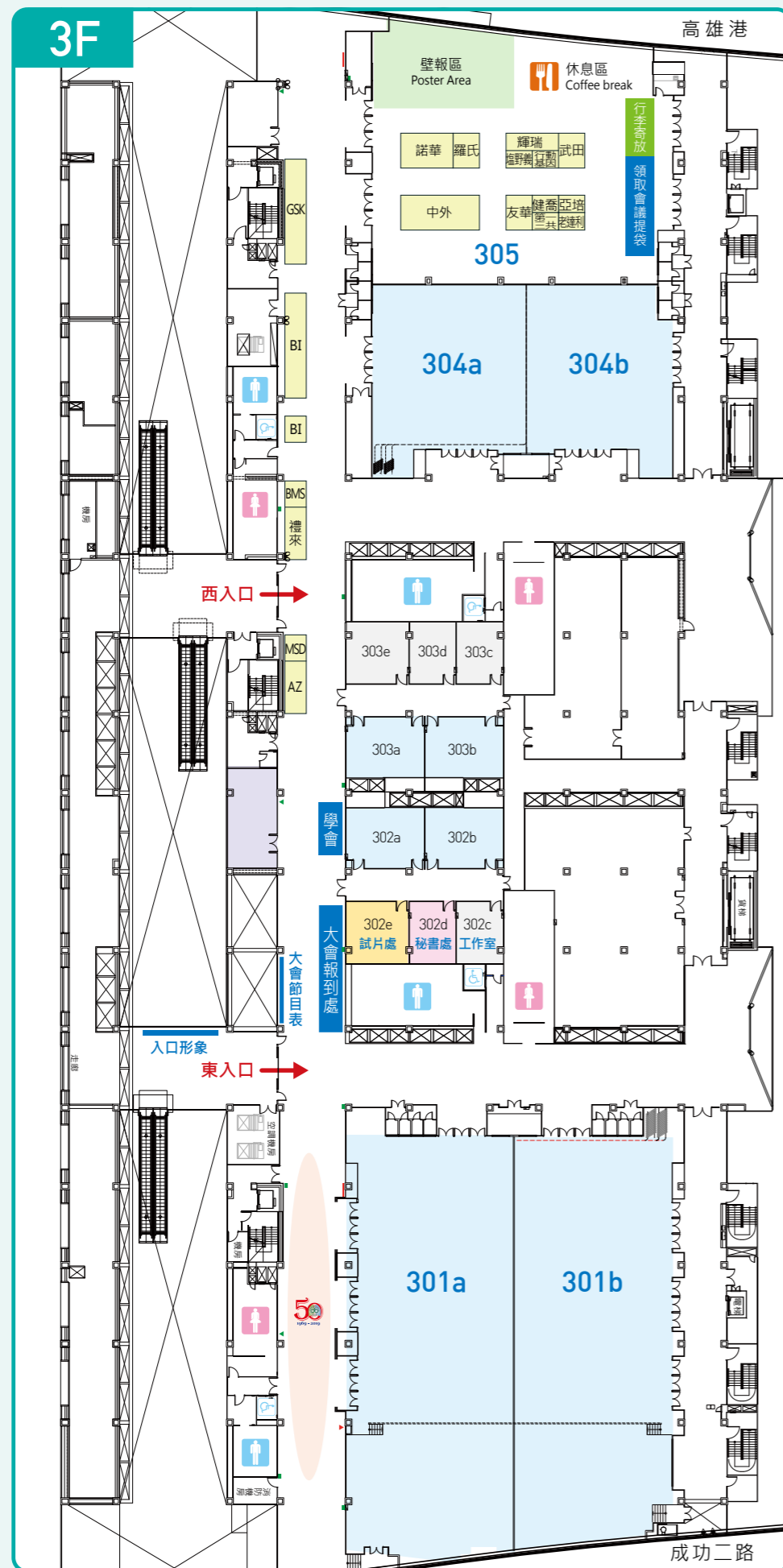
12 / 8 (Sun)

07:30-08:30	302A Meet expert 蔡俊明 教授	302B Meet expert 高常發 主任	303A Meet expert Prof. Ganesh Raghu	
TIME	301A	301B	304A	304B
08:00-	Registration			
08:30-08:40	Opening	Opening	Opening	Opening
08:40-09:20	Moderator: 余志仁 教授 CTEPH management in 2019: Reflections and prospects for future research Prof. William R. Auger	Moderator: 施金元 主任 介入性氣管鏡之新進展 王廣發 教授	Moderator: 鍾欽文 教授 Air pollution and adult lung health in Taiwan 魏裕峰 主任	
09:20-10:00	Moderator: 李岡遠 教授 What is the role of the microbiome in chronic airways disease? Prof. Peggy Lai	Moderator: 楊政達 院長 BRAF, MET, and Her2 mutations in lung cancer Prof. David. Planchard	台灣睡眠醫學學會 Moderator: 陳澤宏 主任 CPAP and Home Respiratory Care in Japan Prof. KAZUO CHIN	Moderator: 蘇維鈞 教授 Contact of tuberculosis at health care facilities in Japan Prof. Takashi Yoshiyama
10:00-10:30	Coffee break			
10:30-11:10	Moderator: 彭殿王 主任 Severe asthma treatment evolution Prof. Peter Howarth	Moderator: 夏德椿 主任 Practical use of liquid biopsy for lung cancer Prof. Byoung Chul Cho	台灣睡眠醫學學會 Moderator: 周昆達 醫師 The biomarker of endothelial damage in obstructive sleep apnea 莊立邦 醫師	Moderator: 徐武輝 副院長 Real world experiences in the treatment of IPF 鄭世隆 主任
11:10-11:50	Moderator: 黃明賢 教授 Lessons from 10 yrs. Hokkaido COPD Cohort Study. Prof. Masaharu Nishimura	Moderator: 張基晟 主任 The immune-modulatory effects of non-immunotherapies 何肇基 醫師	台灣睡眠醫學學會 Moderator: 林嘉謨 主任 Non-Invasive Mechanical Ventilation in the Treatment of Sleep-Disordered Breathing 邱國樑 主任	Moderator: 林慶雄 醫療長 New Horizons in The Treatment of Pulmonary Fibrosis Prof. Ganesh Raghu
12:00-13:20	荷商葛蘭素史克藥廠股份有限公司 台灣分公司贊助 Asthma	行動基因生技股份有限公司贊助 Lung cancer	臺灣阿斯捷利康股份有限公司贊助 Asthma	輝瑞生醫股份有限公司 Infection
13:30-14:10	Moderator: 黃坤崙 教授 As needed ICS/LABA in mild asthma, pro and con 鄭世隆 主任、江振源 醫師		台灣睡眠醫學學會 Moderator: 杭良文 主任 Sleep disturbance and circadian disruption in critically ill patients 李佩玲 主任	Moderator: 王鶴健 教授 Multi-disciplinary discussion for differential diagnosis 柯信國 醫師、陳彥甫 主任 案例講評 Prof. Ganesh Raghu、吳美翰 教授

接駁車時刻表 12.7 (六)7:30-16:00 / 12.8 (日) 7:30-14:30

寒軒大飯店 ➡ 捷連獅甲站 ➡ 高雄展覽館			福容大飯店 ➡ 國賓大飯店 ➡ 漢來大飯店 ➡ 高雄展覽館		
7:30	7:45	7:55	7:30	7:40	7:50 8:00
7:45	8:00	8:10	7:50	8:00	8:10 8:20
8:05	8:20	8:30	8:10	8:20	8:30 8:40
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9:15	9:30	9:40	9:30	9:40	9:50 10:00
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9:50	10:05	10:15	10:10	10:20	10:30 10:40
10:05	10:20	10:30	10:30	10:40	10:50 11:00
10:45	11:00	11:10	11:30	11:40	11:50 12:00
11:30	11:45	11:55	12:30	12:40	12:50 13:00
12:30	12:45	12:55	13:30	13:40	13:50 14:00
13:30	13:45	13:55	14:30 *	14:40 *	14:50 * 15:00 *
14:30*	14:45 *	14:55*	15:30 *	15:40 *	15:50 * 16:00*
15:30*	15:45 *	15:55*			
* 12/8(日) 不行駛					
12/7(六)20:30 晚宴結束，高雄展覽館往各站，路線隨機，滿員發車。					

會場平面圖



演講摘要

- 台灣胸腔暨重症加護醫學學會
- 台灣胸腔外科醫學會
- 台灣呼吸治療學會
- 台灣睡眠醫學學會

台灣胸腔暨重症加護醫學會

301A 會議室

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- How to make your patient comfortable and awake in ICU / **P7**
- MV management in ARDS with vvECMO / **P8**
- The role of pulmonologist in lung transplantation - can we do more / **P8**
- The occupation and environment related respiratory diseases and notification system in Taiwan / **P9**
- Satellite Symposium (荷商葛蘭素史克藥廠股份有限公司台灣分公司贊助) / **P9**
- 【Keynote speech】
 - Immune Checkpoint Inhibitors in Lung Cancer: Paving a New Avenue of Care / **P10**
 - Diaphragm Weakness in the Critically Ill: Basic Mechanisms Reveal Therapeutic Opportunities / **P10**
 - Global trends and challenges in the management of asthma / **P11**
- Satellite Symposium (台灣百靈佳殷格翰股份有限公司贊助) / **P11**

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- CTEPH management in 2019: Reflections and prospects for future research / **P12**
- What is the role of the microbiome in chronic airways disease? / **P13**
- Severe asthma treatment evolution / **P14**
- Lessons from 10 yrs. Hokkaido COPD Cohort Study. / **P15**
- Satellite Symposium (荷商葛蘭素史克藥廠股份有限公司台灣分公司贊助) / **P16**
- As needed ICS/LABA in mild asthma, pro and con / **P17**

How to make your patient comfortable and awake in ICU

古世基 / Shih-Chi (Simon) Ku, M.D., MPH

Director of Respiratory Care Center, Department of Internal Medicine, National Taiwan University Hospital

Director of Medical Intensive Care Unit, Department of Internal Medicine, National Taiwan University Hospital



Abstract

The evolution of critical care medicine shifts from sole disease control to the combination of physical and psychological treatments. The critically ill patients acquire the acute illness and are hospitalized in the ICU. During the ICU stay, either from the illness or the intervention, they often suffer from the pain and agitation. During the subacute stage, the impact of delirium ensues. All of them will delay the recovery and, potentially, have detrimental effects on their well-beings. Not to mention the patients with mechanical ventilation, they need to early mobilize from bed which will shorten the duration of MV. The issue of sleep disturbance also draws the attention of critical care community.

Since the publish of 2018 PADIS guideline (Pain、agitation/sedation、delirium、immobilization、sleep disturbance), we can implement the bundle cares based the evidence. On this talk, I will focus on dissecting the evidence from clinical trials. Especially, I will discuss the tools for delirium assessment and how to implement it in the daily practice. Recently, the critical care community endorses the ADCDEF bundles (Assess, prevent and manage pain、Both SAT and SBT、Choice of analgesia ad sedation、Delirium assess prevent and management、Early mobility and exercise、Family engagement and empowerment). And now we have the consensus to support the delivery of care.

Finally, by the cooperation of multi-professional teams based on the PADIS guideline, we hope to not only improve the patient's health status but also their quality of life.

MV management in ARDS with vvECMO

高國晉 / Kuo-Chin Kao, M.D.

Professor, Department of Respiratory Therapy, Chung Gung University
Deputy Director, Department of Internal Medicine, Chang Gung Memorial Hospital, Linkou
Attending physician, Department of Thoracic Medicine, Chung Gung Memorial Hospital, Linkou

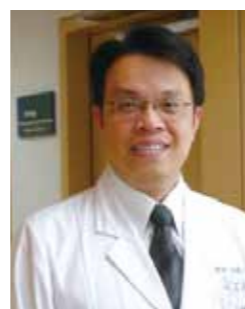


Over the past decade, the use of veno-venous extracorporeal membrane oxygenation (VV-ECMO) for respiratory support has widely expanded as a treatment strategy for patients with acute respiratory distress syndrome (ARDS). Despite considerable attention has been given to the indications, the timing and the management of patients undergoing ECMO for refractory respiratory hypoxemic failure, little is known regarding the management of mechanical ventilation (MV) in this group of patients. ECMO enables to minimize ventilatory induced lung injury (VILI) and it has been successfully used as rescue therapy in patients with ARDS when conventional ventilator strategies have failed. However, literature is lacking regarding the best strategies and MV settings, including positive end expiratory pressure (PEEP), tidal volume (VT), respiratory rate (RR) and plateau pressure. The aim of this review is to summarize current evidence, the rationale and provide recommendations about the best ventilator strategy to adopt in patients with ARDS undergoing VV-ECMO support.

The role of pulmonologist in lung transplantation - can we do more

胡漢忠 / Han-Chung Hu, M.D.

Attending physician of Chest Department, Chang Gung Medical Foundation
Assistant Professor, Department of Respiratory Therapy, Chang Gung University
Chief, Department of Respiratory Therapy, Chang Gung Medical Foundation
Chief, Division of Pulmonary Infection, Department of Thoracic Medicine, Chang Gung Medical Foundation



The development of lung transplantation was more late in the history of transplantation. The first success of lung transplantation in human was performed in 1983 by Dr. Joel Cooper. Since then, lung transplantation has been the main option of some end stage lung diseases. COPD and IPF are the main diseases in the recipients. Today, there is more than 4,500 cases received lung transplantation per year. The five- year survival rate also has more than 60%. On the aim of improving quality and survival rate, we build up a multidisciplinary team for lung transplantation in Chang Gung memorial hospital linkou branch in Dec. 2016. The members includes surgeons, physicians, pharmacist, nutritionist, respiratory therapist and physical therapist. Herein, we will share our experience about the work of the team and the outcome in recent 3 years.

The occupation and environment related respiratory diseases and notification system in Taiwan.

莊弘毅 / Hung-Yi Chuang, M.D., Ph.D.

President, Taiwan Environmental and Occupational Medicine Association
Honor President, Asian Association of Occupational and Environmental Health(AAOH)
Professor, Department of Public Health, Kaohsiung Medical University
Professor and Attending Physician, Department of Occupational and Environmental Medicine, Kaohsiung Medical University Hospital.



Occupation and environment related respiratory diseases were underestimated in Taiwan Notification System for Work-related or Occupational Diseases. This talk will introduce Taiwan Notification System for Work-related or Occupational Diseases. Before that, a few reported and/or prevalent occupation and environment related respiratory diseases were reviewed, including pneumoconiosis, industrial dust and metals related lung cancers, work-related asthma. However, it was underestimated. The final part of this presentation will show the empowerment of encouraging reports that suspected the disease caused during or by work.

Satellite Symposium (荷商葛蘭素史克藥廠股份有限公司台灣分公司贊助)

Time	Topic	Speaker	Moderator
1200-1205	Opening Remarks	臺大醫院 王鶴健 醫師	
1205-1245	Are we doing too little too late in COPD management? • Can we more effectively manage COPD symptoms? • Can we more effectively manage COPD exacerbation?	Prof. Paul Jones	臺大醫院 王鶴健 醫師
1245-1305	Panel Discussion: Global & Taiwan Experts' Perspective Exchange	Prof. Paul Jones 臺大醫院 王鶴健 醫師 中國附醫院 徐武輝 醫師	
1305-1320	Closing Remarks	中國附醫院 徐武輝 醫師	

Paul Jones

Emeritus Professor of Respiratory Medicine, St George's University of London
Honorary consultant Physician, St George's University Hospitals Foundation Trust
Global Medical Expert GSK



[Keynote speech]

Immune Checkpoint Inhibitors in Lung Cancer: Paving a New Avenue of Care

LEORA HORN, M.D., M.Sc. FRCPC

Director Thoracic Oncology Program, Vanderbilt Ingram Cancer Center, Nashville TN
Associate Professor Department of Medicine, Vanderbilt University, Nashville, TN
Assistant Vice Chairman for Faculty Development, Vanderbilt University, Nashville, TN
Ingram Associate Professor of Cancer Research, Vanderbilt Ingram Cancer Center, Nashville, TN
Clinical Director, Thoracic Oncology Research Program
Vanderbilt Ingram Cancer Center Data Safety Monitoring Committee Member
Hematology Oncology Fellowship Scholarship Committee
Assistant Vice Chairman for Faculty Development



Substantial progress has been made in the first-line treatment of patients with advanced NSCLC without driver alterations that can be targeted. These treatments include monotherapy blockade of PD-1 in patients with tumors that express PD-L1 or such treatment in combination with chemotherapy, regardless of tumor PD-L1 expression. Still, current therapies extend long-term survival in only a minority of patients with NSCLC. CheckMate 227 is the first one, phase 3 trial showed the survival benefit of IO-IO combo in first line NSCLC, this trial evaluated nivolumab plus ipilimumab, compared with chemotherapy. Among the patients with a PD-L1≥1%, the median OS was 17.1 months with nivolumab plus ipilimumab and 14.9 months with chemotherapy, with 2-yearOS rates of 40.0% and 32.8%, respectively. The median DoR was 23.2 months with nivolumab plus ipilimumab and 6.2 months with chemotherapy. The OS benefit was also observed in patients with a PD-L1<1% and ITT population. The percentage of patients with grade 3 or 4 TRAE in the overall population was 32.8% with nivolumab plus ipilimumab and 36.0% with chemotherapy. First-line treatment with nivolumab plus ipilimumab resulted in a longer duration of overall survival than did chemotherapy in patients with NSCLC, independent of the PD-L1 expression level.

[Keynote speech]

Diaphragm Weakness in the Critically Ill: Basic Mechanisms Reveal Therapeutic Opportunities

Basil J Petrof, M.D.

Professor, Department of Medicine, McGill University
Associate Member, Dept of Neurology and Neurosurgery, McGill University
Director, Meakins-Christie Laboratories
Director, Translational Research in Respiratory Diseases Program, RI-MUHC



The ability of the diaphragm to overcome the respiratory mechanical load imposed by pulmonary disease is a major determining factor both in the onset of ventilatory failure, and in the ability to successfully separate patients from ventilator support. However, major weakness of the diaphragm is very frequent in critical illness, where it contributes to poor patient outcomes including increased mortality. The two greatest risk factors for the development of diaphragm weakness in critical illness are the use of mechanical ventilation and the presence

of sepsis. Significant progress has been made in identifying the molecular mechanisms responsible for these phenomena in animal models, and there is accumulating evidence for occurrence of the same cellular processes in the diaphragms of human patients. This is paving the way to novel pharmacologic therapies as well as non-pharmacologic methods for preventing diaphragm weakness in the intensive care unit. This lecture will outline the most recent advances in the field, as well as the next major challenge of how to move these research findings from the bench to the bedside in critically ill patients.

[Keynote speech]

Global trends and challenges in the management of asthma.

Guy B. Marks

Scientia Professor, University of New South Wales, Sydney, Australia
President, The Union (International Union Against Tuberculosis and Lung Disease), Paris, France.



Nearly half a million people died due to asthma in 2017, mostly in countries where there are both hazardous levels of air pollution and poor access to effective treatments for asthma. Hence, it is likely that many deaths and much suffering due to asthma is avoidable. Recent evidence about the effectiveness of combination formoterol-budesonide therapy, used as required in response to symptoms, in controlling the disease and prevention exacerbations has major implications for asthma management programs. This model of therapy removes many of the barriers to treatment that previously existed. However, access to and affordability of these combination inhalers remains a significant challenge as does the need to teach patients how to use inhaled medications effectively. Management of severe asthma has also evolved substantially over the last decade. The beneficial effect of macrolide antibiotics and of specific biological agents has been established. Further work is required to establish algorithms for the efficient and effective use of these newer approaches to treatment. Prevention of asthma remains a major challenge. The cause of many cases remains unknown. Although the importance of the in utero period of development is becoming clearer, the effectiveness of specific interventions to prevent asthma remains to be established.

Satellite Symposium (台灣百靈佳股格翰股份有限公司贊助)

Time	Topic	Speaker	Moderator
17:00-17:05	Opening Remark		Prof. Meng-Chih Lin CGMH-Kaohsiung
17:05-17:35	Old Soldiers (2nd-G EGFR TKIs) Never Die, They Just Still Alive	Prof. Motohiro Tamiya Osaka International Cancer Institute	
17:35-17:40	Panel Discussion	All	
17:40-18:10	Treatable traits concept in COPD & clinical experience in Australia	Prof. Guy Marks UNSW Scientia Professor	Prof. Shih-Lung Cheng FEMH
18:10-18:20	Panel Discussion & Closing		

CTEPH management in 2019: Reflections and prospects for future research

William R. Auger, M.D.

Attending Physician, Temple Health, Philadelphia, PA
Professor of Medicine (Adjunct), Lewis Katz School of Medicine, Temple University
Director, PH and CTEPH Research Program, Temple University, Philadelphia, PA



ISHLT: 38th Annual Meeting and Scientific Sessions, Nice, France: April 2018: Invited speaker, CTEPH Masters Academy: “Mixed pattern CTEPH with likely residual PH after PEA”. **Symposium Co-Chair:** CTEPH: Challenges in Intervention Decision Making. **Expert Discussant:** Right Ventricular Remodeling in Chronic Thromboembolic Pulmonary Hypertension.

2018 ATS International Conference, San Diego, CA: May 2018: Invited speaker, Postgraduate Course: Pulmonary

Embolism: A Journey from Submassive to Chronic Complications: “CTEPH Case Presentation”; **Chair:** Emerging Concepts

in Chronic Thromboembolic Pulmonary Hypertension, Invited speaker: “Diagnosis and Surgical Treatment: Time Tested

Strategies and Recent Advances”.

X Pulmonary Hypertension Latam Symposium, Santa Marta, Columbia: June 2018: Invited speaker, “CTEPH: Epidemiology and the Microvascular Disease”, “Medical Treatment of CTEPH”, “CTEPH: Bridging Medical Therapy to Surgery”, CTEPH Imaging Workshop: “Pulmonary Angiography”

4th Annual Symposium: Pulmonary Embolism, State-of-the-Art and Scientific Update, Nashville, Tenn: June 2018: Invited speaker, “Transition from Acute to Chronic Thromboembolic Disease: What we Know and the Mysteries”; “Latest in CTEPH Management: Surgery”.

TCT 2018, 30th Annual, San Diego, CA: September 2018: Invited speaker; Complex Interventions: Expert Case Reviews: “A Case of Balloon Pulmonary Angioplasty for CTEPH emphasizing Optimal Clinical and Anatomic Patient Selection”; Didactic Session: Pulmonary Hypertension and Acute/Chronic Pulmonary Emboli Therapies: “Incidence, Pathophysiology and Diagnosis of CTEPH”

CHEST 2018, American College of Chest Physicians, San Antonio, Texas: October 2018: Invited speaker: Imaging of the Pulmonary Vasculature, “VQ scanning and Pulmonary Angiography: How do we use them?”

University of Cincinnati PH Grand Rounds, Cincinnati, Ohio: November 2018: “Chronic Thromboembolic Pulmonary Hypertension: A New Era of Treatment”

ISHLT: 39th Annual Meeting and Scientific Sessions, Orlando, Florida: April 2019: Invited speaker: “Can we compare apples to oranges? How can we design a meaningful trial to compare PTE and BPA?” in Symposium entitled: A Fork in the Road: How Can We Compare Interventional Therapies in CTEPH?

Duke University, Combined Pulmonary/Cardiology Grand Rounds, Durham, NC: April 2019: Invited speaker: “Chronic Thromboembolic Pulmonary Hypertension: Transition to a New Era”

Harvard Medical School Cardiovascular Medicine 2019, Boston, Mass: April 2019: Invited speaker: “Chronic Thromboembolic Pulmonary Hypertension”

What is the role of the microbiome in chronic airways disease?

Peggy S. Lai, M.D., MPH

Visiting Lecturer, Harvard - MIT Division of Health Sciences and Technology, Massachusetts Institute of Technology, Cambridge, MA

Instructor , Medicine, Harvard Medical School, Boston, MA

Assistant Professor, Medicine, Harvard Medical School, Boston, MA

ICU Covering Physician, Medicine, Newton Wellesley Hospital, Newton, MA

Research Associate, Department of Environmental Health, Harvard School of Public Health

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Assistant Physician, Internal Medicine – Pulmonary and Critical Care Division, Massachusetts General Hospital, Boston, MA

Associate in Global Health, Center for Global Health, Massachusetts General Hospital, Boston, MA



Louisias M, Petty CR, Sheehan W, **Lai PS**, Phipatanakul W. Use of a School-Based Survey to Screen Students for Symptoms Concerning for Asthma. Clin Pediatr (Phila). 2019 May;58(5):586-589. PMID: 30829046

Baxi SN, Sheehan WJ, Sordillo JE, Muilenberg ML, Rogers CA, Gaffin JM, Permaul P, **Lai PS**, Louisias M, Petty CR, Fu C, Gold DR, Phipatanakul W. Association between fungal spore exposure in inner-city schools and asthma morbidity. Ann Allergy Asthma Immunol. 2019 Jun;122(6):610-615. PMID: 30904580

Cardenas A, Sordillo JE, Rifas-Shiman SL, Chung W, Liang L, Coull BA, Hivert MF, **Lai PS**, Forno E, Celedón JC, Litonjua AA, Brennan KJ, DeMeo DL, Baccarelli AA, Oken E, Gold DR. The Nasal Methylome as a Biomarker of Asthma and Airway Inflammation in Children. Nature Communications 10 (2019): 3095. Epub ahead of print.

Lai PS, Bebell LM, Meney C, Valeri L, White MC. Epidemiology of antibiotic-resistant wound infections from six countries in Africa. BMJ Global Health. 2018 Mar 6;2(Suppl 4):e000475. PMID: 29588863. PMCID: PMC5868442.

Lai PS, Massoud AH, Xia M, Petty CR, Cunningham A, Chatila TA, Phipatanakul W. Gene-environment interaction between an IL4R variant and school endotoxin exposure contributes to asthma symptoms in inner-city children. J Allergy Clin Immunol. 2018 Feb;141(2):794-796. PMID: 28943468.

Lai PS, Kolde R, Franzosa EA, Gaffin JM, Baxi SN, Sheehan WJ, Gold DR, Gevers D, Xavier RJ, Phipatanakul W. The classroom microbiome and asthma morbidity in children attending three inner-city schools. J Allergy Clin Immunol. 2018 Jun;141(6):2311-2313. PMID: 29518428. PMCID: PMC5994187.

Severe asthma treatment evolution

Peter Howarth

Professor of Allergy and Respiratory Medicine, Honorary Consultant, University of Southampton
Professor of Allergy and Respiratory Medicine, Honorary Consultant (part-time), University of Southampton
Global Medical Expert (part-time educational role) , Glaxo Smith Kline



Current clinical responsibilities

Still remain actively involved in clinical medicine, both from patient care (severe asthma outpatients) and patient research perspectives.

Selected recent publications (H index 90)

1. Schofield JPR et al. Large-scale label-free quantitative mapping of the sputum proteome. J Proteome Res. 2018 May 8. doi: 10.1021/acs.jproteome.8b00018. [Epub ahead of print]
2. Chernyavsky IL et al. In vitro, in silico and in vivo study challenges the impact of bronchial thermoplasty on acute airway smooth muscle mass loss. Eur Respir J. 2018 Apr 26. pii: 1701680. doi: 10.1183/13993003.01680-2017. [Epub ahead of print]
3. Takahashi K et al. Sputum proteomics and airway cell transcripts of current and ex-smokers with severe asthma in U-BIOPRED: an exploratory analysis. Eur Respir J. 2018 May 3;51(5). pii: 1702173..
4. Ortega H et al. Asthma Exacerbations Associated with Lung Function Decline in Patients with Severe Eosinophilic Asthma. J Allergy Clin Immunol Pract. 2018 May -Jun;6(3):980-986.
5. Prazma CM et al. Rigor is Needed When Making Comparative Analysis of Biologics in Severe Asthma. Am J Respir Crit Care Med. 2018 Jan 23. doi: 10.1164/rccm.201712-2455LE. [Epub ahead of print]
6. Hanratty CE et al RASP-UK (Refractory Asthma Stratification Programme) Consortium. A randomised pragmatic trial of corticosteroid optimization in severe asthma using a composite biomarker algorithm to adjust corticosteroid dose versus standard care: study protocol for a randomised trial. Trials. 2018 Jan 4;19(1):5. doi: 10.1186/s13063-017-2384-7.
7. Hekking PP et al. Transcriptomic gene signatures associated with persistent airflow limitation in patients with severe asthma. Eur Respir J. 2017 Sep 27;50(3). pii: 1602298.
8. Singhanian A et al. Multitissue Transcriptomics Delineates the Diversity of Airway T Cell Functions in Asthma. Am J Respir Cell Mol Biol. 2018 Feb;58(2):261-270.
9. Hekking PP et al. Pathway discovery using transcriptomic profiles in adult-onset severe asthma. J Allergy Clin Immunol. 2018 Apr;141(4):1280-1290.
10. Loxham M et al. Allergenic proteases cleave the chemokine CX3CL1 directly from the surface of airway epithelium and augment the effect of rhinovirus. Mucosal Immunol. 2018 Mar;11(2):404-414.

Lessons from 10 yrs. Hokkaido COPD Cohort Study.

Masaharu Nishimura, M.D., Ph.D.

Professor emeritus, Hokkaido University
Director, Hokkaido Institute of Respiratory diseases
Physician, Housui General Medical Clinic



He was graduated from Hokkaido University School of Medicine in 1977, appointed as Professor and Chairman, Division of Respiratory Medicine, Department of Internal Medicine, Hokkaido Graduate School of Medicine in 2001, and officially retired in 2018. Even after the retirement, he continues to be involved some clinical research projects on asthma and COPD, while he see many patients with pulmonary diseases 4 days in a week in a clinic. His main research interest had been “Control of breathing” at the beginning of his career, and has shifted mainly to “COPD” since he came back to Sapporo in 1988 after 3 years stay in Boston. His department activities covered a wide range of pulmonary diseases, including lung cancer and pulmonary hypertension. He has published more than 300 peer-reviewed original papers in English. For his accomplishment of research in control of breathing and COPD, he was awarded Kumagai Prize in 1997 and Erwin von Baelz Prize in 2005, both of which are highly appreciated in Japanese Respiratory Society (JRS). He is the past Chairman of the Board of Directors, JRS, and had been an Associate Editor of American Journal of Respiratory and Critical Care Medicine for 8 years until 2017. He served as a member of GOLD Science Committee for 3 years and then one of GOLD Board of Directors for 5 years until 2017. GOLD is an organization which issues international documents of COPD

Satellite Symposium (荷商葛蘭素史克藥廠股份有限公司台灣分公司贊助)

Time	Topic	Speaker	Moderator
1200-1205	Opening	林孟志 醫師 高雄長庚	
1205-1235	Treatment optimization in asthma – Parameters to take in count	Peter Howarth	林孟志 醫師 高雄長庚
1235-1305	Real case sharing for “optimized” severe asthma treatable traits (Patients experience sharing)	曾敬閔 醫師 振興醫院	陶啟偉 醫師 振興醫院
1305-1320	Discussion and closing	All	

Peter Howarth

Professor Howarth established the severe asthma and clinical allergy services in Southampton, following his appointment as an honorary consultant in 1988, and has a long experience of dealing with severe asthma, which is the focus of his current research. He has been involved in EU funded collaborative asthma and allergy programs, such as BIOAIR and GA2LEN, as well as UBIOPRED, which focuses on severe asthma. He co-ordinates the MRC funded Wessex Severe Asthma Cohort.



Professor Howarth has published over 300 peer-reviewed papers with an h-index of 90 and contributed to National, European and International (World Health Organisation) guidelines on the management of rhinitis and asthma.

Professor Peter Howarth is a Global Medical expert with GSK and continues in a part time-role as Professor of Allergy and Respiratory Medicine in Southampton UK.

As needed ICS/LABA in mild asthma, pro and con

鄭世隆 / Shih-Lung Cheng, M.D., Ph.D.

Chief, The Center of Evidence-Based Medicine, Far Eastern Memorial Hospital
Chief, The Center of Clinical Trial, Far Eastern Memorial Hospital
Professor, Department of Chemical Engineering and Materials Science, Yuan Ze University



For the last three decades, GINA have supported a stepwise therapeutic approach, based on the administration of controller medications (especially ICS) complemented by on-demand use of rescue medication (classically SABA). As we know, the use of Symbicort Maintenance and Reliever Therapy (SMART) demonstrated the benefits of a combination of budesonide/formoterol as rescue medication in moderate and severe asthma. Recently, four trials (SYGMA 1 and 2, Novel START, and the PRACTICAL trial) have showed the potential benefits of substituting SABA with budesonide-formoterol as rescue medication in mild asthma patients. In the lecture, the speaker will present the emerging body of evidence suggesting the non-safety of SABAs overuse in the absence of concomitant controller medications and why new recommendations such as “symptom-driven low dose ICS-formoterol” and “low dose ICS taken whenever SABA is taken” are included in GINA 2019.

As needed ICS/LABA in mild asthma, pro and con

江振源 / Chen-Yuan Chiang, M.D., DrPhilos, MPH

Consultant, Department of Tuberculosis, The Union, Paris.
Division of Pulmonary Medicine, Department of Internal Medicine, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan.
Department of Internal Medicine, School of Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan



The management of asthma requires medicines that are effective in relaxing airway smooth muscles and in reducing airway inflammation. Rapid-acting b2 agonist is a bronchodilator that provides quick symptom relief in patients with asthma. However, it does not effectively address the underlying problem of airway inflammation. Excess use of inhaled bronchodilators alone for symptom relief may result in delay in seeking health care, which in turn may result in delayed use of anti-inflammatory agents. Inhaled corticosteroid (ICS) is critical in the treatment of airway inflammation; it reduces the risk of life-threatening asthma attacks and the need for hospitalisation. ICS is underused, however, and a substantial proportion of patients with persistent asthma in resource-limited settings have no access to affordable ICS for long-term treatment. International guidelines recommend the use of rapid acting b-agonists as needed as rescue treatment when symptoms occur. Studies have shown that the use of both ICS and rapid-acting b-agonist as needed for symptom relief might be a better option. The combination of ICS and rapid-acting bronchodilator in a single inhaler is currently too expensive and is not affordable for the poor. Although ICS and short-acting b2 agonist (SABA) for rescue treatment can be obtained to a certain extent by using separate ICS and SABA inhalers, the first step is to ensure access to affordable, quality-assured essential asthma medicine in resource limited settings.

台灣胸腔暨重症加護醫學會

301B 會議室

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- The role of epigenetics in tuberculosis infection / **P20**
- The effects of Concurrent Genetic Alterations of advanced NSCLC with EGFR mutation or ALK fusions / **P21**
- Satellite Symposium (臺灣阿斯特捷利康股份有限公司贊助) / **P22**
- Satellite Symposium (羅氏大藥廠股份有限公司贊助贊助) / **P23**

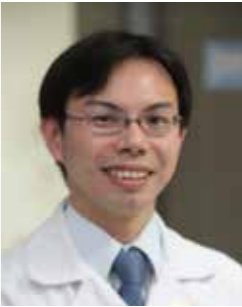
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- 介入性氣管鏡之新進展 / **P24**
- BRAF, MET, and Her2 mutations in lung cancer / **P24**
- Application of Liquid Biopsy in Lung Cancer / **P25**
- The immune-modulatory effects of non-immunotherapies / **P26**
- Satellite Symposium (行動基因生技股份有限公司贊助) / **P26**

The role of microbiome in tuberculosis

陳彥甫 / Yen-Fu Chen, M.D.

Director of Department of Outpatient, National Taiwan University Hospital Yun-Lin Branch, Yun-Lin, Taiwan
Visiting Staff, Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine, National Taiwan University Hospital Yun-Lin Branch, Yun-Lin, Taiwan
Lecturer, College of Medicine, National Taiwan University



Tuberculosis (TB), caused by the Mycobacterium tuberculosis, is one of the oldest illnesses in history and remains the leading infectious cause of death worldwide. The risk of Mycobacterium tuberculosis infection is clearly influenced by some factors such as nutrition, immune status, and both mycobacterial and host genetics. However, the variable pathogenesis of TB remains poorly understood. Increasing evidence showed that human microbiome may play a potential role in tuberculosis pathogenesis, treatment, clinical outcomes, and post-treatment sequelae. Here, we critically review the association of microbiome and pulmonary tuberculosis. We will discuss the several points including: 1. Dysbiosis and lung disease 2. The importance of pulmonary TB infection on lung and gut microbiome 3. The gut microbiome and related metabolites affect the immunological response to M tuberculosis exposure and predict disease progression 4. Prolonged anti-TB treatment has long-term detrimental effects on the microbiome. Current evidences indicate that the microbiome might have an important role in M. tuberculosis pathogenesis and that tuberculosis treatment has an effect on long-term human microbiome diversity.

The role of epigenetics in tuberculosis infection

陳永哲 / Yung-Che Chen, M.D., Ph.D.

Attending Physician, Division of Pulmonary and Critical Care Medicine, Department of Internal Medicine, KCGMH
Assistant Professor at Chang Gung University
Associate Professor at Kaohsiung Chang Gung Memorial Hospital



Epigenetic mechanisms that affect genes without changing DNA sequence include histone modifications, non-coding RNAs, and DNA methylation. They are inheritable and reversible. Euchromatin is characterized by more loosen, actively transcribed genes, hyper-acetylated H3/H4, and hyper-methylated H3K4/H3K36/H3K79. Heterochromatin is characterized by more tighten, transcriptionally inactive genes, hypo-acetylated H3/H4, and hyper-methylated H3K9/H3K27/H4K20. miRNAs are small non-coding single stranded (~22 nt), able to inhibit target messenger RNAs (mRNAs) via binding to 3'untranslated region (UTR), and influence on >60% of all protein-coding genes at the posttranscriptional level.

There are numerous studies that have shown critical roles of epigenetic changes in both protection and progression pathways of tuberculosis (TB). Hyper-methylatiion of the TLR2/IL18R1 gene promoters, and hypo-methylation of the VDR gene body/Cyp27A1 gene promoter are associated with active TB disease, while Mycobacterium TB (M.tb) infection leads to de-methylation of the NLRP3/CD82 gene promoters. H3K14 hypo-acetylation and H3K27 hyper-methylation are associated with active TB disease, while M.tb infection leads to H3K9 hypermethylation and H3/H4 hyper-acetylation, as well as up-regulations of several histone modifying enzymes, including HDAC1, HDAC6, KDM6B, and SET8. Active TB disease is clearly associated with a wide breadth of differentially expressed miRNA (894 identified, 53 confirmed). Certain miRNAs either promotes (miR-365, miR-20b, miR-17, miR-26a, miR-125a) or inhibits (miR381, miR-99b, miR-37, miR-29, miR-125b, miR-32, miR-30a, miR-27a, Let-7f/b, miR-144, miR-33, miR-20a, miR-106, miR-142, miR-582, miR-132, miR-206, miR-126) important pathways and cellular responses in macrophages, dendritic cells and CD4+ T cells in response to M.tb infection.

Further, stable and heritable epigenetic changes have the capacity to explain the long-term memory effects of trained immunity observed months to years after BCG vaccination. Specific DNA methylation and histone modification (H3K4m1) patterns predisposing for an efficient response to BCG vaccination have been identified. Together these findings reveal the importance of epigenetic changes at transcriptional promoters or enhancers in driving many pathological adaptations to M.tb infection. A more comprehensive description of both the full scale of epigenetic influence on immune function and the retention of them is needed to fully understand epigenetic contribution to TB pathology and outcome.

The effects of Concurrent Genetic Alterations of advanced NSCLC with EGFR mutation or ALK fusions

蔡俊明 / Chun-Ming Tsai, M.D.

Consultant Professor,
Department of Oncology, Taipei Veterans General Hospital;
Department of Chest medicine, Cheng Hsin General Hospital;
Department of Chest medicine, Cathay General Hospital;
Department of Chest medicine, Chung Shan Medical University Hoppital



The impressive clinical activity of small- molecule receptor tyrosine kinase inhibitors for oncogene (EGFR, ALK, ROS1, RET, BRAF, NTRK)-addicted subgroups of NSCLC has established an oncogene-centric molecular classification paradigm in this disease. However, accumulating evidence points towards the existence of substantial clinical heterogeneity within oncogenic driver-defined NSCLC subgroups that is currently incompletely accounted for by the single oncogenic driver model. Co-occurring genomic alterations, particularly in tumor suppressor genes such as TP53 and LKB1 (also known as STK11), have emerged as core determinants of the molecular and clinical heterogeneity of oncogene-driven lung cancer subgroups through their effects on both tumor cell-intrinsic and non-cell-autonomous cancer hallmarks. The impact of co-mutations on the pathogenesis, biology, microenvironmental interactions and therapeutic vulnerabilities of NSCLC should be explored to assess the challenges and opportunities that co-mutations present for personalized anticancer therapy, as well as the expanding field of precision immunotherapy.

Satellite Symposium (臺灣阿斯特捷利康股份有限公司贊助)

Advancements in First-Line Therapeutics for EGFRm NSCLC: Navigation of Current Treatment Options for Stage IV NSCLC

蔡俊明 / Chun-Ming Tsai, M.D.

Consultant Professor,
Department of Oncology, Taipei Veterans General Hospital;
Department of Chest medicine, Cheng Hsin General Hospital;
Department of Chest medicine, Cathay General Hospital;
Department of Chest medicine, Chung Shan Medical University Hospital

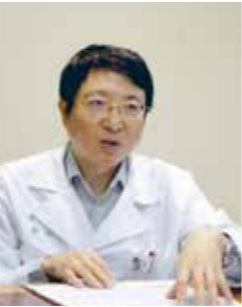


Today, we have manageable EGFR TKIs to use as first-line treatment of patients with EGFR-mutant NSCLC, including first-, second-, and third-generation EGFR TKIs. This topic will cover latest data that has shifted the standard of care in the first-line management of patients with EGFR-mutated NSCLC in 2019. And explore the new strategies to improve patient survival in stage IV NSCLC.

【Oral presentation】Airway Disease, Sleep Medicine, Interstitial Lung Disease, Other
Mesenchymal stem cell protects against intermittent hypoxia with re-oxygenation-induced cell apoptosis and cytotoxicity via ameliorating autophagy impairment in obstructive sleep apnea
Coexistence of chronic obstructive pulmonary disease (COPD) and bronchiectasis is associated with the changes of lung microbiome, higher neutro
NOTCH3 overexpression is associated with Th1-related response in patient with COPD
Overestimation in severity of obstructive sleep apnea (OSA) of in-lab polysomnography (PSG) comparing to home-based sleep testing by the wearable device
Analysis the quality of asthma and COPD case manager patient education process – standardized patient approach and evaluation program with single-blinded setting
With Chronic Obstructive Pulmonary Disease as a Phenotype of Bronchiectasis for Long-term Clinical Prediction

Satellite Symposium (羅氏大藥廠股份有限公司贊助贊助)

Recent Advances and Unmet Medical Needs in Treating Metastatic Lung Cancer towards Personalized Healthcare



施金元
Jin-Yuan Shih

National Taiwan University Hospital



徐培崧
Pei-Sung Hsu

Shin Kong Hospital



吳尚俊
Shang-Gin Wu

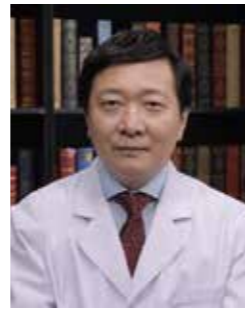
National Taiwan University Hospital

In over 50 years, the treatment landscape of lung cancer has dramatically evolved from using single toxicity agent to multi-drug combination, from chemotherapy or radiotherapy to targeted therapy or immunotherapy, or from one-drug-fit-all strategy to personalized/precision medicine. In this satellite symposium, Prof. Jin-Yuan Shih, Dr. Pei-Sung Hsu, and Dr. Shang-Gin Wu will give a series of interactive talks, firstly talking about a general overview of lung cancer treatment, and then followed by deep-dive presentations of recent advances and remaining unmet needs in NSCLC treatment with IO, or with targeted therapies for EGFR mutations or other driver mutations. The three physicians, together with the moderator Prof. Yuh-Min Chen, will further discuss clinical implications of such trial data and their perspectives, as well as ultimately how we could aim for the goal “right treatment for right patient at right time”.

介入性氣管鏡之新進展

王廣發 / Guangfa Wang, M.D., Ph.D.

Professor & President, Pulmonary Department, Peking University First Hospital



氣管支氣管鏡和胸腔鏡的發明，為呼吸病的診治帶來了一場革命。隨著器械的不斷改進，新技術不斷湧現，使得呼吸內鏡日益成為現代呼吸病學不可或缺的技术，形成了多維、多領域的技术體系。催生了介入呼吸病學。

介入呼吸病學要服務于現代呼吸病學。其發展也應與現代呼吸病學學科發展要求相匹配。當前肺癌發病率不斷攀升，肺結核仍然最為常見、危害最大的感染性疾病之一。COPD和哮喘等慢性氣道炎症性疾病的患病率也不斷提高。彌漫性肺病種類繁多，其總患者人數也非常巨大。這些均為介入呼吸病學帶來了新的機遇，也帶來了更大的挑戰。由於病種的多樣性，直接導致了介入呼吸病學技術的多樣性。其大的分類包括基礎支氣管鏡診斷技術、高級支氣管鏡診斷技術、治療性介入呼吸病學技術、經皮微創氣管切開術、針對慢性氣道病變的治療技術、胸腔鏡診治技術、肺部血管介入診治技術、經胸壁介入診斷治療技術。介入呼吸病學始自中心氣道狹窄的治療技術，但目前已經遠遠超出中心氣道狹窄治療的範疇。應全面理解和把握其技術發展脈絡，全面佈局，全面發展，才能真正助力現代呼吸病學的發展和提高。未來早肺部腫瘤的診斷與治療，尤其是早期微創治療，介入呼吸病學技術將大有作為。在感染性疾病的診斷、間質性肺病的診斷支氣管鏡技術將會扮演更加重要的角色。COPD、哮喘等領域的介入治療已為大家接受，將會對這些疾病的治療帶來新的解決方案。良性中心氣道狹窄的治療是介入呼吸病學領域的難題，未來對支架的改進、針對肉芽組織增生的治療、軟骨再生等技術將可能成為解決方案。未來的介入呼吸病學將以精準醫學為終極目標，以轉化醫學為創新手段，以整合醫學為臨床實踐。將會為呼吸病學的發展注入新的內涵和新的動力。

BRAF, MET, and Her2 mutations in lung cancer

David. Planchard



David Planchard, MD, PhD, is associate professor and is head of the Thoracic Cancer Group in the Department of Medicine at Gustave Roussy, Villejuif, France. He is in charge of lung cancer management, and he is responsible for lung cancer trials (phase I-III) undertaken by the oncology department (lung cancer, mesothelioma, thymic malignancies). He has been principal investigator/co-investigator of more than 100 clinical trials, including many cancer immunotherapy trials. His current research interests include genomic analysis, evaluation of new drugs and immunotherapy drug development. He is a member of ESMO, AACR, ASCO, and national networks for thymic tumours (RYTHMIC), mesotheliomas (MESOCLIN) and neuro-endocrine tumours (RENATEN).

Application of Liquid Biopsy in Lung Cancer

Byoung Chul Cho, M.D., Ph.D.

Joint Faculty Professor, Severance Biomedical Science Institute (SBSI)
Director, Yuhon-Yonsei lung cancer clinical and translational medicine center
Professor, Division of Medical Oncology, Yonsei Cancer Center, Yonsei University College of Medicine



PUBLICATIONS

The Ratio of Peripheral Regulatory T Cells to Lox-1+ Polymorphonuclear Myeloid-derived Suppressor Cells Predicts the Early Response to Anti-PD-1 Therapy in Patients with Non-Small Cell Lung Cancer. Kim HR, Park SM, Seo SU, Jung I, Yoon HI, Gabrilovich DI, **Cho BC**, Seong SY, Ha SJ, Youn JI. Am J Respir Crit Care Med. 2019 Jan 15;199(2):243-246. doi: 10.1164/rccm.201808-1502LE.

Efficacy and safety of vinorelbine plus cisplatin chemotherapy for patients with recurrent and/or metastatic salivary gland cancer of the head and neck. Hong MH, Kim CG, Koh YW, Choi EC, Kim J, Yoon SO, Kim HR, **Cho BC**. Head Neck. 2018 Jan;40(1):55-62. doi: 10.1002/hed.24933. Epub 2017 Oct 16.

Immune checkpoint inhibitors in epidermal growth factor receptor mutant non-small cell lung cancer: Current controversies and future directions. Soo RA, Lim SM, Syn NL, Teng R, Soong R, Mok TSK, **Cho BC**. Lung Cancer. 2018 Jan;115:12-20. doi: 10.1016/j.lungcan.2017.11.009. Epub 2017 Nov 13. Review.

ERK-dependent IL-6 autocrine signaling mediates adaptive resistance to pan-PI3K inhibitor BKM120 in head and neck squamous cell carcinoma. Yun MR, Choi HM, Kang HN, Lee Y, Joo HS, Kim DH, Kim HR, Hong MH, Yoon SO, **Cho BC**. Oncogene. 2018 Jan 18;37(3):377-388. doi: 10.1038/onc.2017.339. Epub 2017 Sep 25.

Impact of Tumor Purity on Immune Gene Expression and Clustering Analyses across Multiple Cancer Types. Rhee JK, Jung YC, Kim KR, Yoo J, Kim J, Lee YJ, Ko YH, Lee HH, **Cho BC**, Kim TM. Cancer Immunol Res. 2018 Jan;6(1):87-97. doi: 10.1158/2326-6066.CIR-17-0201. Epub 2017 Nov 15.

A Clinical Trial of Combination Neoadjuvant Chemotherapy and Transoral Robotic Surgery in Patients with T3 and T4 Laryngo-Hypopharyngeal Cancer. Park YM, Keum KC, Kim HR, **Cho BC**, Kim DH, Cho NH, Kim SH. Ann Surg Oncol. 2018 Apr;25(4):864-871. doi: 10.1245/s10434-017-6208-5. Epub 2017 Oct 30.

Can We Prevent Resistance to Osimertinib? Combination or Sequential. Kim MH, Lim SM, Lee K, Soo RA, **Cho BC**. J Thorac Oncol. 2018 Jul;13(7):877-879. doi: 10.1016/j.jtho.2018.05.012

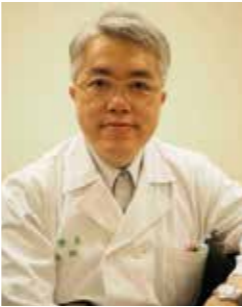
Characteristics and Outcome of ROS1-Positive Non-Small Cell Lung Cancer Patients in Routine Clinical Practice. Park S, Ahn BC, Lim SW, Sun JM, Kim HR, Hong MH, Lee SH, Ahn JS, Park K, Choi Y, **Cho BC**, Ahn MJ. J Thorac Oncol. 2018 Sep;13(9):1373-1382. doi: 10.1016/j.jtho.2018.05.026. Epub 2018 Jun 5.

Establishment of a platform of non-small-cell lung cancer patient-derived xenografts with clinical and genomic annotation. Kang HN, Choi JW, Shim HS, Kim J, Kim DJ, Lee CY, Hong MH, Park SY, Park AY, Shin EJ, Lee SY, Pyo KH, Yun MR, Choi HM, Lee SS, Kim SY, Lee H, Paik S, **Cho BC**, Lee JG, Kim HR. Lung Cancer. 2018 Oct;124:168-178. doi: 10.1016/j.lungcan.2018.08.008. Epub 2018 Aug 11.

The immune-modulatory effects of non-immunotherapies

何肇基 / Chao-Chi Ho, M.B., Ph.D.

Attending physician (Pulmonologist), Department of Internal Medicine, National Taiwan University Hospital
Clinical associate professor, Department of Internal Medicine, College of Medicine, National Taiwan University
Clinical professor, Department of Internal Medicine, College of Medicine, National Taiwan University



Chemotherapy and targeted therapy are the main treatment of non-small cell lung cancer. New therapeutic approaches using immunotherapy via immune checkpoint blockades, which have demonstrated clinical efficacy are now the standard in frontline treatment. However not all the patients benefit from immune checkpoint blockades. To increase their clinical efficacy, checkpoint inhibitors are now being tested in clinical trials in combination with other therapies including chemotherapy, targeted therapy, anti-angiogenesis, multi-kinase inhibitors or other immune modulators. Here, we will discuss the immune modulatory effects in these combination treatment partners especially chemotherapy and targeted therapy.

Satellite Symposium (行動基因生技股份有限公司贊助)

Time	Topic	Speaker	Moderator
12:00~12:05	Opening		施金元 教授 臺大醫院
12:05~12:35	The potential biomarkers for lung cancer (TBC)	陳淑貞 技術長 行動基因	
12:35~13:05	Clinical application of NGS in lung cancer management (TBC)	楊景堯 醫師 臺大醫院	
13:05~13:20	Panel discussion & Closing		

台灣胸腔暨重症加護醫學會

304A 會議室

12 / 8

- Satellite Symposium (台灣諾華股份有限公司贊助) / P28
- Air pollution and adult lung health in Taiwan / P29
- Satellite Symposium (台灣諾華股份有限公司贊助) / P30
- Satellite Symposium (臺灣阿斯特捷利康股份有限公司贊助贊助) / P30

Satellite Symposium (台灣諾華股份有限公司贊助)

Optimal treatment strategy for ALK+ NSCLC

David. Planchard

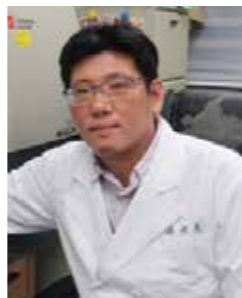


Since 2011, the first- generation TKI crizotinib has been the frontline treatment for ALK+ NSCLC. Ceritinib, alectinib, and brigatinib are second- generation ALK inhibitors with activity against a wide spectrum of secondary resistance mutations. These TKIs were first developed in the setting of crizotinib resistance, and more recently in the frontline treatment with an approval for some of them. Similarly, lorlatinib, a third- generation ALK inhibitor, has been developed after progression following treatment with first- generation and/or second- generation TKIs. Tissue and/or plasma-based molecular tests can identify common resistance mechanisms to guide decision-making for further lines of treatment. Analysis of long-term survival outcomes of ongoing and future randomized trials, including the effect of post-progression treatments, will be key to settle what the most beneficial treatment strategy for patients with ALK+ NSCLC. Here, we discuss established targeted therapy approaches, as well as ongoing challenges for the treatment of ALK+ NSCLC patients.

Patients management of Lung Neuroendocrine tumor

陳明晃 / Ming-Huang Chen, M.D., Ph.D.

Attending physician, Department of Oncology, Tai pei Veterans General Hospital, Taipei, Taiwan (R.O.C)
Associate Professor, National Yang-Ming University, Taiwan



Neuroendocrine tumors are a group of heterogeneous malignancies arising from neuroendocrine cells throughout the body. Data from population-based registries indicate that 51% of neuroendocrine tumors arise from the gastrointestinal tract, 27% from the lungs, and 6% from the pancreas. Clinically, neuroendocrine tumors are regarded as functional if they are associated with symptoms of hormonal hypersecretion, or non-functional if they are not associated with these symptoms. Although carcinoid syndrome is classically associated with metastatic, well-differentiated neuroendocrine tumors of the small intestine, an analysis of National Comprehensive Cancer Centre database showed that most (74%) neuroendocrine tumors are nonfunctional. Lung carcinoids represent, 22% to 27% of all NET2 and ~1% to 2% of all primary lung cancers. Majority of NET (> 90%) originating from the lungs are nonfunctional in nature. The prognosis of neuroendocrine tumors varies based on the primary site, the presence of metastatic disease, tumor grade, and stage at diagnosis.

Advanced neuroendocrine tumors are incurable in nearly all cases. The somatostatin analogue octreotide, approved for control of hormonal syndrome, has been shown to delay disease progression in patients with previously untreated midgut neuroendocrine tumors. Recently, lanreotide was shown to delay tumor growth in patients with mostly stable, advanced, enteropancreatic neuroendocrine tumors. Although targeted therapies such as everolimus and sunitinib are approved for advanced pancreatic neuroendocrine tumors, for which both drugs

have been associated with improved progression-free survival, these agents are not approved for advanced lung or progressive gastrointestinal tract neuroendocrine tumors. Everolimus, a potent oral inhibitor of mammalian target of rapamycin (mTOR), has previously been shown to be associated with anti-tumor activity in advanced non-pancreatic neuroendocrine tumors.

In RADIANT-4 study of patients with advanced, progressive, non-functional neuroendocrine tumors of lung or gastrointestinal origin, treatment with everolimus 10 mg per day significantly prolonged median progression-free survival by 7.1 months compared with placebo according to masked central radiology review. This almost threefold improvement in median progression-free survival corresponds with a reduction in risk of disease progression or death by 52% compared with placebo. This benefit was confirmed by the investigator-assessed progression-free survival analysis. In lung part analysis of the RADIANT-4 study, everolimus was associated with clinically meaningful improvement of 5.6 months in the median PFS with 50% reduction in risk of disease progression or death compared to placebo, in patients with advanced, progressive, well-differentiated, nonfunctional lung NET compared to placebo. These findings are consistent with the overall RADIANT-4 population. The safety findings were consistent with the known side-effect profile of everolimus. Everolimus is the first targeted agent to show robust anti-tumor activity with acceptable tolerability across a broad range of neuroendocrine tumors, including those arising from the pancreas, GI tract and lung.

Air pollution and adult lung health in Taiwan

魏裕峰 / Yu-Feng Wei, M.D.

Director, Division of Pulmonary & Respiratory Medicine, E-Da Hospital
Chair, Committee of Lung Cancer, E-Da Hospital



It is well documented that outdoor air pollution can cause acute airway symptoms as well as exacerbations of pre-existing chronic airway disease such as asthma and COPD.

From a mechanistic perspective, air pollutants probably increase oxidative stress and injury to the airways, leading to inflammation, remodeling, and increased risk of sensitization and immune dysregulation. In addition, it has been suggested air pollution maybe a cause of lung cancer. The International Agency for Research on Cancer working group proposed that ambient air pollution is a cause of lung cancer. Furthermore, the agency has classified outdoor air pollution as well as PM air pollution as Group 1 carcinogens, highly associated with lung cancer incidence and mortality. Exposure to PM2.5 could induce pathogenesis of lung cancer including induction of oncogene activation by microRNAs regulation, tumor suppressor gene inactivation through DNA methylation, microenvironment alteration, autophagy, and apoptosis.

I will address the issue and provide evidence regarding the air pollution and adult lung health in Taiwan.

Satellite Symposium (台灣諾華股份有限公司贊助)

Lessons from Hokkaido COPD Cohort Study

Masaharu Nishimura, M.D.

Professor emeritus, Hokkaido University
Hokkaido Institute of Respiratory diseases/ Housui General Medical Clinic, Sapporo, Japan



Chronic obstructive pulmonary disease (COPD) has been increasing worldwide and estimated to be the third leading cause of death nowadays. In Japan, although it is not such a scale, COPD has been steadily increasing in recent years and more than 15,000 people die from COPD annually. High prevalence of smoking coupled with a rapidly aging population in Japan threatens to further increase the social burden of COPD in the near future, highlighting the need of effective interventions of prevention and treatment.

The Hokkaido COPD Cohort Study was primarily designed to examine the natural history of COPD according to the phenotype based on HRCT findings and/or the reversibility of airflow limitation, and completed the 10-year follow-up in 2016. We enrolled almost three-hundred patients with COPD, excluding clinically-diagnosed bronchial asthma, and very carefully conducted a detailed interview on clinical symptoms, blood tests, and lung HRCT every year, pulmonary function tests before and after inhaling short-acting bronchodilator every 6 months, and took exacerbation history every month until 5th year. Then, we extended the study to 10th year with only follow-up of annual pulmonary function tests and mortality. Descriptive analysis of the subjects enrolled in this study was reported in 2007 (Thorax). The presence of emphysema, which was scaled visually and/or by computerized analysis, was highly varied even among the subjects with the same degree of airflow limitation, supporting the concept that airflow limitation in COPD is caused by a mixture of airway disease and emphysema, the relative contribution of which may vary among patients. Strictly-defined chronic bronchitis symptoms were distributed evenly, regardless of emphysema severity.

In this talk, I will focus on natural history of COPD, particularly on annualized decline in FEV1, based on clinical phenotype, and prevalence and/or characteristics of exacerbations, using the 5-year follow-up data (AJRCCM 2012, ERJ 2014). Then, I will talk on mortality data, effects of asthma-like symptoms on natural history of COPD, using the 10-year follow-up data (AJRCCM 2016). Finally, I will touch on most challenging data of annual change in FEV1 when focusing on 10-year survivors alone (Scientific Report 2018). All these data would highlight the potential difference in clinical features of COPD, which may exist between Japan and the rest of the world.

Satellite Symposium (臺灣阿斯特捷利康股份有限公司贊助)

Time	Topic	Speaker	Moderator
12:00-12:30	How GINA recommendation solves real world problems.	臺大醫院 郭炳宏 醫師	林口長庚 王圳華 醫師
12:30-12:40	Discussion	All	林口長庚 王圳華 醫師
12:40-13:10	Current biologic treatment in asthma- a target approach with benralizumab	林口長庚 張博瑞 醫師	林口長庚 王圳華 醫師
13:10-13:20	Discussion & Summary	All	林口長庚 王圳華 醫師



郭炳宏
Ping-Hung Kuo, M.D.



張博瑞
Po-Jui Chang, M.D., Ph.D.

台灣胸腔暨重症加護醫學會
304B 會議室

12 / 7

- Satellite Symposium (友華生技醫藥股份有限公司贊助) / P32

12 / 8

- Contact of tuberculosis at health care facilities in Japan / P33
- Real world experiences in the treatment of IPF / P34
- New Horizons in The Treatment of Pulmonary Fibrosis / P34
- Satellite Symposium (輝瑞生醫股份有限公司贊助) / P35
- Multi-disciplinary discussion for differential diagnosis / P36

Satellite Symposium (友華生技醫藥股份有限公司贊助)

Time	Topic	Speaker	Moderator
12:00-12:10	Opening Remarks	高尚志 醫師 新光醫院	
12:10-12:30	Treatment algorithm and emerging evidence of managing COPD	鄭世隆 醫師 亞東醫院	彭殿王 醫師 台北榮總
12:30-13:10	Triple Therapies: Opening Spaces for HOPE in COPD Patients	Prof. Alberto Papi Ferrara, Italy	余忠仁 醫師 臺大醫院
13:10-13:20	Panel Discussion and Closing Remark	余忠仁 醫師 臺大醫院	

Treatment algorithm and emerging evidence of managing COPD

鄭世隆 / Shih-Lung Cheng, M.D., Ph.D.

Chief, The Center of Evidence-Based Medicine, Far Eastern Memorial Hospital
Chief, The Center of Clinical Trial, Far Eastern Memorial Hospital
Professor, Department of Chemical Engineering and Materials Science, Yuan Ze University



There are many clinical trials invested in medication of COPD in recent years, different treatment choices result in different outcome and patient type selection become important when we consider medications of different mechanism. International guideline of COPD also made some changes in 2017 and 2019, it was to the result of those clinical studies enable us to understand more about treating COPD. With many available treatment choices now in our clinic, we should always consider individualize treatment for COPD patients.

Triple Therapies: Opening Spaces for HOPE in COPD Patients

Alberto Papi

Professor of Respiratory Medicine at the University of Ferrara, Italy
Director of the Respiratory Unit of the Department of Emergency Medicine, S. Anna University Hospital, Ferrara, Italy.



There are many evidence of fixed dose triple combination inhaler in the management of COPD published in recent 2-3 years. A new combination not only reduce medication cost but also reduce COPD exacerbation rate. The lecture will talk about important triple combination studies and their promising results.

Contact of tuberculosis at health care facilities in Japan

Takashi Yoshiyama, M.D.

Senior researcher in Research institute of tuberculosis



Speciality

Tuberculosis control, clinical tuberculosis

List of publications

Yoshiyama T, MDR TB, Journal of Japan Society for Surgical Infection, 2013;10:321-326
Yoshiyama T, control of MDR TB, Kekkaku 2013;88:749-56
Yoshiyama T, Morimoto K, Okumura M, Sasaki Y, Shiaishi Y, Ogata H, Kudou S, Long term outcome of MDR TB in Japan, Tansactions of royal society of tropical medicine and hyginene,2014;108:589-590
Ryoken naikakai (correspondence author. Yoshiyama) Prospective analysis of adverse reactions with long-term levofloxacin use Kekkaku. 2014 Jul;89(7):643-7
T. Yoshiyama, Nobuyuki Harada, Kazue Higuchi, Masami Saitou, Seiya kato; Use of the QuantiFERON®-TB Gold in tube test for screening TB contacts and predictive value for active TB. Scand. J Infectious Diseases; 2015;2015 Aug;47(8):542-9.
T. Yoshiyama, Low risk of hospital acquired infection and reinfection of multidrug resistant tuberculosis, Infectious Diseases 2017 49;2:158-160
Ryoken naikakai (correspondence author. Yoshiyama) Tuberculosis treatment for patients older than eighty years, Kekkaku 2017;92:485-492 (in Japanese)
Yoshiyama T, Ogata H, Sasaki Y, Okumura M, Morimoto K, Goto H. Usefulness and limitation of outpatient management of sputum smear negative MDR-TB in Japan Kekkaku 2017;92:529-534 (in Japanese)
Ryoken naikakai (correspondence author. Yoshiyama) Relapse after standard treatment of tuberculosis Kekkaku 2018;93:409-416
Ryoken naikakai (correspondence author. Yoshiyama) Retrospective analysis of treatment of latent tuberculosis infection in Japan Kekkaku 2018;93:447-457
Ryoken naikakai (correspondence author. Yoshiyama) Retrospective analysis of treatment of latent tuberculosis infection in Japan. Severe Liver Dysfunction during Isoniazid Treatment Kekkaku 2018;93:585-589
T. Yoshiyama Multi drug resistant tuberculosis Kekkaku 2018;93:553-560
Yoshiyama T, Kurosaki A, Ogata H, Sasaki Y, Okumura M. Limited benefit of CT scans in tuberculosis contact tracing. J Infect Chemother. 2019 May 14. pii: S1341-321X(18)30326-X. doi: 10.1016/j.jiac.2019.03.023. [Epub ahead of print]

Real world experiences in the treatment of IPF

鄭世隆 / Shih-Lung Cheng, M.D., Ph.D.

Chief, The Center of Evidence-Based Medicine, Far Eastern Memorial Hospital
Chief, The Center of Clinical Trial, Far Eastern Memorial Hospital
Professor, Department of Chemical Engineering and Materials Science, Yuan Ze University



Idiopathic pulmonary fibrosis (IPF) is a chronic, progressive, irreversible, and usually fatal fibrotic disease of the lung. It typically affects elder patients beyond 60 years of age, and the disease nature course is not easy to predict due to disease heterogeneity. The most important known prognostic determinants for mortality are a decline in lung function, acute exacerbations (AE-IPF). AE-IPF, one of the significant risks of causing death, may attack IPF patients anytime, anywhere, regardless of disease stage or stability or not. Considering the poor prognosis of AE-IPF, the prevention of AE-IPF is more likely a better strategy on reducing the risk of mortality of IPF, as well as the preservation of lung function.

The prevalence and incidence of IPF are very different from countries. It might be due to the different situations in disease awareness and diagnosis rates in individual countries. Based on the current data we have, the worldwide prevalence of IPF is estimated from 10 to 500 per 100 000 persons, and its incidence is about 3–93 per 100,000 persons per year. The average survival from the time of diagnosis is estimated as three to five years. Compared to the prevalence and incidence worldwide, the prevalence and incidence of Taiwan seem to be much lower than the average worldwide. So we assume IPF may be highly underestimated in Taiwan.

Despite extensive research over the past 25 years, only two drugs, Nintedanib and Pirfenidone, have yet been identified as being effective in IPF. As the natural course of IPF is quite heterogeneous and the response to the novel anti-fibrotic drugs have been reported to show great variability, it is needed to identify reliable predictive factors of indicating the risk of deterioration and the response to medical treatment, as well as side effects in a broad non-selected patient cohort. Therefore, a real-world data collection is necessary for further reference in clinical practice. NICEFIT (Non-Interventional study Collecting Experiences For IPF in Taiwan), a Taiwan real-world data collection for the treatment of IPF, is generated to fulfill the objective. In the one-year interim report, it indicated that the lung function of most enrolled patients with antifibrotics therapy (mainly received Nintedanib) are stable. Furthermore, around 50% of enrolled patients received antifibrotics have improvements in FVC. No unexpected adverse effect is observed for the anti-fibrotic drug. In my presentation today, I will demonstrate more details of the one year result of NICEFIT with my humble opinions, and brief the latest updates for real-world IPF registries.

New Horizons in The Treatment of Pulmonary Fibrosis

Ganesh Raghu, M.D.

Professor, Division of Pulmonary, Critical Care and Sleep Medicine
Adjunct Professor, Laboratory Medicine
Director, Interstitial Lung Disease/Sarcoid/Pulmonary Fibrosis Program, University of Washington



Honors: National Research Service Award, "Parthogenesis of Pulmonary Fibrosis," National Institutes of Health (1983-1985)

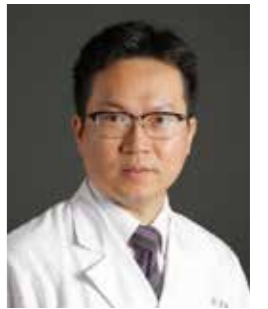
National Research Service Award, National Institutes of Health (1981-1983)

Satellite Symposium (輝瑞生醫股份有限公司贊助)

Challenges and solutions in the treatment of CRE infection in Taiwan

柯信國 / Hsin-Kuo (Bruce) Ko, M.D., Ph.D.

Assistant Professor, Medical School, National Yang-Ming University, Taipei, Taiwan
Attending physician, Taipei Veterans General Hospital
Chief of respiratory intensive care unit, Taipei Veterans General Hospital



Carbapenem-resistant Enterobacteriaceae (CRE) have emerged as an urgent public health threat. Intestinal colonization with CRE has been identified as a risk factor for the development of systemic CRE infection, but has not been compared to colonization with third and/or fourth generation cephalosporin-resistant (Ceph-R) Enterobacteriaceae. Moreover, the risk conferred by colonization on adverse outcomes is less clear, particularly in critically ill patients admitted to the intensive care unit (ICU).

Satellite Symposium (輝瑞生醫股份有限公司贊助)

Current and emerging treatment strategies for Gram-negative infections_Yehuda Carmeli

Yehuda Carmeli, M.D., MPH

Professor in Medicine, Sackler Faculty of Medicine, Tel Aviv University, Israel.
Head, Division of Epidemiology and the National Institute for Infection Control and Antibiotic

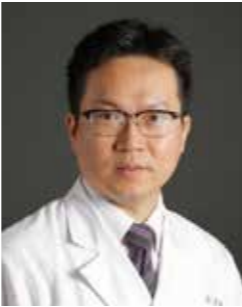


Carbapenem-resistant Enterobacteriaceae (CRE) represent an important global threat. The aim of this presentation is to describe the clinical course and outcomes of patients with CRE infections treated with ceftazidime-avibactam (CAZ-AVI) compared to patients treated with other agents.

Multi-disciplinary discussion for differential diagnosis

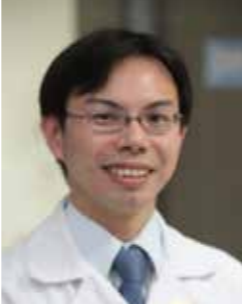
柯信國 / Hsin-Kuo (Bruce) Ko, M.D., Ph.D.

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Lecturer, College of Medicine, National Taiwan University



Interstitial lung diseases (ILD) are a group of heterogeneous parenchymal lung disorders, characterized by different clinical and radiological patterns, and pathological findings. ILD is a diverse group of diseases originated from a variety of pathogenesis mechanisms that cause fibrosis or inflammation of the pulmonary parenchyma. Historically, ILD subtypes have been organized into categories as (1). ILD related to known cause, ILD secondary to connective tissue disease, (2). granulomatous ILD, (3). the idiopathic interstitial pneumonias (IIPs) including idiopathic pulmonary fibrosis (IPF), nonspecific interstitial pneumonitis, acute interstitial pneumonia, cryptogenic organizing pneumonia, respiratory bronchiolitis-ILD, desquamative interstitial pneumonia, lymphocytic interstitial pneumonia, pleuroparenchyma fibroelastosis, unclassifiable IIPs], and (4) unique entity including pulmonary alveolar proteinosis, histiocytosis X. Treatment and prognosis of ILD typically depend on the underlying ILD subtype, highlighting the importance of accurate classification and differential diagnosis. The diagnosis of IPF and of other types of pulmonary fibrosis requires multidisciplinary review for optimal accuracy. The inclusion of the pulmonary, radiology, and pathology teams ensures that patients will receive the most accurate diagnosis possible; however, even with a multidisciplinary approach, determining the correct diagnosis can be challenging. Discrepancies in diagnoses between different specialists and low confidence in diagnosis are common occurrences and are best resolved cooperatively. In addition to diagnostic considerations, multidisciplinary discussion may also be helpful in determining patient prognosis, treatment and next step for patient care. Here, I will share the experience of Taipei VGH on MDD for ILDs.

Meet the experts

302A 會議室

- Management of intracranial metastases for patients with advanced non-small cell lung cancer / **P38**

302B 會議室

- Subtle Radiographic Findings in Mediastinal and Paramediastinal Lesions: A Radiologist's Perspective / **P38**

303A 會議室

- IPF – Now and Future / **P39**

Management of intracranial metastases for patients with advanced non-small cell lung cancer

蔡俊明 / Chun-Ming Tsai, M.D.

Consultant Professor,
Department of Oncology, Taipei Veterans General Hospital;
Department of Chest medicine, Cheng Hsin General Hospital;
Department of Chest medicine, Cathay General Hospital;
Department of Chest medicine, Chung Shan Medical University Hospital



Management of intracranial metastases [including meningeal carcinomatosis] is one part of long-term systemic treatment of patients with advanced non-small cell lung cancer. Therefore, management of intracranial metastases should be started when disease is diagnosed.

Through the course of management, periodically, brain MR should be monitor and correlate the image findings with clinical manifestations and levels of plasma tumor markers and to apply and integrate any beneficial modality [including surgery, radiotherapy, targeted therapy, and immunotherapy, also guided by NGS] at the right time.

In this session, I plan to present several cases for discussion.

Subtle Radiographic Findings in Mediastinal and Paramediastinal Lesions: A Radiologist's Perspective

高長發 / Sheung-Fat Ko

Professor , Department of Radiology, Kaohsiung Chang Gung Memorial Hospital
Professor of Radiology, Chang Gung University



Irrespective of recent developments in thoracic imaging, conventional chest radiography remains as the most common tool for initial assessment of the chest. However, mediastinal and paramediastinal lesions are easily ignored on chest radiographs. In clinical practice, mediastinal widening is frequently described for suspected mediastinal lesions. Yet there is no objective assessment for definitive determination of how wide is really wide or the anatomic location of the lesion. Anatomically, mediastinal reflections represent points of contact between the mediastinum and adjacent lung giving rise to many “lines and stripes” on chest radiographs. Despite seemingly old-fashioned, these lines and stripes are fundamental and essential for identification of subtle mediastinal or paramediastinal lesions. In this presentation, I will review and illustrate subtle but crucial radiographic findings of various mediastinal and paramediastinal diseases and discuss how to avoid overlooking such minute features that may reflect important underlying diseases from a radiologist's perspective. Finally, I will share some of my experiences in clinical researches through the story of a vein in the mediastinum.

IPF – Now and Future

Ganesh Raghu, M.D.

Professor, Division of Pulmonary, Critical Care and Sleep Medicine
Adjunct Professor, Laboratory Medicine
Director, Interstitial Lung Disease/Sarcoid/Pulmonary Fibrosis Program, University of Washington



Honors:

National Research Service Award, "Parthogenesis of Pulmonary Fibrosis," National Institutes of Health (1983-1985)

National Research Service Award, National Institutes of Health (1981-1983)

台灣胸腔外科醫學會

304B 會議室

12 / 7

- Management of Lung Nodules：高雄長庚經驗 / **P41**
- Management of Lung Nodules：高醫經驗 / **P41**
- Management of Lung Nodules：高榮經驗 / **P42**
- Management of Lung Nodules：中榮經驗 / **P42**
- Management of Lung Nodules：中國附醫經驗 / **P43**
- Management of Lung Nodules：北榮經驗 / **P43**
- Management of Lung Nodules：馬偕經驗 / **P44**
- Management of Lung Nodules：臺大經驗 / **P44**
- Nanotechnology in Lung Cancer Intervention / **P46**
- Management of lung nodules on LDCT screening / **P46**
- Small lung nodules：早期肺腺癌的病理診斷 / **P47**
- Small pulmonary nodules detected on CT scans: current strategy and potential contribution of AI / **P48**
- One stop, One shop Strategy for Lung Nodules – What the future may hold? / **P49**
- Percutaneous Localization of Small Lung Nodules：中山經驗 / **P50**
- Percutaneous Localization of Small Lung Nodules：彰基經驗 / **P51**
- Percutaneous Localization of Small Lung Nodules：臺大經驗 / **P52**
- Percutaneous Localization of Small Lung Nodules：新光經驗 / **P53**
- Percutaneous Localization of Small Lung Nodules：奇美經驗 / **P53**
- Percutaneous Localization of Small Lung Nodules：國泰經驗 / **P54**
- Percutaneous Localization of Small Lung Nodules：北榮經驗 / **P54**
- Endobronchial localization of Small Lung Nodules：林口長庚經驗 / **P55**
- Endobronchial localization of Small Lung Nodules：馬偕經驗 / **P56**
- Endobronchial localization of Small Lung Nodules：三總經驗 / **P56**
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Management of Lung Nodules：高雄長庚經驗

呂宏益

高雄長庚醫院外科部副部長
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With the increasing screening of low dose chest CT scans for early lung cancer, thoracic surgeon faced more and more small ground glass nodules (GGNs) less than 1cm in daily clinical practice. Challenges in management of GGNs include timing of surgical resection, preoperative localization, extent of resection (lobectomy versus sublobar resection), lymph nodes sampling or radical dissection, multiple GGNs, and follow-up strategies. Herein, we will present the changing trend of lung cancer stage distribution, the selection criteria of resection for pure GGNs & subsolid GGNs, and surgical results of small lung noudles in our hospital. Meanwhile, we will share the preliminary experiences of peri-operative image-guided small lung nodule localization at hybrid OR.

Management of Lung Nodules：高醫經驗 毛玻璃狀結節與早期肺癌的高醫經驗

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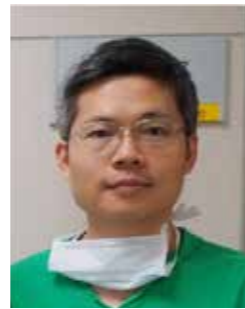


隨著胸腔電腦斷層肺癌篩檢的普及，處理毛玻璃狀結節與早期肺癌已經是胸腔外科醫師的臨床課題。此類病兆從早期偵測，定期追蹤，手術適應症，術前與術中定位，手術切緣與淋巴廓清的品質，乃至何時需重複手術等都是近幾年胸腔外科努力的方向。本次提供高醫經驗與看法與大家分享。

Management of Lung Nodules : 高榮經驗 Nature History of Persistent Ground-glass Opacity Lung Nodules: The KSVGH Experience

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Background: The long-term natural course and outcomes of ground-glass opacity (GGO) lung nodules in terms of true growth, obvious growth, and stage in progression need to be clarified.

Patients and Methods: Between 2002 and 2016, 128 subjects with persistent GGO lung nodules of 3 cm or smaller were enrolled. The baseline and interval changes in a series of computed tomography (CT) findings during the follow-up period were subsequently reviewed.

Results: The mean follow-up period was 3.6 ± 2.9 years. The cumulative percentage of growth nodules of the part-solid nodule (PSN) group was significantly higher than that of the pure ground-glass nodule (GGN) group by Kaplan-Meier estimation (all $P < 0.0001$). For true growth, pure GGNs usually take a median follow-up of 7 years to grow; PSNs usually take a median follow-up of 3 years to grow. For obvious growth, pure GGNs usually take a median follow-up of 9 years to grow; PSNs usually take a median follow-up of 3 years to grow. For stage in progression, pure GGNs usually take a median follow-up of 12 years to grow; PSNs usually take a median follow-up of 9 years to grow.

Conclusions: The natural course of long-term follow-up in terms of true growth, obvious growth, and stage in progression of GGOs differed significantly according to their nodule type, which could contribute to the development of follow-up guideline and management strategy of pulmonary GGOs.

Management of Lung Nodules : 中榮經驗

莊政諺

台中榮總胸腔外科主任



Pulmonary nodules defined as less than 2 cm lesion in lung. In Taichung Veteran General Hospital, there were more than 550 lung surgery per year in 3 years. In these cases, about 25% are benign lesion, 40% are ground glass nodules, and 55% are pulmonary nodules. The diagnosis of benign lesion and its management, the malignant lesion, its staging and management are analyzed. Perioperative management are also reported.

Management of Lung Nodules : 中國附醫經驗

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隨著胸部電腦斷層的日益普及，肺結節的發生率也持續增加。目前對於肺結節的臨床處置，國際間有多指引如:National Comprehensive Cancer Network、Fleischner、British Thoracic Society等均有提供肺結節的治療建議給臨床醫師參考。不過不同指引之間有些許差異，此外，這些國外的治療指引是否完全符合台灣的治療現況，也值得探討。這裡我們提出中國醫藥大學附設醫院對於肺結節之臨床處理原則跟經驗與大家共同討論。

Management of Lung Nodules : 北榮經驗 Lymphadenectomy is Unnecessary for Pure Ground Glass Opacity

林逸翰

臺北榮民總醫院研究醫師



Introduction: The advance of chest computed tomography (CT) has made it possible to diagnose more patients with ground glass opacity (GGO). While lobectomy plus radical lymph node dissection is the golden standard of intervention for early stage non-small cell lung cancer (NSCLC), the low lymph node metastasis rate it makes has urged not a few surgeons to choose lymph node sampling or even to do without lymphadenectomy. Lymph node metastasis rate of GGO patients should be re-evaluated to help clinicians make better judgment.

Results: Lymph node metastasis rates were 0%, 3.87% and 6.83% in order of pure GGO group, GGO-predominant part-solid GGO group and solid-predominant part-solid GGO group. The occurrence rates of adenocarcinoma in situ (AIS) plus minimally invasive adenocarcinoma (MIA) were 74.62%, 23.67% and 4.27%, and the recurrence rates were 0%, 2.42% and 9.83%. In the lobectomy patients, the solid-predominant group still showed to have the highest lymph node metastasis rate and recurrence rate (8.28% and 11.24%).

Conclusion: It is unnecessary to perform lymphadenectomy for the pure GGO patients in view of the 0% lymph node metastasis rate that revealed among them, whereas the 3.87% lymph node metastasis rate in the GGO-predominant part-solid GGO patients makes it feasible to perform lymph node sampling for these patients. Finally, the solid-predominant part-solid GGO patients had a 6.83% lymph node metastasis rate, implying that surgeons should be careful in choosing rational lymphadenectomy method according to patient's GGO property, radiologic findings, risk factors and clinical judgment.

Management of Lung Nodules：馬偕經驗

詹梅麟

馬偕紀念醫院 胸腔外科 主治醫師



The incidence of indeterminate lung nodules has risen over the past few years because the use of low dose CT scans got increasing popularity. For these small lung nodules, the localization and determination of pathologic traits are pivotal, because the early diagnosis of lung cancer could lead to a definitive intervention. At Mackay Memorial Hospital, with the introduction of Virtual Bronchoscopic Navigation, the diagnostic rate of lung nodules (3.1+/-1.6cm) is about 71% (100% in endobronchial; 57.1% in non-endobronchial lesions). With the shifting of thoracic surgical approach from open thoracotomy toward VATs or RATs, it is harder to identify the nodules by intra-operative palpation. Instead, pre-operative CT guided, Electromagnetic Navigation Bronchoscope (EVB) or Virtual Bronchoscopic Navigation (VBN) have been used to localize these nodules. The treatment, the surgical resection is still the gold standard in treating the lung nodules unless patients are medically inoperable or not enough lung function preserved. If the lung nodules consist of GGO part and less than 2 cm, the segmental resection is preferable than wedge or lobe resection. For those who have multiple nodules and be predicted to not tolerate multiple resection, the pulmonary radiofrequency ablation (RFA) will be used to eliminate these lung nodules as possible. In conclusion, as the appearance of more small lung nodules by using new screening protocol in recent years, it is inevitable to adjust our clinical practice to provide precise and proper treatment.

Management of Lung Nodules：臺大經驗 臺大醫院肺結節之處理原則

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台大醫院胸腔外科主任



（主要參照The American Association for Thoracic Surgery⁸; NCCN guideline⁹）

1. 針對實心之肺結節（solid）

若結節小於等於4毫米，則安排每年一次低劑量電腦斷層進行追蹤⁸。若結節為4-6毫米之間，則於6個月內安排低劑量電腦斷層⁸。若結節為6-8毫米之間，則於3個月後安排低劑量電腦斷層追蹤，若結節無變化則6個月後安排低劑量電腦斷層，仍穩定則改為一年後之追蹤，若追蹤有變化則轉介給胸腔專家進行評估或手術⁸。若結節大於8毫米，則需安排正子電腦斷層掃描，若評估為低風險，則3個月內安排低劑量電腦斷層，若無變化則改6個月後安排低劑量電腦斷層，仍穩定則改一年後低劑量電腦斷層追蹤⁸。若各種追蹤中若每年一次低劑量電腦斷層皆穩定，則維持一年一次之追蹤頻率⁹。若發現有支氣管內之病兆，則須安排支氣管鏡檢查⁸。

2. 針對初次篩檢之部分實心肺結節(part-solid)

若結節小於等於5毫米，則安排每年一次低劑量電腦斷層進行追蹤。若結節大於6毫米，則根據

其實心部分進行區分，若實心部分小於等於5毫米，則於6個月內安排低劑量電腦斷層。若實心部分為6-7毫米，則3個月後安排低劑量電腦斷層。則若實心部分大於等於8毫米，可單獨安排注射顯影劑之電腦斷層檢查或合併正子電腦斷層掃描，若評估為低風險，則3個月內安排低劑量電腦斷層。若為高風險，則安排開刀或切片。若結果為良性，則後續仍須每年一次的電腦斷層追蹤。⁹

針對首次追蹤之部分實心肺結節(part-solid)

若結節小於等於5毫米，則安排每年一次低劑量電腦斷層進行追蹤。若結節大於6毫米且實心部分為6-7毫米，則一年後安排低劑量電腦斷層。⁹

若實心部分大於等於8毫米，則考慮下列兩者擇一

- 6個月後安排一次低劑量電腦斷層，若無變化則安排每年一次低劑量電腦斷層
- 安排正子電腦斷層掃描，若評估為低風險，則6個月內安排低劑量電腦斷層。若為高風險，則安排開刀或切片。若結果為良性，則後續仍須每年一次的電腦斷層追蹤⁹

針對追蹤中出現新結節或結節變大之部分實心肺結節(part-solid)

若結節小於等於5毫米，則安排六個月後之低劑量電腦斷層進行追蹤。若結節大於6毫米且實心部分為3毫米以下，則3個月後安排低劑量電腦斷層。若實心部分大於等於4毫米，可單獨安排注射顯影劑之電腦斷層檢查或合併正子電腦斷層掃描，若評估為低風險，則3個月內安排低劑量電腦斷層。若為高風險，則安排開刀或切片。若結果為良性，則後續仍須每年一次的電腦斷層追蹤⁹

若部分實心肺結節(part-solid)各種追蹤中若每年一次低劑量電腦斷層皆穩定，則維持一年一次之追蹤頻率⁹。

3. 針對初次篩檢之非實心肺結節(Non-solid)⁹

若結節小於等於19毫米，則安排一年後之低劑量電腦斷層進行追蹤。若結節大於等於20毫米，對於初次篩檢及首次追蹤病患，可安排6個月後的低劑量電腦斷層。

針對追蹤中出現新結節之非實心肺結節(Non-solid)⁹

若結節小於等於19毫米，則安排一年後之低劑量電腦斷層進行追蹤。若結節大於等於20毫米，則考慮下列兩者擇一

- 一年後安排一次低劑量電腦斷層。
- 安排開刀或切片。若結果為良性，則後續仍須每年一次的電腦斷層追蹤

針對追蹤中結節變大之非實心肺結節(Non-solid)⁹

若結節小於等於19毫米，則安排六個月內之低劑量電腦斷層進行追蹤。若結節大於等於20毫米，則考慮下列兩者擇一

- 六個月內安排一次低劑量電腦斷層。
- 安排開刀或切片。若結果為良性，則後續仍須每年一次的電腦斷層追蹤

4. 針對新出現的結節，懷疑為感染或發炎，於1-2個月後安排首次低劑量電腦斷層追蹤之結果，若結節消失，則安排每年一次低劑量電腦斷層。若大小有減小，則持續安排影像追蹤。若仍是存在或變大，則安排正子電腦斷層掃描，若評估為低風險，則3個月內安排低劑量電腦斷層。若為高風險，則安排開刀或切片。若結果為良性，則後續仍須每年一次的電腦斷層追蹤。⁹

Nanotechnology in Lung Cancer intervention 奈米科技於肺癌治療的運用

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Scientist, Latner Thoracic Surgery Research Laboratory, Toronto General Hospital Research Institute, University Health Network, Canada
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Director, Interventional Thoracic Surgery Program, University Health Network
Staff Surgeon, Thoracic Surgery, Toronto General Hospital
Staff Surgeon, Department of Surgery, The Hospital for Sick Children

Aiming at improving the accuracy of identifying cancer involved lung tissue and the precision of focal treatment, Prof. Yasufuku has been evaluating the nanoparticle-guided lung cancer intervention. In the research-based speech, Prof. Yasufuku will discuss updated knowledge of nanoparticle-guided lung cancer intervention [1,2].

1. Jin, C.S., et al., An Integrated Nanotechnology-Enabled Transbronchial Image-Guided Intervention Strategy for Peripheral Lung Cancer. Cancer Res, 2016. 76(19): p. 5870-5880.
2. Kato, T., et al., Nanoparticle targeted folate receptor 1-enhanced photodynamic therapy for lung cancer. Lung Cancer, 2017. 113: p. 59-68.

Management of lung nodules on LDCT screening Management of lung nodules on LDCT screening : 胸腔內科醫師觀點

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The most effective strategy to fight cancer is primary prevention, followed by early diagnosis, i.e. cancer screening. Previous efforts on lung cancer screening had mainly focused on chest x-ray. Unfortunately, several large studies have proven it to be useless. Chest computed tomography (CT) is superior to chest x-ray in its better resolution but at the expense of higher radiation dose, false positive rate, and cost. Because of the technology improvement, using a special algorithm to reduce the radiation exposure, low-dose CT (LDCT) has been developed in late

1990 and applied in lung cancer screening by several single arm studies. Finally, two large randomized control trials, NSLT and NELSON, have proved that LDCT can significantly reduce lung cancer mortality in heavy smokers. After that, several respiratory and oncology societies issued recommendations suggesting individuals who fulfill the inclusion should consider LDCT for lung cancer screening. In 2013, USPSTF also made a decision to give a grade B recommendation for LDCT lung cancer screening. Meanwhile, Taiwan Lung Cancer Society, in conjunction with the Radiological Society of the Republic of China and Taiwan Society of Pulmonary and Critical Care Medicine, has also issued a consensus statement for LDCT lung cancer screening in Taiwan in 2015. Although the effectiveness of low-dose CT is well documented, several issues are still in concern. For example, the best strategy for management of lung nodules detected by LDCT remains controversial. In this presentation, we will review the current evidence of LDCT on lung cancer screening and discuss the similarity/disparity among the guidelines/statements/recommendations proposed by different societies.

Small lung nodules : 早期肺腺癌的病理診斷

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In the current WHO classification, lung adenocarcinomas are divided into adenocarcinoma in situ (AIS), minimally invasive adenocarcinoma (MIA), and invasive adenocarcinoma based on the extent of invasiveness. Invasive adenocarcinomas are further classified according to the predominant histologic growth pattern, including lepidic, acinar, papillary, micropapillary, and solid patterns. This classification system is of prognostic and therapeutic significance. AIS and MIA typically have 100% disease-free survival if completely resected. For invasive adenocarcinomas, lepidic predominant adenocarcinomas have excellent outcome, whereas solid and micropapillary subtypes are associated with poor prognosis. In addition, several studies showed that solid and micropapillary subtypes may benefit the most from adjuvant chemotherapy. Although the clinical relevance of the pathological classification has been well demonstrated, it poses significant diagnostic challenges for the practicing pathologists. Accurate intraoperative subtyping of adenocarcinoma and judgment of invasiveness using frozen sections can be difficult. Besides, the intra- and interobserver reproducibility of this classification still needs improvement.

Small pulmonary nodules detected on CT scans: current strategy and potential contribution of AI

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Recent advances in technology, including widespread availability of multidetector computed tomographic (MDCT) scanners associated with an abundance of new information obtained especially from low-dose CT (LDCT) lung cancer screening programs, have increased our understanding of the varieties of small peripheral lung nodules encountered in daily clinical practice, in particular, the importance and prevalence of non-calcified pulmonary nodule (NCPN). The high frequency of NCPN <10mm incidentally detected on a MDCT of the chest raises the question of how clinicians and radiologists should deal with these nodules. Unfortunately, the low specificity of CT necessitates the follow-up of a large number of small (<10 mm) pulmonary nodules that ultimately turn out to be benign, and there are few data regarding the benefit of long-term follow-up of subcentimeter NCPNs. Data pertaining to the natural history of these nodules will have important implications for cost benefit analysis in any future LDCT screening programs. This lecture sought to investigate the clinical relevance of small (10 mm or less) incidental pulmonary nodules and to determine the spectrum of malignant tumours in such patients. This lecture also sought to determine the characteristics associated with malignancy and to develop a statistical model to guide the clinician as to choice of patients for diagnostic biopsy.

While the imaging technology has proven effective, numerous research efforts have explored use of another up-and-coming technology — artificial intelligence (AI). AI is one of the hottest topics radiologic meeting. Many studies have demonstrated the great potential of AI to supplement small nodule and lung cancer detection, the scientific lecture is looking outward to define the next evolution of the technology. This technology may further improve nodule detection, classification and sizing, while also reducing false-positive rates. The lecture will explore the potential of AI to aid radiologists in assessing lung nodule detection and diagnosis in CT scans.

One stop, One shop Strategy for Lung Nodules – What the future may hold?

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Increasingly clinicians are having to manage small lung lesions in younger patients. In many cases, these lesions can be multiple, and may be at different stages of evolving lung cancers represented by their variable size and density (or presence or absence of solid component). This problem is likely to increase with more screening programs coming on-line and more patient and clinician awareness. The burden on the healthcare system of arranging follow-up imaging, biopsies and other investigations as well as treatment can be enormous. The development of strategies to streamline these procedures and processes could improve clinical outcomes, patient satisfaction and reduce costs.

The amalgamation of imaging, endoscopic procedures, and thoracoscopic procedures can be the solution. The concept was initially championed by Jacques Marasceux, President of IRCAD, for general surgery and subsequently Raphael Bueno, for thoracic procedures in 2012 in his AMIGO hybrid operating suite. The development of iVATS, image guided video-assisted thoracic surgery, and later image guided uniportal VATS slowly became more popular and accepted as a useful strategy to help localize and accurately resect small lung lesions. Thus the marriage between imaging and thoracoscopic surgery was sealed. Soon afterwards, development of iENB, image-guided electromagnetic navigation bronchoscopy, created the final powerful link between imaging, endoscopy and thoracoscopy.

The current most exciting utilization of the hybrid operating room in the management of lung nodule could be the one stop one shop staging of mediastinal lymph nodes by EBUS, followed by percutaneous or iENB biopsy, with nodule localization by percutaneous marker or endobronchial dye marking, and then treatment by immediate surgery. More recently, choice of treatment has increased to include endoscopic thermal ablation, most notably microwave ablation. Thus, in particular patients with complex medical history and multiple lung lesions may have a highly personalized treatment strategy. The future development of drugs for endobronchial delivery, robotic bronchoscopic platforms and eventual evolution into NOTES may further allow us to better manage these small lung lesions.

Percutaneous Localization of Small Lung Nodules：中山經驗

林巧峯

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中山醫學大學附設醫院食道癌團隊主席



Objective

There is an increasing need for thoracic surgeons to master pre-operative localizations after high rates of sub-centimeter nodules have been positively screened by low-dose CT. The Laser Angle Guide Assembly® (LAGA), an innovative angle reference device for CT-guided pulmonary invasive procedures, has been developed to help surgeons perform preoperative CT-guided localizations (POCTGL) in a safe and efficient manner.

Methods

Clinical and localization data of patients who received POCTGL assisted by LAGA for pulmonary nodules between May 2015 and June 2018 were collected and analyzed.

Results

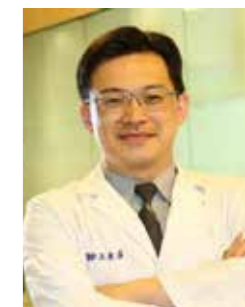
One hundred and eighty-seven patients with 266 pulmonary nodules underwent POCTGL assisted by LAGA. The numbers of POCTGL were 1 to 5 and >1 for 22.1% of the surgeries. The median size of the nodules was 6 mm. A hookwire was inserted in 32 (12%) of the nodules. Most (83.1%) localizations were completed with a single puncture. The median angle was 18 degrees. The median and maximum depths of the nodule to pleura were 12 mm and 60 mm. The median procedure time was 19 minutes. The successful targeting and field targeting rates were 100% and 98.1%, correspondingly. Pneumothorax was noted in 17 (6.4%) localizations not requiring thoracic intubation. The multivariate analyses for pneumothorax showed an odds ratios of 2.4 (1.2-4.9) for puncture times/nodule and 10.1 (2.3-41.7) for tumors adjacent to the fissure. There was no hookwire migration after it was cut shorter.

The data will be updated before the meeting.

Percutaneous Localization of Small Lung Nodules：彰基經驗

王秉彥

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Abstract: Introduction: It is challenging of video-assisted thoracoscopic surgery (VATS) to find the tiny pulmonary lung and resection. Pre-operative localization of nodule is important for resection. Recently, image-guided VATS (iVATS) in hybrid room receives attention. Our study aims to compare pros and cons between traditional CT room localization and iVATS localization with Artis phenol.

Methods: This study was a retrospective analysis date in our institute (Changhua Christian hospital, Changhua, Taiwan). Patients with pulmonary nodules received localization from January 2018 to December 2018 were included in the study. There were 126 patients included in the study. Among these, 63 patients received localization at CT room and the other 63 patients received iVATS. We measured the time from localization to skin incision, successful rate, complication rate, operation time, blood loss and length of hospital stay.

Results: Time from localization to skin incision was significantly short in the iVATS than CT room group (23.57 min vs. 372.11 min, $p < 0.001$). The complication rate was significantly higher in CT room group than iVATS ($n=49$, 77.8% vs. $n=2$, 3.2%, $p < 0.001$). There was no significant difference of operation methods, operation time, blood loss and length of hospital stay in both groups. There was no collision of robotic C-arm and patient at true lateral decubitus position with Artis phenol.

Conclusion: iVATS provides shorter time from localization to skin incision and fewer complications than CT room localization. Robotic C-arm cone beam CT (Artis phenol) helps to prevent patient collision and provides easier pre-operative setting.

Percutaneous Localization of Small Lung Nodules：臺大經驗

蔡東明

台大醫院胸腔外科主治醫師



Low-dose computed tomography (LDCT) screening increases the detection rate of small pulmonary nodules, including ground-glass opacity (GGO) and early pulmonary malignancies. However, a successful resection of these small nodules with minimal invasive video-assisted thoracoscopic surgery (VATS) is challenging for surgeons because of the small incision and uncertain location of these invisible nodules under naked eyes. In recent years, several techniques of Image-guided localization are developed to provide surgeons with a precise location of the nodules, helping them to resect the nodules with less invasiveness. These techniques use clinical images obtained from CT, bronchoscope, or fluoroscopy to get the location of the lesion, then put visible markers near the lesion, either transthoracic or transbronchial. These techniques had their advantages and disadvantages.

In National Taiwan University Hospital (NTUH), we first use the preoperative CT-guided hook-wire localization. However, due to patient's discomforts and the risk of dislodging, we started to try preoperative dye localization since middle 2013. Lin et al described the successful use of preoperative CT-guided patent blue vital (PBV) dye localization in uniportal VATS. A total of 196 nodules were resected successfully (99.5%) with a short period of hospital stay (3.3 ± 1.2 days) and mild complications. This technique is featured with a high success rate, safety, the ability to localize a deep-seated nodule, low cost, and low radiation exposure to the doctors. Tsai et al also described a successful series of PBV dye localization in deeply-seated nodules. Besides, it can be applied to multiple nodules. Tseng et al reported a consecutive series of 100 patients with 217 nodules who underwent preoperative PBV dye localization, and the success rate was 99%. These studies demonstrated that this procedure was effective, safe, and feasible. In 2017, Yang et al reported intraoperative cone-beam CT in a hybrid operating room (OR) instead of a traditional CT in dye localization. The results were safe and feasible. Chen et al furthermore compared the hybrid OR with traditional CT rooms, which showed that a shortened global time in a hybrid OR but less radiation exposure to patients in conventional OR.

In NTUH, we demonstrated that the PBV dye localization for a pulmonary nodule is an easy-applied, safe, and effective method. It can be widely applied, such as traditional CT, hybrid OR, peripheral, or deeply-seated nodules. A further prospective randomized controlled study is needed to prove its value.

Percutaneous Localization of Small Lung Nodules：新光經驗

謝陳平

新光醫院胸腔外科主治醫師

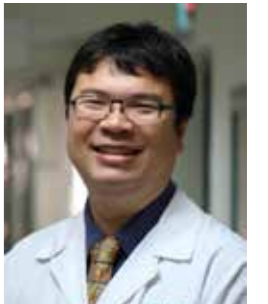
CT scanning for lung cancer screening in apparently healthy individuals is gaining popularity, leading to an increased detection of pulmonary nodules. Because of the inherent limitations of transthoracic or tranbronchial biopsy, patients with small nodules of undetermined significance and suspected lung cancer are frequently referred to surgery. Video Assisted Thoracic Surgery (VATS) was introduced in the early 1990s and is now widely considered to be the gold standard for suspected malignant lung nodule resection. The technique might reduce patient discomfort, complications, the need for higher level of care, hospital stay, and cost compared to open thoracotomy. Now, Video-assisted thoracoscopic surgery (VATS) has become a standard approach for lung resection. However, the identification of small nodules through VATS is still challenging. The challenge increases further with small deeply placed lung nodules as the visceral pleura may not demonstrate any altered shape or color, making these nodules even more difficult to locate thoracoscopically. A number of differing methods of preoperative "marking" have been reported in the literature with varying degrees of success, complications, cost, specialized equipment, and required expertise. We collected and demonstrated the patients with small lung nodules which CT-guided localized by methyl blue preoperatively and endobronchial localized in the hybrid operating room in Shin Kong Wu Ho-Su memorial hospital.

Percutaneous Localization of Small Lung Nodules：奇美經驗

蘇英傑

財團法人奇美醫學中心胸腔外科主治醫師

財團法人奇美醫學中心教學主治醫師



財團法人奇美醫學中心自2017年10月啟用最新一代Corn Beam CT Artis Pheno以來，本院胸腔外科即於2017年10月起，開始進行手術室內一體化肺結節定位手術，迄今已逾80例病例，透過此手術室內一體化肺結節定位技術，有效減低病人不適、縮短手術時間，並提高定位成功率。

藉由此次機會，分享財團法人奇美醫學中心胸腔外科進行手術室內一體化肺結節定位手術之流程、技術與臨床特殊考量等經驗。

Percutaneous Localization of Small Lung Nodules : 國泰經驗

顏銘宏

國泰綜合醫院胸腔外科主治醫師
國泰綜合醫院一般外科主治醫師



Abstract

Preoperative computed tomography (CT)-guided localization of small lung nodules is important for the resection of small pulmonary nodules in video-assisted thoracoscopic surgery (VATS). The aim of this study was to evaluate the usefulness of CT-guided Patent Blue dye localization and the pathologic results in patients with pulmonary ground glass opacities followed by VATS.

Methods

From 2015 to 2019, 71 of patients with 100 suspicious ground glass opacities underwent preoperative CT-guided Patent Blue dye localization followed by VATS. The clinical characteristics were collected retrospectively and categorized according to its sizes by CT.

Results

For 29 ground glass opacities less than 0.6cm, 4 were adenocarcinomas, and 6 were adenocarcinoma in situ (AIS). And for 71 ground glass opacities equal to or more than 0.6cm in size, 29 were adenocarcinomas, and 25 were AIS.

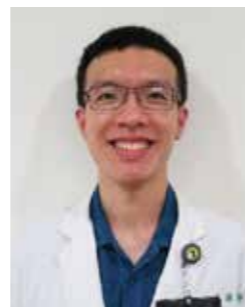
Conclusions

The incidence of AIS or adenocarcinoma is up to one third in GGO with size less than 0.6cm. Follow up and management protocols should be revised with great concern.

Percutaneous Localization of Small Lung Nodules : 北榮經驗

洪嘉聰

臺北榮民總醫院胸腔外科



Background

An optimal method for preoperative localization of small lung nodules is yet to be established, and there are few comparative studies in the literature. In the present study, we aimed to compare electromagnetic navigation-guided and computed tomography (CT)-guided methods of percutaneous transthoracic localization.

Methods

The clinical, radiographic, surgical, and pathologic data of patients who underwent electromagnetic navigation-guided localization (EMNGL) and CT-guided localization (CTGL) before uniportal video-assisted thoracic surgery (VATS) were reviewed. Propensity score matching analysis was performed to compare the localization and surgical results.

Results

After matching, 25 and 50 EMNGL and CTGL patients, respectively, were included in the analysis. In the CTGL group, pulmonary hemorrhage and pneumothorax were noted in 56% and 34% of patients, respectively, on postprocedural CT scans. Successful localization was achieved in 96% and 100% of patients in the EMNGL and CTGL groups, respectively ($p = 0.333$). The median time in the operation room was significantly short in the CTGL group (142.5 [interquartile range {IQR}:123.8-175.0] vs. 205.0 [IQR: 177.5-290.0] min, $p < 0.001$). In contrast, EMNGL significantly decreased the total time (205.0 [IQR: 177.5-290.0] vs. 324.0 [IQR: 228.3-374.0] min, $p = 0.002$). The median duration of chest drainage was 1 day shorter in the EMNGL group (2.0 [IQR: 1.5-2.5] vs.3.0 [IQR: 2.0-3.0], $p = 0.002$); the surgical complication rates were comparable between the 2 groups.

Conclusions

The localization and surgical results were similar between the EMNGL and CTGL groups. EMNGL is comparable to conventional CTGL with respect to preoperative localization of small lung nodules before uniportal VATS.

Endobronchial localization of Small Lung Nodules : 林口長庚經驗

Real-time image-guided electromagnetic navigation bronchoscopy dual-marker technique to localize deep pulmonary nodules in a hybrid operating room

溫志聰 / Chih-Tsung Wen, M.D.

Division of Thoracic Surgery, Chang Gung Memorial Hospital, College of Medicine, Chang Gung University, Taoyuan, Taiwan

Abstract

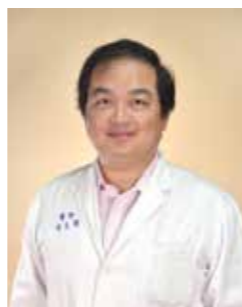
Video-assisted thoracoscopic (VATS) wedge resection of small and/or deep pulmonary nodules is a common challenge faced by thoracic surgeons. A failure to localize these nodules hampers a successful thoracoscopic resection and may eventually require conversion to open thoracotomy. Dye marking – which is commonly achieved either through a percutaneous CT-guided approach or an electromagnetic navigation bronchoscopy (ENB) technique – is currently the most common localization technique for superficial lesions (distance to the pleural surface <10 mm).^{1, 2} With regard to deep lesions, CT-guided hookwire localization remains the most commonly used approach – despite the inherent risk of wire dislodgement.³

Here, we describe the feasibility and safety of a dual-marker technique aimed at localizing deep pulmonary nodules through the combined use of ENB and computed tomography (CT) in a hybrid operating room (OR).

Endobronchial localization of Small Lung Nodules：馬偕經驗

黃文傑 / Wen-Chien Huang, M.D., Ph.D.

- 台北馬偕外傷科主任
- 馬偕胸腔外科主治醫師
- 台灣心胸外醫學會理事
- 盧光舜肺炎基金會董事



Endobronchial localization of Small Lung Nodules：三總經驗

黃才旺

三軍總醫院胸腔外科主任
國防醫學院外科學科副教授

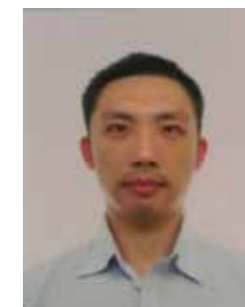


CT-guided localization has been shown to be effective preoperatively in recent years. There were still some limitations. Electromagnetic navigation bronchoscopy (ENB) localization of the tumor with dye injection is rapidly emerging to be applied before VATS. Here we presented our initial experience of ENB localization of pulmonary nodule before operation and discussion about the comparison of effectiveness of tumor localization using ENB and CT-guided localization before small pulmonary nodules resection by VATS.

胸腔外科困難個案討論會：北榮經驗

簡宏哲 / Hung-Che Chien, M.D.

台北榮民總醫院胸腔外科主治醫師
國立陽明大學附設醫院支援醫師



Esophageal perforation is a rare and devastating situation with high mortality of nearly 20%, and even worse in septic patients or patients with underlying illness. Moreover, perforation occur after adjuvant therapy for esophageal carcinoma is even more rare and critical, with a reported mortality rate of 5.8% and median survival of 2 months. Management for esophageal perforation remains controversial between conservative and interventional treatment. Despite primary surgical repair has shown fair outcomes for acute stage of perforation, the prognosis is still determined by multiple factors, including the clinical cause, ruptured location, general condition of patient, and delayed time after perforation. Lately, the use of esophageal stenting for perforations is reported in increasing numbers with acceptable sealing rates. Here we present a 42-year-old with perforation of esophageal carcinoma after adjuvant chemoradiation therapy. Mediastinal abscess is also developed at the time of admission. We combine video-assisted thoracoscopic surgery with endoscopic esophageal stent deployment for sealing the defect and removing the infectious source. The following endoscopy reveals good sealing for this long segmental defect(2cm) of esophagus.

胸腔外科困難個案討論會：林口長庚經驗

陳維勳

胸腔外科加護病房主任
長庚醫院外科助理教授
長庚醫院胸腔外科主治醫師

A 60-year-old man with a history of idiopathic pulmonary fibrosis was underwent bilateral lung transplantation. The patient was found to have anemia, thrombocytopenia and hyperbilirubinemia immediately after transplantation consistent with a thrombotic microangiopathy (TMA). His thrombotic microangiopathy was attributed to lung transplantation and treated with plasma exchange. This is a rare case of early TMA following lung transplantation and successfully managed with plasma exchange without recurrence of TMA for one year.

胸腔外科困難個案討論會：高醫經驗 縱膈腔增長畸胎瘤症候群(Mediastinal Growing Teratoma Syndrome)

劉又瑋

高雄醫學大學附設醫院



Growing teratoma syndrome (GTS) is characterized by the enlargement of a nonseminomatous germ cell tumor despite the administration of appropriate systemic chemotherapy, normalization of serum marker levels, and absence of any pathologic component other than mature teratoma in the surgical specimen. GTS was first described by Logothetis and is rare among primary mediastinal nonseminomatous germ cell tumors. The diagnosis and surgical management are challenging. Nevertheless, with proper operative planning, favorable outcomes can be attained with complete resection despite the characteristic rapid growth and massive size of these neoplasms.

This report describes the case of a 17-year-old man who developed mediastinal growing teratoma syndrome following 2 cycles of chemotherapy, after an initial diagnosis of primary mediastinal nonseminomatous germ cell tumor. The large, rapidly-growing mediastinal tumor was completely resected in conjunction with right pneumonectomy, using simultaneous clamshell thoracotomy and median sternotomy. Surgical tactics involved in the management of mediastinal growing teratoma syndrome are discussed.

胸腔外科困難個案討論會：義大經驗 Management of post-pneumonectomy bronchopleural fistula: A case report

高明蔚

義大醫院胸腔外科主治醫師
義守大學學士後醫學系兼任講師

Abstract:

Bronchopleural fistula (BPF) is an uncommon but disastrous complication after pneumonectomy, with an incidence of 4.2~9.2%. The management of BPF is complicated and needs multidisciplinary approach to achieve a positive outcome. In this session, we reported a patient with post-pneumonectomy BPF, who was successfully treat with bronchial stent and flap reconstruction.

台灣呼吸治療學會

304A 會議室

12 / 7

- Update in aerosolized drug delivery through mechanical ventilation / **P60**
- Update in the mechanism of ventilator-induced lung injury / **P60**
- Melatonin in the treatment of metastatic lung cancer: preclinical and molecular mechanism study / **P61**

Update in aerosolized drug delivery through mechanical ventilation

林蕙鈴 / Hui-Ling Lin

Associate Professor, Department of Respiratory Therapy, Chang Gung University



Aerosol therapy is commonly administered in the critical care. Optimal delivery of aerosolized drug to intubated patients during mechanical ventilation has gained tremendous interest in the last decade. Many factors influence aerosol delivery to the lungs during mechanical ventilation and are related to the drug, the device, the patient, the ventilator circuit, the artificial airways and the ventilator settings. This lecture will review recent studies, including bench studies and clinical trials, to determine how the ventilator ventilator system impact aerosol delivery and to discuss the administration techniques. Doable research methods will be explained for further duplicated studies.

Update in the mechanism of ventilator-induced lung injury

黃次雄 / Tzu-Hsiung Huang

Respiratory Therapist, Chiayi Chang Gung Memorial Hospital



Mechanical ventilation is used as supportive therapy for patients with acute respiratory failure or ARDS. However, due to the morphological variation of patients' lungs, even when protective ventilation is used, and the uneven overdistention of regional alveoli, which leads to the exacerbation of ventilator-induced lung injury, suggests that more detailed mechanistic and pharmacologic investigations are required in identifying the therapeutic window for improving the clinical outcomes in ventilated patients.

Melatonin in the treatment of metastatic lung cancer: preclinical and molecular mechanism study

趙家佳 / Chia-Chia Chao

Associate Professor, Fu Jen Catholic University



The epithelial-mesenchymal transition (EMT) phenotype, whereby mature epithelial cells undergo phenotype transition and differentiate into motile, invasive cells, has been indicated in tumor metastasis. The melatonin hormone secreted by the pineal gland has an antioxidant effect and protects cells against carcinogenic substances that reduce tumor progression. However, the effects of melatonin in EMT and lung cancer metastasis are largely unknown. We found that melatonin downregulated EMT by inhibiting Twist/Twist1 (twist family bHLH transcription factor 1) expression. This effect was mediated by MT1 receptor, PLC, p38/ERK and β -catenin signaling cascades. Twist expression was positively correlated with tumor stage and negatively correlated with MT1 expression in lung cancer specimens. Furthermore, melatonin inhibited EMT marker expression and lung cancer metastasis to liver in vivo. Finally, melatonin shows promise in the treatment of lung cancer metastasis and deserves further study.

台灣睡眠醫學學會

304A 會議室

12 / 8

- CPAP and Home Respiratory Care in Japan / **P63**
- The biomarker of endothelial damage in obstructive sleep apnea / **P64**
- Non-Invasive Mechanical Ventilation in the Treatment of Sleep-Disordered Breathing / **P64**
- Sleep disturbance and circadian disruption in critically ill patients / **P65**

CPAP and Home Respiratory Care in Japan

Kazuo Chin (Hwaboo Jin)

Professor, Department of Respiratory Care and Sleep Control Medicine, Graduate School of Medicine, Kyoto University.



In Japan, long-term oxygen therapy (LTOT) has been covered under Japan’s health insurance system from March 1985, tracheostomy intermittent positive pressure ventilation (TIPPV) for neuromuscular diseases (NMD) from April 1990, negative pressure ventilation (NPV) for NMD from 1992, TIPPV and NPV for NMD and the other diseases from 1994, noninvasive positive pressure ventilation (NPPV) (including adaptive servo ventilation: ASV) and continuous positive airway pressure (CPAP) from 1998. From 2018, ASV could be prescribed for patients with congestive heart failure. Recently, patients undergoing CPAP treatment have increased by 40-50 thousand each year, and more than half of these patients are under 60 years old. However, the increase in the number patients using LTOT has been very small, with more than half over 80 years old. More than 6,000 patients are undergoing TIPPV treatment in the home, with the highest prevalence among those under 20 years old. Thus, each type of mechanical ventilation being used in the home, including LTOT, involves a specific age group.

From 2018, telemedicine systems for patients using CPAP and LTOT have been permitted under the health insurance system. Since several unresolved issues exist in the LTOT telemedicine system, the number of patients in the LTOT telemedicine system is very few. We performed a randomized controlled trial of telemedicine for management of long-term sleep apnea by CPAP that enrolled more than 500 patients. Results showed that intensive telemedicine support could help to optimize CPAP adherence even after long-term CPAP use. Partially based on evidence shown in this study, the health insurance system covered telemedicine with regard to the use of CPAP treatment beginning in 2018.

The biomarker of endothelial damage in obstructive sleep apnea

莊立邦 / Li-Pang Chuang, M.D., Ph.D.

桃園長庚醫院 睡眠中心 主任
林口長庚醫學中心 胸腔內科 主治醫師
長庚大學 醫學系 助理教授



Obstructive sleep apnea (OSA) is defined as repeated episodes of obstructive apnea and hypopnea during sleep, together with symptoms of daytime sleepiness, has been proved as one of the important risk factors of cardiovascular disorders.

Increasing evidence indicate that inflammatory process plays an important role in the cardiovascular pathophysiology of OSA, and studies have demonstrated preferential activation of inflammatory pathways by intermittent hypoxia (IH). Many of the inflammatory markers associated with cardiovascular risk have been reported elevated in OSA. For example, the effects of antagonizing chemokines or blocking chemokine receptors, such as monocyte chemotaxis protein-1(MCP-1) and chemokine receptor 2(CCR2), chemokine ligand 5 (RANTES) and chemokine receptor 5(CCR5), on cardiovascular pathology have been demonstrated in various studies.

In this talk, we will discuss current evidence of IH related monocyte activation and further endothelial/ cardiovascular effect. We also discuss the further end-organ dysfunction which related to IH associated inflammation, such as proteinuria and acute kidney injury.

Non-Invasive Mechanical Ventilation in the Treatment of Sleep-Disordered Breathing

邱國樑 / Kuo-Liang Chiu, M.D., MSc

台中慈濟醫院 院長室醫務秘書兼睡眠醫學中心主任
慈濟大學醫學院 專任助理教授



Non-invasive mechanical ventilation (NIV) is commonly used to treat patients with respiratory impairment in associated with hypoxemia or hypercapnia. Patients with sleep-disordered breathing are found to have repeated nocturnal hypoxemia, which is often responsive to continuous positive airway pressure (CPAP) treatment. However, some patients with sleep-disordered breathing (SDB) fail to respond to CPAP due to high pressures or uncorrected hypercapnia. Hence, NIV may be indicated in such cases. In this talk, we will address the use of NIV in patients with SDB.

Sleep disturbance and circadian disruption in critically ill patients

李佩玲 / Pei-Lin Lee, M.D., Ph.D.

台大醫院睡眠中心主任
台灣大學醫學院內科助理教授



Sleep is controlled by the circadian system and homeostatic system of which both systems were disturbed in patients admitted to intensive care unit. The circadian disruption is common and the potential contributors include the sleep-altering medication, environment (noise, light, patient care), sleep disturbance and underlying sleep disorder, and effect of acute illness. The sleep disturbance and circadian disruption was associated with delirium and impaired organ function including respiration and immune system. That could subsequently result in higher mortality and morbidities.

Many solutions for preventing sleep disturbance and circadian disruption have been proposed. That included optimal sedation, protocol of noise reduction and adjustment of illumination, and strategy for mechanical ventilation. Despite there is no much evidence suggesting aforementioned interventions work, at least we are on the track toward the proof-of-concept exploration.

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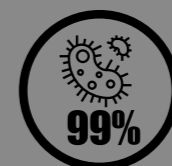
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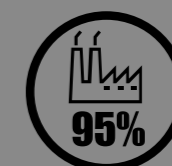
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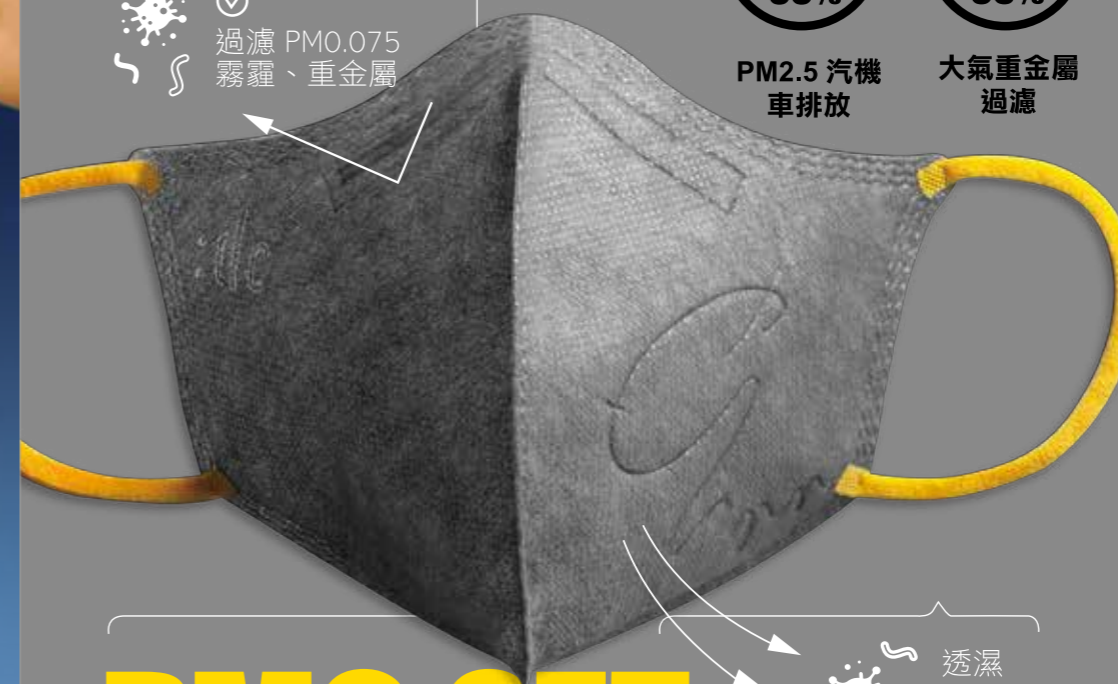
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主要成分：Ciprofloxacin。適應症：成人：對ciprofloxacin有感受性細菌所引起的呼吸道感染、中耳炎、實炎、眼感染、腎臟及泌尿道感染(包括淋病)、腹部感染(包括腸炎、腸囊炎、腹膜炎)、皮膚及軟組織感染、骨髓炎、關節感染、菌血症、吸入性炭疽病(接觸後)。小孩：大腸桿菌(Escherichia coli)引起的複雜性泌尿道感染和腎盂腎炎(1-17歲)、綠膿桿菌(P. aeruginosa)有關之纖維性纖維化產生急性肺部惡化的現象(5-17歲)。劑量與使用方法：50ml/100mg、100ml/200mg、200ml/400mg。靜脈注射。禁忌症：Ciprofloxacin不可用於對活性成分ciprofloxacin、其他quinolone類藥物或任何賦形劑會過敏的病人。禁止同時使用ciprofloxacin和tizanidine。警語及注意事項：嚴重感染和/或格蘭氏陽性或厭氧菌感染或嚴重感染、格蘭氏陽性或厭氧菌感染不適合單獨使用ciprofloxacin治療。肺炎鏈球菌感染Ciprofloxacin不建議用於肺炎鏈球菌的感染。心臟疾病Ciproxin與QT延長有關。腸胃系統在治療期或治療後有嚴重且持續性的腹瀉，可能隱藏著嚴重的抗生素相關腸炎(威脅生命的偽膜性結腸炎，有可能致命)，需停用Ciproxin並給予適當的治療。肝膽系統已有使用Ciproxin發生肝壞死和肝衰竭而危及生命的案例通報。若產生任何肝臟疾病的徵兆及症狀，應該要中斷治療。使用Ciproxin治療的患者，其轉氨酶、鹼性磷酸酶、或膽汁鬱滯性黃疸會暫時升高，特別是在之前就有肝受病的病人。肌肉骨骼系統發生利用部位之警告，本藥品具有使重症肌無力惡化之風險，具有重症肌無力患者應避免使用。神經系統Ciproxin和其它的Fluoroquinolones相似，已知會誘發癱瘓或降低癱瘓閾值。如果發生癱瘓應該中斷Ciproxin治療。Cytochrome P450 Ciprofloxacin已知是CYP 450 1A2酵素的中度抑制劑，當與其他經由此酵素代謝的藥物併用時需小心。常見藥物不良反應：噁心、腹瀉。

許可證字號：衛署藥輸字第018095號

詳細產品資訊請參考衛生福利部核准之產品說明書：Ciproxin inf. sol. 50ml/100mg, 100ml/200mg, 200ml/400mg / CCDS18 / TW07 / 072016

威洛速靜脈輸液400毫克/ 250 毫升 (Avelox Infusion Solution 400mg/250ml)
含量：每瓶/瓶250毫升無菌輸液含有相當於400毫克的moxifloxacin (as hydrochloride)適應症：用於治療成人(18歲以上)感受性細菌引起的感染症，包括：上呼吸道感染(急性鼻竇炎、慢性支氣管炎、社區性肺炎)、皮膚和軟組織的感染、複雜腹腔內感染(包括多種細菌感染)用法用量【本藥限由醫師使用】：劑量(成人)：本藥的建議劑量是一天400毫克(250毫升的輸注液)，用於上述的適應症，不可使用超過建議劑量。治療期：治療期的長短必須取決於疾病的嚴重程度或臨床反應。以下是一般治療上呼吸道感染及下呼吸道感染(包括肺炎)的建議治療期：慢性支氣管炎的急性惡化5-7天。社區性肺炎-建議治療期【先靜脈輸注而後口服】的治療期為7至14天。急性鼻竇炎-7天。皮膚和軟組織感染建議治療的療程-非複雜性：7天；複雜性：7至21天(包括注射和注射轉口服治療)。臨床中指出，可以一開始是靜脈輸注，接著改以口服錠劑治療。用於各適應症的治療期不應超過建議治療期。投與方式：此輸注液應靜脈輸注連60分鐘。本品可直接輸注或透過T-tube與其他相的輸注液一同輸注。禁忌：已知對於本藥、其他的quinolones或賦形劑過敏者。懷孕和哺乳婦女。警語及注意事項：本藥於兒童和小於18歲青少年的安全性和藥效尚未確定。動物試驗中，本藥會造成未成年動物關節病變。其他氟喹諾酮類藥物亦會造成未成年動物承受重量的關節(weight-bearing joint)軟骨病變及關節病等不良反应。本藥品具有使重症肌無力惡化之風險，具有重症肌無力之患者應避免使用。有些個案，病人在第一次服用後即有過敏反應，醫生應立即告知。某些情況下，有極少數的過敏反應案例會演變成致命性的休克，在這種情況下，必須停止使用並採取醫療措施。Avelox已知會延長某些病人心臟的QT間隔時間。女性與男性比較，傾向於有較長的基礎QTc間隔，女性可能對導致QTc延長的藥物較敏感，老年人也可能比較容易受與QT間隔有關藥物的影響。QT延長的程度可能會隨著藥物血中濃度的增加而增加，所以不可使用超過建議劑量和輸注速率(60分鐘內400mg)，然而在肺炎病人觀察到moxifloxacin的血中濃度和QTc延長無關，QT延長可能會導致增加室心室律不整(包括torsades de pointes)的危險。延緩性肝炎的案例導致肝衰竭(包括致死案例)被報導與本藥有關，假如與肝臟衰竭有關的症狀發生時，病人在停止治療前必須立即與醫師聯絡。服用quinolone時可能有癱瘓的情況發生，所以Avelox若使用在已知或懷疑有中樞神經疾病的病人，因其可能會導致癱瘓或會降低癱瘓閾值，必須多加小心。Avelox必須小心的使用在重症肌無力的病人，因為會加重症狀的惡化。Quinolone(包括moxifloxacin)治療可能發生關節發炎及斷裂，特別是老年人和同時服用皮質類固醇的病人，此類的案件曾在治療完成後的幾個月後發生。如果開始有疼痛或發炎的症狀，必須停止藥物治療並且接受影響的四肢休息。對於患有複雜性盆腔炎(例如輸卵管或盆腔膿腫)必需接受靜脈治療的患者，不建議使用400mg口服錠劑治療。Moxifloxacin不建議治療MRSA的感染。疑似或確定感染MRSA病患，應先使用其他適當的抗菌劑來治療。在體外，moxifloxacin可能會抑制Mycobacterium spp.的生長，所以正在接受Avelox治療的病患可能會呈現假陰性的檢測報告。精神反應甚至可能會出現在病患第一次服用fluoroquinolones(包括moxifloxacin)時。由於具有抗fluoroquinolones的Neisseria gonorrhoeae感染極為普遍並且日益增多，除非排除fluoroquinolone-resistant N. gonorrhoeae的感染，患有梅毒的病患應避免接受moxifloxacin的單一治療。如果無法排除感染fluoroquinolone-resistant N. gonorrhoeae的可能性，應考慮加上一般能對N. gonorrhoeae有活性的抗生素(例如頭孢菌素)。血糖異常。常見藥物不良反應：嚴重重複感染、頭痛、暈眩、伴有低血鈣病人的QT間隔延長、噁心、嘔吐、胃腸道和腹部疼痛、腹瀉、轉氨酶升高、注射和輸注部位反應。

許可證字號：衛署藥輸字第023712號

詳細產品資訊請參考衛生福利部核准之產品說明書：Avelox Infusion Solution 400mg/250ml / CCDS 21 / TW / 13 / 122015

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Seretide 50 Evohaler 南藥藥輸字第 023480 號
Seretide 125 Evohaler 南藥藥輸字第 023482 號
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-建議劑量:

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成人及十二歲以上之青少年: 每日兩次, 每次吸一單位劑量。使肺泰100準納乾粉吸入劑:
四歲以上之兒童: 每日兩次, 每次吸一下 (50 mcg Salmeterol 及 100 mcg fluticasone propionate)*
-使肺泰50/125/250準納乾粉吸入劑:
成人及十二歲以上之青少年: 每日兩次, 每次吸二單位劑量。使肺泰50準納乾粉吸入劑:
四歲以上之兒童: 每日兩次, 每次吸二下 (25 mcg Salmeterol 及 50 mcg fluticasone propionate)*
目前還沒有四歲以下幼兒使用SERETIDE的資料。
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-成分:

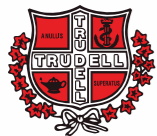
使肺泰準納乾粉吸入劑
50 mcg Salmeterol (as xinafoate) 及 100/250/500 mcg fluticasone propionate
使肺泰優氣吸入劑:
25 mcg Salmeterol (as xinafoate) 及 50/125/250 mcg fluticasone propionate
-禁忌症: 禁止使用於對本劑任何一種成分有過敏史之患者
-注意事項: 甲狀腺毒症、低血鉀或糖尿病的患者使用前需事先告知醫師
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警語: 可能出現頭痛,關節痛或口腔及喉嚨念珠菌病等副作用

參考文獻 1. Salmeterol-Fluticasone propionate全球資料表: v35, 2018年4月。

TW/SFC/0005/18a Feb 2019

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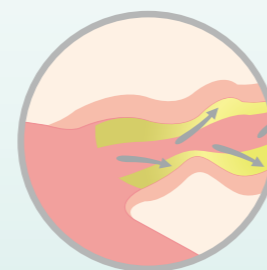
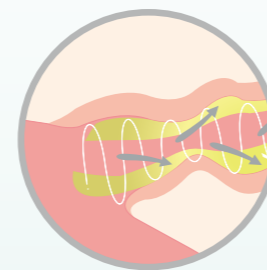
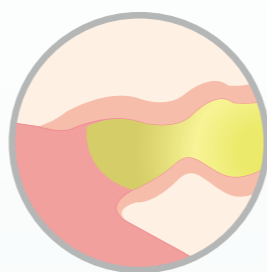
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【Young Investigator Award】演講 8 分鐘，討論 2 分鐘

Chien-Hua Tseng MD 曾健華醫師 衛生福利部雙和醫院

The Relationship Between Air Pollution and Lung Cancer in Nonsmokers in Taiwan

Chien-Hua Tseng, MD,^{a,b} Ben-Jei Tsuang, PhD,^c Chun-Ju Chiang, PhD,^{b,d} Kai-Chen Ku,^c Jeng-Sen Tseng, MD, PhD,^{e,f} Tsung-Ying Yang, MD, PhD,^{e,f} Kuo-Hsuan Hsu, MD,^{e,g} Kun-Chieh Chen, MD, PhD,^e Sung-Liang Yu, PhD,^h Wen-Chung Lee, PhD,^{b,d} Tsang-Wu Liu, MD, PhD,ⁱ Chang-Chuan Chan, ScD,^j Gee-Chen Chang, MD, PhD^{e,f,k,*}

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ABSTRACT

Introduction: For never-smokers (smoked <100 lifetime cigarettes), lung cancer (LC) has emerged as an important issue. We aimed to investigate the effects of prevalence changes in tobacco smoking and particulate matter (PM) 2.5 (PM2.5) levels on LC in Taiwan, in relation to contrasting PM2.5 levels, between Northern Taiwan (NT) and Southern Taiwan (ST).
Methods: We reviewed 371,084 patients with LC to assess smoking prevalence and correlations between the incidence of adenocarcinoma lung cancer (AdLC) and non-AdLC. Two subsets were selected to assess different AdLC stage trends and the effect of PM2.5 on survival of patients with AdLC.
Results: From 1995 to 2015, the proportion of male adult ever-smokers decreased from 59.4% to 29.9% whereas the female smoking rate remained low (3.2% to 5.3%). AdLC incidence in males and females increased from 9.06 to 23.25 and 7.05 to 24.22 per 100,000 population, respectively. Since 1993, atmospheric visibility in NT improved (from 7.6 to 11.5 km), but deteriorated in ST (from 16.3 to 4.2 km). The annual percent change in AdLC stages IB to IV was 0.3% since 2009 (95% confidence interval [CI]: -1.9%–2.6%) in NT, and 4.6% since 2007 (95% CI: 3.3%–5.8%) in ST; 53% patients with LC had never smoked. Five-year survival rates for never-smokers, those with EGFR wildtype genes, and female patients with AdLC were 12.6% in NT and 4.5% in ST (hazard ratio: 0.79, 95% CI: 0.70–0.90).
Conclusions: In Taiwan, greater than 50% of patients with LC had never smoked. PM2.5 level changes can affect AdLC incidence and patient survival.

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Keywords: smoking; air pollution; particulate matter; lung adenocarcinoma; population attributable fractions

【Young Investigator Award】演講 8 分鐘，討論 2 分鐘

Yen-Ting Lin MD 林彥廷醫師 國立台灣大學醫學院附設醫院

Clinical outcomes and secondary epidermal growth factor receptor (EGFR) T790M mutation among first-line gefitinib, erlotinib and afatinib-treated non-small cell lung cancer patients with activating EGFR mutations

Yen-Ting Lin ^{1,2}, Jin-Shing Chen³, Wei-Yu Liao², Chao-Chi Ho², Chia-Lin Hsu², Ching-Yao Yang², Kuan-Yu Chen², Jih-Hsiang Lee⁴, Zhong-Zhe Lin ⁵, Jin-Yuan Shih², James Chih-Hsin Yang^{5,6} and Chong-Jen Yu ²
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ABSTRACT

Gefitinib, erlotinib and afatinib are approved for first-line treatment of advanced non-small cell lung cancer (NSCLC) bearing an activating epidermal growth factor receptor (EGFR) mutation. However, the clinical outcomes among the three EGFR tyrosine kinase inhibitors (TKIs) are still controversial. We aimed to evaluate clinical outcomes and secondary EGFR T790M mutation among the three EGFR TKIs. From May 2014 to January 2016, a total of 301 patients received treatment with gefitinib, erlotinib or afatinib, for first-line treatment of advanced NSCLC with an activating EGFR mutation, based on their clinicians’ choice. The median overall survival (OS) was 37.0 months. Although the baseline characteristics of patients were unequal, progression-free survival and OS did not differ among the 3 groups. Multivariate analysis found that gefitinib (adjusted odds ratio [aOR] 3.29, 95% confidence interval [CI], 1.15–9.46, p = 0.027), EGFR TKI treatment duration more than 13 months (aOR 3.16, 95% CI, 1.20–8.33, p = 0.020), male (aOR 3.25, 95% CI, 1.10–9.66, p = 0.034), initial liver metastasis (aOR 4.97, 95% CI 1.18–20.96, p = 0.029) and uncommon EGFR mutation (aOR 0.14, 95% CI, 0.02–0.97, compared to EGFR deletion 19, p = 0.047) were independent factors for secondary T790M mutation. In real-world practice, choosing first line EGFR TKI based on the patients’ clinical characteristics yielded good clinical outcomes. First-line gefitinib, longer EGFR TKI treatment duration, male, initial liver metastasis and uncommon EGFR mutations may be independent factors for secondary EGFR T790M mutation.

Keywords: EGFR mutation, EGFR TKI, T790M, uncommon EGFR mutation, NSCLC

【Young Investigator Award】演講 8 分鐘，討論 2 分鐘

Hwa-Yen Chiu MD 邱華彥醫師 台北榮民總醫院

Small Airway Dysfunction by Impulse Oscillometry in Symptomatic Patients with Preserved Pulmonary Function

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ABSTRACT

BACKGROUND: Asthma and chronic obstructive pulmonary disease are characterized by persistent airway inflammation and airflow limitation. Early detection of these diseases in patients with respiratory symptoms and preserved pulmonary function (PPF) defined by spirometry is difficult. Impulse oscillometry (IOS) may have better sensitivity than effort-dependent forced expiratory flow between 25% and 75% (FEF25%-75%) to detect small airway dysfunction (SAD).

OBJECTIVE: To identify SAD in patients with respiratory symptoms and PPF using IOS.

METHODS: Medical records of symptomatic patients without acute or known structural lung diseases were evaluated. Patients had bronchodilator testing and IOS in the outpatient clinic between March 1 and July 31, 2017. Correlations between respiratory symptoms, spirometry, and IOS parameters were determined.

RESULTS: Among 349 patients enrolled to the study, 255 (73.1%) patients met the criteria of PPF. The IOS parameters— difference in resistance at 5 Hz and resistance at 20 Hz , reactance at 5 Hz, resonant frequency (Fres), and area under reactance curve between 5 Hz and resonant frequency—were significantly correlated with FEF25%-75%. The cutoffs for SAD were difference in resistance at 5 Hz and resistance at 20 Hz greater than 0.07 kPa/(L/s), reactance at 5 Hz less than L0.12 kPa/(L/s), Fres greater than 14.14 Hz, and area under reactance curve between 5 Hz and resonant frequency greater than 0.44 kPa/L. Of the IOS parameters, Fres and reactance at 5 Hz had the highest sensitivity and specificity. When compared with FEF25%- 75%, Fres had greater sensitivity to detect SAD in patients with PPF. Patients with IOS-defined SAD had a significantly higher incidence of wheeze or sputum production than did those defined by FEF25%-75%.

CONCLUSIONS: Patients with respiratory symptoms and PPF may have SAD, which can be identified with the aid of IOS in addition to spirometry. ©2019 American Academy of Allergy, Asthma & Immunology (J Allergy Clin Immunol Pract 2019;■:■-■)

Keywords: Small airway dysfunction; Forced expiratory flow; Impulse oscillometry; Spirometry; Preserved pulmonary function

「胸腔醫學雜誌」
優秀論文獎

【胸腔醫學雜誌】優秀論文獎第一名

Ko-Wei Chang MD 張克威醫師 林口長庚紀念醫院

Survival Predictors in Oldest-Old (≥85 Years Old) Patients with
Acute Respiratory Distress Syndrome: A Prospective Observational
Cohort Study

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ABSTRACT

Introduction: Acute respiratory distress syndrome (ARDS) is a high-mortality condition in the intensive care unit. Older patients can require more time and attention in the hospital, especially in intensive care. In this study, we focus on the oldest-old (more than 85 years old) ARDS patients, with the aim of investigating survival predictors in this group.
Patients and Methods: In this prospective observational cohort study, we focused on patients who were admitted to our hospital’s intensive care units with the diagnosis of ARDS between October 2012 and May 2015. Demographic, comorbidity, severity, lung mechanics, and laboratory data and survival outcomes were collected and analyzed.
Results: A total of 463 (49%) of 945 patients with ARDS were ≥65 years old. Eighty of these elderly patients with ARDS were ≥85 years old. The overall hospital mortality rate was 60% (48/80). The hospital survivors had lower Sequential Organ Failure Assessment (SOFA) scores (7.9 vs. 9.6, p=0.021), higher platelet counts (208.7±78.2×103/μL vs. 141.5±80.2×103/ μL, p<0.001), higher albumin levels (2.7±0.4 g/dL vs. 2.4±0.6 g/dL, p=0.016) and lower blood urea nitrogen levels (33.4±16.4 mg/dL vs. 52.8±38.5 mg/dL, p=0.003) than the non-survivors. Multivariate logistic regression analysis found that only albumin level (odds ratio, 0.20; 95% confidence interval, 0.05-0.88, p=0.003) was significantly and independently associated with hospital mortality.
Conclusions: The oldest-old ARDS patients had high hospital mortality, and the most important survival predictor was serum albumin level. (Thorac Med 2018; 33: 221-229)

Keywords: oldest-old, acute respiratory distress syndrome, SOFA score, albumin

【胸腔醫學雜誌】優秀論文獎第二名

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Driving Pressure Greater than 14 cmH2O is Associated with
Increased Mortality When Tidal Volume is Less than 8 ml/kg in
Sepsis Patients with Acute Respiratory Failure

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ABSTRACT

Background: Driving pressure is associated with outcome in acute respiratory distress syndrome patients; it can be determined by both ventilator setting and lung compliance. In order to clarify this, we conducted a retrospective analysis to determine the relationship between tidal volume setting, driving pressure and patient outcome.
Materials and Methods: This was a retrospective analysis of prospectively acquired data from an intensive care unit of a tertiary referral hospital in central Taiwan. Patients with respiratory failure needing invasive mechanical ventilation due to sepsis, from April 2008 to November 2009, were included for analysis.
Results: A total of 220 patients were included for analysis. The median age of these patients was 76 years, and they had a mean Acute Physiology and Chronic Health Evaluation II score of 25.0±6.5. The hospital mortality rate was 39.1%. Driving pressure at 8 hours after intensive care unit admission (driving pressure-8) greater than 14 cmH2O was associated with an increased risk of hospital mortality. Also, in a multivariate logistical regressionanalysis, driving pressure-8 was an independent risk factor for mortality. Patients with driving pressure-8 greater than 14 cmH2O while ventilated, with a tidal volume less than 8 ml/kg of predicted body weight, had the highest risk of hospital mortality.
Conclusion: Driving pressure is a valuable predictor of hospital mortality in septic patients with acute respiratory failure needing mechanical ventilation. Those patients with a higher driving pressure while ventilated with a lower tidal volume were at an increased risk of hospital mortality. (Thorac Med 2019; 34: 92-102)

Keywords: acute respiratory failure, driving pressure, tidal volume, sepsis

【胸腔醫學雜誌】優秀論文獎第三名

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Analyzing Characteristics Associated with Symptomatic Sleep Disturbance in COPD Patients

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ABSTRACT

Introduction: Sleep disturbance, characterized by difficulty of falling asleep, interrupted sleep, and feeling unrefreshed upon waking, may compromise a patient’s quality of life and survival rate. Cough and shortness of breath are the most frequent symptoms in chronic obstructive pulmonary disease (COPD) patients. However, symptomatic sleep disturbance is not clearly defined. Our study aimed to identify characteristics that correlate with symptomatic sleep disturbance in COPD patients in Taiwan.

Methods: This was a cross-sectional study conducted between 2011 and 2012. We successfully recruited 180 COPD patients over 40 years of age. Each participant had to fill out a questionnaire to determine whether they had symptomatic sleep disruption due to cough and difficulty breathing. Analysis parameters included the participants’ demographics, acute exacerbation (AE), comorbidities, COPD Assessment Test (CAT) scores, and lung function test results.

Results: The mean age and body mass index of all patients were 71.7 years and 22.8 kg/m2, respectively. The prevalence of symptomatic sleep disturbances among the COPD patients was 28.9% (52/180). Those with symptomatic sleep disturbances also had significantly higher CAT scores (15.9 ± 10.5 vs. 9.5 ± 7.0 , $p < 0.01$) and AE occurrence (52.0% vs. 29.8%, $p < 0.05$) than those without sleep disturbances. Multivariable analysis revealed that the CAT score (odds ratio, 1.1, 95% confidence interval, 1.1-1.2) was an independent factor significantly associated with symptomatic sleep disturbance.

Conclusions: Symptomatic sleep disturbances occurred in 28.9% of COPD patients. The CAT score was correlated with self-reported symptomatic sleep disturbances in COPD patients and can be used as a predictor for symptomatic sleep disturbance. (Thorac Med 2019; 34: 139-147)

Keywords: Key words: chronic obstructive pulmonary disease (COPD), sleep disturbance, COPD assessment test (CAT)

優秀學術論文
摘要

Intervention Bronchoscopy

Diagnosis

Thoracic Oncology

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☒ 口頭報告 (Oral Presentation) ☐ 海報競賽 (Post)

OA01

合併使用錐狀束電腦斷層衍生之強化螢光透視檢查及支氣管內超音波及導引鞘，針對周邊型肺病灶施行切片生檢之成效。

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Cone beam CT-derived augmented fluoroscopy (CBCT-AF) combined with endobronchial ultrasonography-guide sheath (EBUS-GS) for biopsy of peripheral lung lesions

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Purpose: Tissue proof for peripheral lung lesions with assistance of radial endobronchial ultrasonography with guide sheath (EBUS-GS) is safe and with less complication than transthoracic biopsy, but diagnostic yield is still challenging without navigation system. The goal of this study is to evaluate the efficacy and safety of conventional bronchoscopy with combined EBUS-GS and cone beam CT-derived augmented fluoroscopy (CBCT-AF) for peripheral lung lesions.

Materials and Methods: Between October 2018 and June 2019, consecutive 47 patients with 49 peripheral lung lesions underwent transbronchial biopsy guided by CBCT-AF and EBUS-GS. Patients underwent CBCT imaging in the inspiration phase of tidal breathing during a single breath-hold. The target lesion was annotated by using annotation software (syngo iGuide Toolbox, Siemens). The annotated markers were then projected and fused with the live fluoroscopy, enabling real-time 3-dimensional guidance during performing bronchoscopy with EBUS-GS. The feasibility and safety of the procedure were assessed.

Results: The median size of nodules was 21 mm [interquartile range (IQR) 12.0 mm]. All nodules were identifiable on CBCT images and annotated for augmented fluoroscopy. The median bronchoscopy duration was 21.0 min (IQR 13.0 min), and the median fluoroscopy duration was 2.2 min (IQR 1.9 min). The median radiation exposure (expressed with dose area product) was 1630.2 μGym² (IQR 737.6 μGym²). The diagnostic yield was 71.4% (95% confidence interval, 58.7% - 84.1%). Multivariate regression analysis showed no independent correlation between lesion size, lesion location, lesion visibility under standard fluoroscopy, and the presence of a bronchus sign with diagnostic yield. Pneumothorax occurred in 1 patient (2.1%).

Conclusions: For patient with peripheral lung lesions, tissue proof of bronchoscope with combined CBCT-AF and EBUS-GS was safely conducted with satisfactory diagnostic yield in our initial experience. Further randomized clinical trial is necessary to verify the applicability.

- A. ☒ 原著論文 (Original Paper)

B. ☒ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☐ 海報競賽 (Post)

OA02

以 Osimertinib 治療具有繼發性 T790M 突變之非小細胞肺癌效果的影响因素

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Factors Associated with Osimertinib Effectiveness in Advanced Non-small Cell Lung Cancer with Acquired T790M Mutation

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Objectives: Osimertinib is active against epidermal growth factor receptor (EGFR) T790M-mutated non-small cell lung cancer (NSCLC). However, factors associated with osimertinib effectiveness are still unclear.

Materials and Methods: We enrolled advanced NSCLC patients with EGFR exon 19 deletion, L858R and uncommon EGFR tyrosine kinase inhibitor (TKI)-sensitive mutation (G719X, L861Q and exon 19 insertion) who received osimertinib after acquiring T790M. A total of 177 patients were analyzed retrospectively to identify factors associated with osimertinib progression-free survival (PFS) and overall survival (OS).

Results: The median PFS and OS of osimertinib were 12.0 and 31.8 months respectively. Patients received longer EGFR TKI treatment prior to osimertinib had a longer PFS (median, 15.4 and 9.3 months, $p = 0.013$). The PFS among patients with EGFR exon 19 deletion, L858R and uncommon EGFR TKI-sensitive mutation were not different significantly ($p = 0.54$). Multivariate Cox regression analysis found prior EGFR TKI treatment duration (adjusted hazard ratio [aHR] 0.98; $p = 0.001$, for every month of EGFR TKI treatment prior to osimertinib), Eastern Cooperative Oncology Group (ECOG) scale ≥ 2 prior to osimertinib (aHR 1.96; $p = 0.002$) and more prior anticancer therapies (aHR 1.09; $p = 0.027$ for every additional line) were independent factors for PFS. Prior EGFR TKI treatment duration (aHR 0.97; $p = 0.001$ for every month of EGFR TKI treatment prior to osimertinib), and ECOG scale ≥ 2 prior to osimertinib (aHR 2.92; $p < 0.001$) were independent factors for OS.

Conclusion: Prior EGFR TKI treatment duration, ECOG scale ≥ 2 , and more prior anticancer therapies may be associated with osimertinib effectiveness.

- A. ☒ 原著論文 (Original Paper)

B. ☒ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☐ 海報競賽 (Post)

OA03

嘉義縣肺癌篩檢計畫

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Lung cancer screening program in Chiayi county

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Purpose: Lung cancer is the leading cause of cancer death for more than a decade in Taiwan. The incidence and mortality of lung cancer are above average in Chiayi County, especially the Yizhu and Budai Townships.

Materials and Methods: We hence conducted a 2-year study to screening the defined high-risk groups, including heavy smokers, those exposed to environmental tobacco smoke and cooking, and those with a family history of lung cancer. We cooperated with Chiayi County Government and got support from the Chang Gung Medical Foundation after obtaining IRB approval.

Residents were screened with simple questions by the nurse staff of Public Health Centers in the two townships. Selected ones were asked to take a questionnaire for verification. Those who passed the questionnaire were then further screened with CxR. Only those without identifiable lung nodule/mass were eligible for low-dose CT (LDCT) screening program.

Results: From Nov 2016 to Nov 2018, 1374 residents were screened by Public Health Nurses and got 1131 (82.3%). After further verification, total 847 were eligible for LDCT. 355 were male (41.9%) and 492 were female, and 267 were smokers/ex-smoker (31.5%) and 580 were never smokers. Finally, 11 were proved to have lung cancer (13.0‰, 11/847)., all adenocarcinoma. 1 in 267 (3.7‰, 1/267) and 2 in 78 (25.6‰, 2/78) never smoker but having a family history of lung cancer. For gender difference, 3 were male (8.4‰, 3/355) and 8 were female (16.3‰, 8/492).

Conclusions: During this 2-year screening, 11 (13.0‰, 11/847) were found to have lung cancer. Among them, the incidence was much higher in female and those having a family history of lung cancer, 16.3‰ and 25.6‰, respectively.

- A. ☒ 原著論文 (Original Paper)

B. ☒ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☐ 海報競賽 (Post)
- OA04

肋膜腔鏡合併使用冷凍切片或單獨使用切片夾切片在診斷滲出性肋膜積水病患之比較

張哲嘉, 黃舒儀, 林玠模, 李威諱, 謝孟哲
嘉義長庚胸腔內科

Combined pleural cryobiopsy compared with forceps biopsy alone during semirigid pleuroscope in subjects with exudative pleural effusion

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Purpose: We aimed to compare diagnostic yield, sample size, procedure time, rate of complication between combined with pleural cryobiopsy and forceps biopsy alone during semirigid pleuroscope examination for diagnosing exudative pleural effusion.

Materials and Methods: A single center, retrospective study. We analyzed data of patients underwent semirigid pleurosocpe for undiagnosed exudative pleural effusion or rebiopsy for malignant pleural effusion between May 2016 and September 2019. All patients received procedural sedation. The flexible forceps biopsy over parietal pleura were performed for every patient. Combined using cryobiopsy by 2.4mm cryoprobe was performed in all patients after May 2018.

Results: Ninety-eight patients (median age 70.5 years) underwent pleuroscopy for exudative pleural effusion were included, forty (40.8%) of whom are female. Forty-one patents received pleurosocpy combined with cryobiopsy and 57 patients using forceps biopsy alone. Diagnostic yield was 97.5% with cryobiopsy and 92.9% with forceps biopsy alone. The average specimen size was slightly larger in cryobiospy (63.0±52.5; range 16 to 224 mm²) compared with forceps group (46.2±69.7; range 1.6 to 390 mm²), but non statistical significance (p=0.181). The procedure time was shorter when combine using cryobiopsy compared with forceps biopsy alone (26.9 ± 6.0 mins vs 30.1 ± 7.0 mins, p=0.02). There was no major complication or procedure related death. Minor complication as mild subcutaneous emphysema, pain and minor bleeding showed no significant different between using cryobiopsy or not.

Conclusions: Combined pleural cryobiopsy could shorten the procedure time of semirigid pleuraoscope. Pleural cryobiopsy was safe and having very high diagnostic yield for exudative pleural effusion.

- A. ☒ 原著論文 (Original Paper)

B. ☒ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☐ 海報競賽 (Post)
- OA05

探討經 EBUS-TBNA 取得之肺腺癌組織檢體與經針洗滌細胞液的高一致性

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The high concordance of EGFR mutation status between tissue and needle washed fluid which was obtained from EBUS-TBNA for advanced lung adenocarcinoma

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Introduction: Endobronchial ultrasound and transbronchial needle aspiration(EBUS-TBNA) which was known as a safe and effective procedure had played an important role in the diagnosis of lung cancer and obtaining cancer tissue for EGFR mutation test. However, the difference of EGFR(epidermal growth factor receptor) mutation result between tissue and needle washed fluid(NWF) which were both obtained by EBUS-TBNA had not been discussed.

Materials and methods: Patients with lung adenocarcinoma who were performed EBUS-TBNA were enrolled. We retrospectively to compare the result of EGFR test in the tissue and NWF which obtained from the EBUS-TBNA.

Results: There were 42 patients with 57 nodules/mass whom enrolled undergone EBUS-TBNA for tissue proof and all the pathological report revealed lung adenocarcinoma. Five of these patient was undergone re-biopsy due to failure of TKI therapy(n=5, 11.90%). The mean age of these patients were 64.81 years old. The number of female patient was 21(50%). Of these patient, most were diagnosed as stage IV lung cancer(n=37, 88.09%). Both tissue sample and washed fluid cytology were sent for testing EGFR mutation. The deletion of exon 19 contributed most result which showed positive of EGFR mutation(n=13, 30.95%) as 14 of the report showed negative of mutation(n=14, 33.33%). The concordance of EGFR mutation test between tissue and washed fluid cytology was 92.86%(n=39). No complications were found from the use of IU in any of our 42 patients.

Conclusion: EBUS-TBNA is one of the most important procedures to diagnose lung mass and mediastinal mass/lymphadenopathy. NWF form EBUS-TBNA is also a useful material to be performed EGFR test.

- A. ☒ 原著論文 (Original Paper)

B. ☒ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☐ 海報競賽 (Post)

OA06

肺腺癌合併神經內分泌細胞分化:病例系列研究

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Lung adenocarcinoma with neuroendocrine differentiation: A case series study

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Background: Adenocarcinoma is the most common type of lung cancer. However, lung adenocarcinoma with neuroendocrine differentiation is uncommon. The clinical features and optimal treatments for this type of lung cancer remains unclear.

Materials and Methods: From 2000 to 2016, 14852 patients with a diagnosis of lung cancer were screened from Cancer Registry, Cancer Administration and Coordination Center, National Taiwan University Hospital. Those with a pathologic diagnosis of lung adenocarcinoma with neuroendocrine differentiation were included. The medical records were reviewed and analyzed, including demographic, treatments, and survival data.

Results: Six patients were included. The mean age was 78.8 years-old (rang 72-89 years old). All patients were male and five were ever smokers. All patients had positive synaptophysin stain and three had positive for chromogranin. Three patients had *EGFR* mutation testing, which showed all wild type *EGFR*. One patient had positive ALK translocation. Two patients had stage I disease and underwent wedge resection for the tumor, whereas neither of them had recurrence. The other four had stage IV disease. Among them, one received pemetrexed plus carboplatin, another was treated with gefitinib, and the other two received radiotherapy who did not received chemotherapy due to frailty. The patient received chemotherapy is still alive with a follow-up period of 1395 days after stage IV cancer was established. The other three had an overall survival of 1401, 730, and 225 days, respectively.

Conclusion: Lung adenocarcinoma with neuroendocrine differentiation is a very rare subtype of lung cancer. The outcomes varied with different treatments. Further prospective large-scale studies are warranted.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PA01

由胸腔科醫生進行快速細胞學檢查提高支氣管內視鏡超音波導引經支氣管切片的準確率

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臺大醫院內科部；臺大新竹分院內科部；臺大醫院檢驗醫學部

Rapid On-site Cytologic Evaluation by Pulmonologist Improved Diagnostic Accuracy of Endobronchial Ultrasound-Guided Transbronchial Biopsy

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Purpose: The purposes of this study were to verify that a pulmonologist, after receiving training in cytology, could accurately assess an EBUS-TBB specimen on-site, and to evaluate the contribution of ROSE to EBUS-TBB.

Materials and Methods: A retrospective chart review of patients who underwent EBUS-TBB for diagnosis of peripheral pulmonary lesions (PPLs) from January 2014 to June 2017 was performed. PPLs without a malignant diagnosis were excluded. The ROSE result determined by a pulmonologist was compared to the formal imprint cytologic report and pathologic report. The diagnostic accuracy of EBUS-TBB was also compared between those with and without ROSE.

Results: Two hundred ninety-three patients who underwent 336 EBUS-TBB procedures for PPL diagnosis and were found to have proven malignancy were enrolled. Eighty-six procedures were performed with ROSE. With the formal imprint cytologic diagnosis as the gold standard, ROSE had 96.9% sensitivity, 68.2% specificity, 89.9% positive predictive value (PPV), 88.2% negative predictive value (NPV), and 89.5% diagnostic accuracy. With the formal pathologic result as the gold standard, the sensitivity, specificity, PPV, NPV and diagnostic accuracy of ROSE were 88.2%, 80%, 97.1%, 47.1% and 87.2%, respectively. The diagnostic accuracy was significantly higher when ROSE was performed during EBUS-TBB (88.4% vs 68.0%, $P < 0.001$).

Conclusions: A trained pulmonologist can interpret adequately cytologic smears on-site and effectively improve the accuracy of EBUS-TBB in the diagnosis of PPLs.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA02

比較支氣管內視鏡超音波以及正子攝影在幫助肺癌分期的差別

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Comparison between endobronchial ultrasound-guided transbronchial needle aspiration and positron emission tomography for mediastinal staging in patients with lung cancer

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Purpose: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) has a high diagnostic value for mediastinal staging in patients with lung cancer. This retrospective study is comparison between EBUS-TBNA and positron emission tomography (PET) utility for lung cancer stage and determined the characteristics of false negatives and false positives in PET scan.

Materials and Methods: 147 Patients who received both EBUS-TBNA and FDG-PET for the diagnosis of preoperative lymph node were retrospectively investigated from 2008-01 to 2018-12 at China medical university hospital. We compared the diagnostic performance of these two modalities. In addition, pathological findings of the biopsied sample were evaluated precisely and compared with the results of PET.

Results: The sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of EBUS in detecting nodal metastasis were 95.2%, 100%, 100% and 9.3% whereas those of PET were 75.4%, 53.7%, 56.3%, 73.3% respectively. The multivariate analysis indicated age > 65 years old (p=0.009), non-adenocarcinoma (p<0.008), and history of tuberculosis infection as risk factors for false positive uptake in PET scan and diabetes (p=0.002), non-adenocarcinoma (p=0.048), and SUVmax of lymph node < 4.0 (p=0.041) as risk factors for false negative uptake in PET scan.

Conclusions: The diagnostic yield of EBUS-TBNA is higher than that of PET for mediastinal staging in patients with lung cancer. EBUS-TBNA should be performed if patient was age > 65 years old, non-adenocarcinoma, and history of tuberculosis infection due to high risk factors for false positive uptake in PET scan and also need to perform if patient with diabetes, non-adenocarcinoma, and SUVmax of lymph node < 4.0 due to high risk factors for false negative uptake in PET scan.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA03

惡性中央氣道阻塞導致急性呼吸衰竭經支架置放術後能順利拔管的預後因子

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The predictors of liberation from mechanical ventilation in patients with acute respiratory failure due to malignant central airway obstruction after metallic airway stenting using flexible bronchoscopy

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Purpose: Patients with malignant central airway obstruction (CAO) can be life-threatening and often require emergency intubation and mechanical ventilation. The insertion of self-expandable metallic stents with bronchoscopy can facilitate rapid extubation or weaning from mechanical ventilation (MV). The purpose of this study was to determine the factors predicting weaning from MV in patients with acute respiratory failure due to malignant CAO.

Materials and Methods: We conducted a retrospective study at a university hospital from January 2008 to December 2017. A total of 87 patients in the intensive care unit had acute respiratory failure due to malignant CAO during this period and required intubation and MV. These patients underwent flexible bronchoscopy with electrosurgery or stent implantation under bronchoscopic visualization and local anesthesia in the intensive care unit without fluoroscopic guidance throughout the procedure.

Results: Of the 87 patients, 40 had lung cancer, 39 had esophageal cancer, and 8 had other types of malignancy. The patients were divided into two groups based on liberation from MV: successful group and failed group. There were significant differences in baseline characteristics including fraction of inspired oxygen (FiO2), presence of pneumonia, size of the tumor around the airway, acute lobar or total lung collapse, and C-reactive protein between the two groups. After univariate and multivariate analyses, FiO2 > 40%, presence of pneumonia, and size of the tumor around the airway > 3.8 cm were negative predictors of liberation from MV. However, acute lobar or total lung collapse was a positive predictor of weaning from MV.

Conclusions: The insertion of self-expandable metallic stents with flexible bronchoscopy facilitated liberation from MV in the patients with acute respiratory failure due to malignant CAO. It may be difficult to wean patients from MV if they have pneumonia, FiO2 > 40%, and a tumor > 3.8 cm around the airway before the procedure. In contrast, acute lobar or total lung collapse was a positive predictor of weaning from MV.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA04

肋膜腔鏡冷凍活檢相較傳統活檢鉗的可行性及安全性：系統性回顧及統合分析

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Feasibility and Safety of Pleuroscopic Cryobiopsy of the Pleura Compared to Forceps Biopsy: a systemic review and meta-analysis

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Background:

Semirigid pleuroscope has good sensitivity (91%) and specificity (100%) in the diagnosis of exudative pleural effusions. However, the obtained biopsy samples by Semirigid pleuroscope are small and insufficient depth. Several studies indicated that Cryobiopsy during pleuroscope is not only safe for obtaining pleural biopsies but also the tissue obtained is larger in size, demonstrates preserved cellular architecture, and has a better diagnostic yield in the diagnosis of exudative pleural effusion. The present meta-analysis aimed to evaluate the feasibility and safety of pleuroscopic cryobiopsy of the pleura compared to forceps biopsy.

Methods:

A systemic search of studies on pleuroscopic cryobiopsy was conducted mainly in PubMed, Medline, Embase and scopus. The standardized mean difference (SMD) of cryobiopsy (CB) sample size versus forceps biopsy (FB) was the primary outcome, whereas the odds ratio of diagnostic yield and artifact-free sample of CB versus FB comprised the secondary outcome.

Results:

The meta-analysis included one randomized controlled trail, four prospective comparative studies, and three retrospective comparative studies compromising 414 patients in total. The CB biopsies were significantly larger than FB biopsies. (SMD: 0.867; 95% confidence level [CI]: 0.427 to 1.308; p < 0.001). The pooled odds ratio of diagnostic yield and artifact-free sample in the CB biopsies compared with the FB biopsies were 1.27 (95% CI:0.718-2.253) and 6.71 (95% CI:1.38-32.7), indicating more artifact-free sampled tissue and no inferior diagnostic yield in the CB group compared with FB group. There was no significant differences in the severity of bleeding from these studies.

Conclusion:

CB in medical thoracoscopy are feasibility and safe with high diagnostic yield, non-inferior FB with increased tissue size and quality.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA05

利用氣管鏡超音波的淋巴結特徵區分類肉瘤及結核性淋巴結和惡性淋巴節

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Identification of specific EBUS-TBNA sonographic characteristics for differentiating sarcoidosis from tuberculosis and malignant lymphadenopathy

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Objective

We hypothesized that specific sonographic features on endobronchial ultrasonography (EBUS) may differentiate sarcoidosis from other lymph nodes. In current study, the sonographic features of sarcoidosis, malignant and tuberculosis lymph nodes were compared.

Methods

We conducted a retrospective observational study to analyze the patients with intrathoracic lymphadenopathy who underwent EBUS-guided transbronchial needle aspiration (TBNA).

Sonographic features such as nodal size, margin, echogenicity, and presence or absence of calcification, a central hilar structure, coagulation necrosis sign, intranodular vascularity, and nodal conglomeration were recorded and compared in the 3 groups.

Results:

During the study period, a diagnosis of tuberculosis (n=15), sarcoidosis

(n=56), and malignant lymph node (n=19) was made in 90 patients by EBUS-TBNA.

Presence of nodal conglomeration (94.6% versus 60.0% versus 5.3 %, P<0.001), the presence of intranodular vascularity (55.4% versus 13.3% versus 15.8%, P=0.002) and distinct margin (73.2% versus 13.3% versus 47.4%, P<0.001) were significantly higher in sarcoidosis than in tuberculosis lymphadenopathy and malignant lymph node. The presence of coagulation necrosis sign (8.9% versus 93.3 % versus 31.6 %, P<0.001) were significantly lower in sarcoidosis than in tuberculosis lymphadenopathy and malignant lymph node. Further, multivariate analysis showed that the presence of, the presence of coagulation necrosis sign were independent predictive factors for the diagnosis of sarcoidosis.

Conclusion:

The presence of nodal conglomeration, and intranodular vascularity, and absence of coagulation necrosis in the lymph nodes on EBUS are predictive of sarcoidosis.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA06

臺大醫院新竹分院以支氣管鏡超音波導引經支氣管冷凍切片的經驗

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The Experience of Endobronchial Ultrasound Guided TransBronchial CryoBiopsy in National Taiwan University Hospital, HsinChu Branch

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Purpose: The diagnosis of interstitial lung disease (ILD), such as idiopathic pulmonary fibrosis (IPF) is always difficult. Till now, the gold standard of diagnosis for most ILD is surgical lung biopsy (SLB). However, SLB is not suitable for all patients due to comorbidities and complications. Transbronchial Cryobiopsy (TBCB) was developed to be a safer alternative technique. However, due to the procedure is not standardized and the data is limited currently, TBCB is not recommended be used or not used at IPF diagnosis guideline yet.

We started R-EBUS guided TBCB since 2019 at National Taiwan University Hospital, HsinChu branch. We analyzed our data to evaluate the effect of TBCB for lung lesions diagnosis.

Materials and Methods: We reviewed the patients who received R-EBUS guided TBCB at National Taiwan University Hospital, HsinChu branch between 2019/01/01 till 2019/10/31. We focused on if we can get definite diagnosis by TBCB. Besides, procedure related complications, especially bleeding and pneumothorax, are evaluated.

About TBCB procedure, we use ERBECRYO®-1 (ERBE, Solingen, Germany) as our biopsy tool. Fogarty catheter was placed to prevent fetal hemorrhage. R-EBUS (UM-S20-20R® + EU-ME2®, Olympus, Tokyo, Japan) was used to replace fluoroscopy for lesion localization.

Results: Between 2019/01/01 to 2019/10/31, 10 patients received R-EBUS guided TBCB for lung lesion diagnosis. The final results of histologic diagnosis included: pulmonary alveolar proteinosis (PAP)*1, immunoglobulin G4 (IgG4)-related lung disease*1, non-specific interstitial pneumonia (NSIP)*1, miliary tuberculosis*1, invasive mucinous adenocarcinoma*1, Sjögren's syndrome with lung involvement*1, pulmonary Langerhans cell histiocytosis (LCH) and nondiagnostic result*3. Definite diagnosis rate in all patients was 70.0% (7/10); but in the patients who received TBCB with definite airway, the yield rate increased to 87.5% (7/8). About procedure related complication, pneumothorax happened at the 1st patient and moderate hemorrhage happened at the 10th patient.

Conclusions: R-EBUS guided TBCB is a safe and effective biopsy technique, especially in the diagnosis of ILD. However, the current sample size is small. We need more experience for standardizing this procedure and get more strong evidence about the benefit, risk, indication and contra-indication.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA07

於免疫功能低下患者使用經支氣管冷凍肺切片確診巨細胞病毒肺炎

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Transbronchial lung cryobiopsy for diagnosis of cytomegalovirus pneumonia in an immunocompromised patient

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Introduction: Cytomegalovirus (CMV) pneumonia is a common infectious disease in immunocompromised patients. Accurate diagnosis of CMV infection is important to improve survival rate. Alternative method other than video-assisted thoracoscopic surgery for tissue proof is warranted in patients hesitated or contraindicated for surgery.

Case report: A middle-aged man with Henoch-Schonlein purpura under long-term immunosuppressant who had fever and dry cough for one week. Chest computed tomography showed multiple peribronchial patches and ground glass opacities in bilateral lungs. Antibiotics was prescribed initially but the chest image and clinical symptoms progressed. Lung biopsy was suggested by multidisciplinary discussion for differentiating infectious etiology and interstitial lung disease.

We used a commercialized navigation planning system to select the target lesion and the target bronchus. The 20 MHz radial probe endobronchial ultrasound (EBUS) detected a peribronchial lesion with homogenous echogenicity surrounding the right third bronchus and a 1.9-mm cryoprobe was inserted for transbronchial lung cryobiopsy (TBLC). No complication, such as bleeding or pneumothorax was detected after the procedure.

The pathologic report revealed scattered cells with large intranuclear inclusion and some intracytoplasmic inclusion in the alveolar lining cells which were highlighted by cytomegalovirus (CMV) immunostaining. The diagnosis of CMV pneumonia was made and the patient received ganciclovir for totally three weeks without complications. Bilateral lung opacities were in resolution after serial chest radiograph follow up.

Discussion: This is the first case report of CMV pneumonia diagnosed by TBLC. TBLC obtained larger specimens than traditional biopsy tools, which increased the diagnostic yield in diffuse lung lesions. Combining with navigation system and EBUS, we could easily detect vessels and detailed contexture of the lung parenchyma, and decreasing the complication rate by choosing a proper biopsy site. It is an alternative choice for patients who decline surgery or in themselves high risk for surgical biopsy.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA08

在舌癌合併氣管內轉移病患使用冷凍治療與支架置放成功緩解氣管狹窄:個案報告

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Successfully reverse tracheal stenosis with cryotherapy followed by tracheal stent in tongue cancer patient with intratracheal metastasis: case report

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Abstract: Tumor-related airway obstruction is the rare complication of extrathoracic malignancy. It could be classified as intrinsic, extrinsic and mixed type. Patients with intrinsic component of tracheal stenosis will need both tumor removal followed by placement of tracheal stent. Currently, two types of stents are available for disposal of airway stenosis, including silicon stents and self-expandable metallic stents. Both of them have their own strengths and weaknesses. We reported a 50-year-old man with primary tongue cancer complicated with intratracheal metastasis. After tumor removal with cryotherapy, the self-expandable metallic stent was placed successfully. He is well-tolerated and symptom-free after the procedure, therefore proceeding to concurrent chemoradiotherapy for his primary tongue cancer.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA09

內科胸腔鏡檢查中使用窄頻影像系統於未明病因肋膜積液上之應用

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Narrow band imaging during medical thoracoscopy for patients with undiagnosed pleural effusions

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Purpose: Medical thoracoscopy(MT) has been demonstrated to increase the diagnostic yield in undiagnosed exudative pleural effusions(EPEs) in recent days. We are attending to investigate the benefit of narrow band imaging(NBI) compared with white light(WL) during MT for patients with undiagnosed EPEs.

Materials and Methods: We analyzed inpatients with age over 20 with EPEs, which remained undiagnosed after pleural fluid analysis by thoracentesis with or without closed pleural biopsy. MT was performed and thoracoscopic images obtained by both modes (WL and NBI) will be classified into four types of vascular patterns (type 0, I, II, III). The morphologies of lesions were also divided into two types: flat and non-flat. Biopsy via MT was performed and data was analyzed to understand the correlation with the result of biopsy.

Results: 24 patients were enrolled in our study and a total of 28 specimens were obtained for our study from a particular site showing a distinct pattern that was clearly seen by both WL and NBI. There was no examination-related complication. In the NBI group, 10 lesions revealed malignancy, 6 were vascular type III(n=9) and 4 were type I or II(n=19)(66.7% versus 21.1%, p=0.036); In the WL group, 10 lesion revealed malignancy, 3 were vascular type III(n=4) and 7 were vascular type or II(n=21)(75.0% versus 33.3%, P=0.154). When vascular pattern types 0, I and II were considered as negative, and type III, the irregular vascular pattern as positive, the accuracy, sensitivity and specificity to detect the irregular vascular pattern of malignant lesions were 71.4%, 30.0% and 94.4% using WL-mode; 75.0%, 60.0% and 83.3% using NBI-mode, respectively.

Conclusions: Our study demonstrated that NBI applied to medical thoracostomy displayed blood vessels significantly better than WL. NBI was useful to detect irregular vascular patterns suggesting malignant lesions. Therefore, NBI was considered useful in the selection of optimal biopsy sites by assessing vascular patterns.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA10

利用卷積神經網路由胸部 X 光自動分辨肺結核

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國立成功大學資訊工程系³; 科技部人工智慧生技醫療創新研究中心⁴

Automated classification of pulmonary tuberculosis from chest radiography using convolutional neural network

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Purpose: Tuberculosis (TB) is an airborne infectious disease, and it is the leading cause of death from an infectious agent in the world. The epidemic of TB is especially severe in developing countries. Chest radiography is usually applied for the primary diagnosis of TB, and the imaging technique has the advantages of low cost, fast and low radiation. However, to identify TB from chest X-ray images requires experienced experts, and the inter/intra-observer variation is often challenging. So, an automated, accurate and stable computer-aided system for the classification of TB is desired to assist the image analysis.

Materials and Methods: In this study, we collected 4790 X-ray images from Chest Hospital, a tertiary TB referral center in southern Taiwan. The images were captured in Posteroanterior (PA) view of 2000 to 2600 pixels size and gray-level format. In these images, 2069 were from bacteriological or clinically diagnosed TB patients, while 2721 were from healthy people. Owing to the breakthrough of deep learning techniques in recent years, the convolutional neural network (CNN) shows state-of-art performance on many machine vision tasks, especially in medical image classification. So we proposed an automated TB classification system based on CNN with an advanced network structure.

Results: In our experiments, five-fold cross-validation was applied. Our proposed system got remarkably high accuracy of 91.28%, and the sensitivity and specificity are 89.13% and 92.98% respectively. We also compared our results with some popular CNNs, and our system significantly out-performs all other neural networks.

Conclusions: In order to have a timely diagnosis of TB, an accurate and stable computer-aided system can assist. In this study, a deep learning CNN with advanced structure is proposed and showed high performance for the classification of TB in chest X-ray imaging. The system does not need any manual image adjustment and can be easily applied. It is especially useful as a complementary tool for local TB surveillance examination to decide whether an instant sputum GeneXpert should be obtained right after the X-ray.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA11

脹大的奇靜脈- 一個胸部 X 光的意外發現：病例報告及文獻回顧。

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Enlarged azygos vein- An accidental finding from chest X-ray: A Case Report and Literature Review.

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Introduction

The azygos vein, a unilateral vessel that ascends in the thorax to the right side of the vertebral column, drains itself towards the superior vena cava. It connects the systems of superior vena cava and inferior vena cava that can provide an alternative path for blood to the right atrium when either of the vena cava is blocked. There are many causes for enlargement of the azygos vein, such as congestive heart failure, SVC/IVC obstruction, or congenital abnormality. We should also take into account paratracheal malignancy or mediastinal lymphadenopathy. Here we present a case of enlarged azygos vein, with initial presentation of acute coronary syndrome.

Case Report

The 64 year-old female had past history of diabetes mellitus. She suffered from chest pain and acute coronary syndrome(NSTEMI) was impressed. Cardiac catheterization showed coronary artery disease/3-vessel-disease post PCI for LAD and RCA. Her chest X-ray showed pulmonary edema and enlarged vascular shadow at right hilum. We arranged chest CT, which showed azygos continuation of the inferior vena cava. It is also known as the absence of the hepatic segment of the IVC with azygos continuation. The right IVC remains as the azygos vein, missing the liver. The azygos vein joins the superior vena cava (SVC) at the normal location in the right paratracheal space. The patient also has polysplenia.

Discussion

The prevalence of azygos continuation of the IVC is about 0.6%. It is found incidentally in asymptomatic patients, as our case. An association with congenital heart disease and asplenia or polysplenia syndromes have been reported. As our patient, she also has polysplenia. The important differential diagnoses are right-sided paratracheal mass or adenopathy. As an isolated finding, azygos continuation of the IVC requires no treatment. Preoperative knowledge of the anatomy may be important in planning cardiopulmonary bypass and to avoid difficulties in catheterizing the heart.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)
- PA12

以右側胸痛為子宮平滑肌瘤之罕見表現 – 病例報告

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Right Side Chest Pain as a Rare Presentation of Uterine Leiomyoma – A Case Report

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Purpose: The common presentation of uterine leiomyoma includes heavy menstrual bleeding, pelvic pressure or pain, frequent urination and constipation etc. Here we report a rare presentation of uterine leiomyoma in a patient with chief complaint of right side chest pain.

Case Report: A 56-y/o female visited our Gastroenterology OPD for right lower chest pain extended to right upper abdomen. Physical examination revealed soft and distended abdomen with mild tenderness in right side costophrenic angle. Breathing sound and bowel sound were normal. KUB revealed fecal materials in colon. Urine analysis was clear. Abdominal echo revealed normal appearance of liver, gallbladder and spleen, but right side pleural effusion. She was referred to our Pulmonary Medicine OPD for right side pleural effusion. The pain was around right side costophrenic angle with mild tenderness in right upper abdomen. She denied trauma, poor oral intake, cough and dyspnea. Chest X-ray revealed sharp right side costophrenic angle. The painful area denied pleural effusion, reflected bowel gas and a huge soft tissue echogenic tumor extended from lower abdomen and occupied left side abdomen during chest echo examination. CT study revealed huge leiomyoma or leiomyosarcoma in abdominal to pelvic cavity, possible Gynecology correlation. She was referred to our Gynecology OPD for huge leiomyoma or leiomyosarcoma. Gynecology echo revealed huge uterine myoma more than 15 cm. She received total abdominal hysterectomy, bilateral oophorectomy and bilateral salpingectomy at our hospital without complication. The myomatous mass measured 20*20*18 cm³ and weighed 1200gm. The section showed a picture of leiomyoma composed of fascicles interlacing bundles of smooth muscle fibers. She was free of right side chest and right upper abdominal pain after surgery.

Discussions: The patient did not have common presentation of uterine myoma and instead she complained right lower chest pain extended to right upper abdomen. This could be due to the uterine leiomyoma occupied 3/4 intra-abdominal space and the gastrointestinal tract was compressed to right upper abdomen. Unfortunately, KUB and abdominal echo failed to provide information about uterine leiomyoma. Thanks to the additional look for abdomen to uncover the uterine leiomyoma during chest echo examination.

Conclusions: Huge uterine myoma should also be considered in unexplained right side costophrenic pain in female patient.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)
- PA13

一位嗜酸性肉芽腫併多發性血管炎病人的反覆性靜脈栓塞

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Recurrent venous thromboembolism in a patient with eosinophilic granulomatosis with polyangiitis

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Introduction: Eosinophilic granulomatosis with polyangiitis (EGPA), also known as Churg-Strauss Syndrome, is an anti-neutrophil cytoplasmic antibody (ANCA)-associated vasculitis affecting small to medium vessels. The clinical presentation usually manifests as asthma with eosinophilia. Patients with eosinophilia have increased risk of thromboembolism. We present a patient with EGPA who experienced recurrent episodes of severe thromboembolism.

Case Presentation: A 34-year-old man with asthma was admitted for abdominal pain caused by renal stone. Three days after admission, he had an acute chest pain and exertional dyspnea. Painful swelling over left calf was also noted. Laboratory examinations revealed hypereosinophilia (6530/μL), elevation of serum IgE (964 IU/mL) and D-dimer (26.3 mg/L). Venography of lower limbs confirmed left iliac and femoral vein thrombosis. The pulmonary ventilation-perfusion scintigraphy showed pulmonary embolism in the right middle lobe. Survey for hypercoagulation including antithrombin III, protein C, protein S, factor IV, homocystein were all negative. He received treatment with warfarin. Two months after discharge, the follow-up computed tomography (CT) showed persistent pleural effusion and a new ground-glass opacity in the right upper lobe. He was re-admitted due to mild respiratory distress. Thoracentesis revealed an eosinophil-predominant exudative effusion (cell count: 12000/μL, eosinophil: 66%). Newly developed ecchymosis/purpura over the dorsal part of left foot and left inguinal area was noted. Skin biopsy was arranged and warfarin was discontinued three days before biopsy. After biopsy, painful swelling over right leg with distal cyanosis was noted. Emergent heparinization was administered. He also complained of epigastria. Abdominal CT revealed multiple hypodense nodules in liver. Abdominal magnetic resonance imaging (MRI) reported multiple infarctions with hematoma in liver. The pathology of skin biopsy confirmed the diagnosis of EGPA. Corticosteroid and azathioprine were administered. His condition gradually improved.

Discussion: EGPA is characterized by vasculitis, asthma, and eosinophilia. The diagnosis of EGPA is challenging because the clinical features of EGPA develop in sequential phases as prodromal phase, eosinophilic phase and vasculitis phase. Venous thromboembolism is prevalent (8.1%) in patients with EPGA. It was proposed that tissue factor released by eosinophils activate platelets to result in excessive thrombin generation. Eosinophil peroxidase derived oxidant, especially hypothiocyanous acid, stimulate endothelial cell tissue factor expression and contribute to thrombosis in hypereosinophilic status. Our patient experienced a recurrent, life-threatening thromboembolism after discontinuation of warfarin for skin biopsy. Bridging anticoagulation should be considered in such patients when they plan to receive invasive procedures. In conclusion, clinicians should be aware of sequential clinical features of EGPA and the high risk of venous thromboembolism.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA14

以肺實質氣囊併感染為表現的支氣管源性囊腫

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Infected intraparenchymal bronchogenic cyst mimicking pneumatocele with secondary infection

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Background: Bronchogenic cysts are cystic malformation of the bronchial tree, budding from primitive ventral foregut. It is uncommon for it to present during adulthood. The fluid-filled cystic structure with mostly located in the middle mediastinum is usually discovered as radiographic features. Here we presented a case of interest because pneumatocele with secondary infection was firstly diagnosed under clinical pictures and radiographic images, while the final pathological result revealed bronchogenic cysts.

History: A 72-year-old woman without smoking history has suffered from chronic cough and came to our Chest outpatient department since 2013. In 2013, Lung function test and chest CT were done which disclosed small airway obstruction with positive Methacholine Provocation test and bronchiectasis with a cystic lesion at left lower lobe respectively. During 2013 to 2019, the condition is under medicine control till July of 2019, when left lateral flank and chest pain occurred. She then came to ER. There's no leukocytosis but with high level of CRP. The Chest X-ray was done, of which large air-fluid level containing lesion in left lower lobe. After admission, we arranged Chest CT for further evaluation, where left complicated parapneumonic effusion and fluid-filled cyst lesion, in suspicion of infected pneumatocele at left lower lobe were found. We used Augmentin first. Yet, for the followed-up Chest X-ray revealed no improvement, we changed the antibiotics to Piperacillin. Despite the broad-spectrum antibiotics was prescribed, there's limit change for both the clinical condition and the radiographic images. We then consulted Chest surgeon and hybrid Lobectomy of lung under Video Assisted Thoracoscopy was done. The final pathology surprisingly disclosed bronchogenic cyst exhibiting hemorrhagic necrosis. After the operation, the patient recovered without significant complications and discharged soon. Currently, she is under smooth condition.

Conclusion:

1. The diagnosis of air-fluid cystic lesions requires comprehensive comparison of patient's history, clinical pictures, and characteristics of the radiographic images.
2. We highlight the diagnostic difficulty in the cystic lesions with air-fluid level of the lung parenchyma, that one should take bronchogenic cysts into consideration.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA15

在加護病房中接受呼吸器治療之肺癌病患使用表皮細胞生長因子接受器標靶治療之成效

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The Therapeutic Efficacy of EGFR-TKI in Non-small Cell Lung Cancer Patients in the Intensive Care Units with EGFR-Tyrosine Kinase Inhibitors

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Rationale Lung cancer patients have substantially worse ICU outcomes compared with other cancer patients. The mortality of critically lung cancer patients was reported to as high as 65 % based on SEER-Medicare registry (1992 to 2007, N=49373). Lung cancer treatment in ICU was perceived as futility, but the emergent use of targeted therapy gradually changes the viewpoint. Our study aimed to evaluate the efficacy of EGFR-TKI and the impact of EGFR mutation status on critically-ill lung cancer patients who needed mechanical ventilator (MV) support.

Methods We retrospectively collected lung cancer patients who admitted to ICU with MV use and received EGFR-TKI treatment from 2004 to 2018. The patients with the diagnosis of lung cancer before ICU admission or new diagnosis of lung cancer within 1 month after ICU admission were both included. The patient with small cell lung cancer, squamous cell lung cancer, and without EGFR mutation status were excluded. The patients' demographic data, clinical outcomes, and treatment-related toxicities were analyzed; the differences between groups of EGFR mutation status were reported.

Results Totally 122 patients were included, with a mean age of 66.6 years, 47.5% male, 96.7% with stage 4 disease and 58.2% with sensitizing EGFR mutation. At ICU admission, the major reason for ICU admission was pneumonia (84.4%) and the mean APACHE II score was 22.6. The 28-day survival was 58.2% and 30.3% of the patients weaned successfully from MV. The patient possessed sensitizing EGFR mutation had a significantly higher rate of survival at both hospitals (40.8% vs 17.6%) and ICU discharge (60.6% vs 39.2%), and significantly higher weaning rate (38% vs 20%). Median survival days were 28 vs 48 days within patients without and with EGFR mutation (P< .001). Univariate logistic regression revealed both APACHE II score [OR 1.06, CI (1.00-1.12)] and sensitizing EGFR mutation [OR 2.52, CI (1.08-5.83)] were significant predictors of successful weaning, but the significance disappeared after adjustment. There were 5.7% of patients that had grade III to IV adverse effect of TKI without differences between groups.

Conclusions Our study revealed the potential benefits of EGFR-TKI treatment on survival and weaning in the critically-ill, mechanically-ventilated lung cancer patients harboring sensitizing mutation.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA16

酪氨酸激酶抑制劑治療複雜性 EGFR 突變的肺腺癌患者的特徵和預後

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Characteristics and Prognosis of Lung Adenocarcinoma Patients with Complex EGFR

Mutations Treated with Tyrosine Kinase Inhibitors

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Purpose: Epidermal growth factor receptor tyrosine kinase inhibitors (EGFR TKIs) are effective against *EGFR* mutations in lung cancer. However, their effectiveness and the prognosis of lung cancer patients with complex *EGFR* mutations are not well delineated. This study aimed to elucidate the clinical characteristics and prognosis of lung adenocarcinoma patients with complex *EGFR* mutations treated with EGFR TKIs.

Materials and Methods: During 2005–2018, we collected lung adenocarcinoma tissue samples for *EGFR* mutation analysis using direct Sanger sequencing. Patients with *EGFR* mutations treated with EGFR TKIs were enrolled. Clinical characteristics, *EGFR* mutation status, treatment response, progression-free survival (PFS), and overall survival (OS) were analyzed.

Results: Among 2390 *EGFR*-mutant patients, 175 (6.3%) had complex *EGFR* mutations, of whom 122 received EGFR TKI treatment. Patients with complex *EGFR* mutations with the classical mutation pattern (del-19 or L858R) showed a higher treatment response rate (78.6% vs. 47.4%; $p = 0.001$) and longer PFS (8.3 vs. 6.6 months; $p = 0.006$) than those with the nonclassical mutation pattern. Multivariate analysis revealed longer PFS and OS in patients with the classical mutation ($p < 0.001$ and $p = 0.001$, respectively), female patients ($p = 0.002$ and $p < 0.001$, respectively), and patients with a disease relapse after surgery. Afatinib was a more favorable predictive factor of PFS than gefitinib, especially with the nonclassical mutation. Secondary T790M was detected in 17 of 51 (33.3%) patients who had re-biopsy tissue samples after acquired resistance to EGFR TKIs, and the response rate of osimertinib was 83.3% (5 of 6). In addition, small cell lung cancer transformation was found in 3 (6%) patients.

Conclusions: Lung adenocarcinoma patients with complex *EGFR* mutations with the classical mutation pattern had longer PFS and OS than those with the nonclassical mutation pattern. Moreover, afatinib can be beneficial in lung adenocarcinoma patients with complex *EGFR* mutations, especially the nonclassical mutation pattern.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA17

Forkhead box M1 (FOXM1)轉錄因子相關於小細胞肺癌較差的臨床預後

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Forkhead box M1 (FOXM1) transcription factor is associated poor clinical outcomes in small cell lung cancer

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Purpose: Small cell lung cancer (SCLC) is the most aggressive type of lung cancer, but significant progress in SCLC treatment is lack in the past decades. Loss-of-function mutations in tumor suppressor genes, *P53* and *RBI*, are the hallmarks in SCLC, and Forkhead Box M1 (FOXM1) transcriptional factor is critical for cell proliferation and negatively regulated by *P53* and *RBI*. This study is to investigate the clinical role of FoxM1 in SCLC.

Materials and Methods: The raw data of FOXM1 mRNA expression in datasets of Cancer Cell Line Encyclopedia (CCLE) cell lines, GSE43326, and GSE60052 were retrieved and compared between SCLC and non-SCLC groups. A total of 40 patients with SCLC at NTUH-HC were retrospectively enrolled, and they were subdivided as high or low FOXM1 group according to IHC staining results by 2 pathologists. Clinical demographics, disease status, treatment responses and clinical outcomes were collected and analyzed.

Results: From datasets analyses, FOXM1 significantly expressed in SCLC whether in vitro or in vivo. Of 40 enrolled patients, the median age was 69 years (range, 49-90), and they were 34 men (85.0%) and 38 smokers (95.0%). The majority of patients were diagnosed as advanced stages [38 patients (95.0%)]. Among them, 19 patients (47.5%) were subdivided to the high FOXM1 group and 21 (52.5%) belonged to the low FOXM1 group. Of 13 patients who have received chemotherapy in the high FOXM1 group, the median progression-free survival (PFS) was 4.20 (95.0% CI: 2.43–5.97) months, compared with 7.67 (95.0% CI: 3.84–11.51) months in the low FOXM1 group ($P = 0.303$). The median overall survival (OS) of patients with high FOXM1 expression levels in cancer cells was shorter than that of patients with low FOXM1 expression significantly (median OS: 7.90 [95.0% CI: 4.17–11.63] vs. 16.75 [95.0% CI: 12.44–21.07] months, respectively; $P = 0.001$).

Conclusions: This study first provides the clinical correlation between FOXM1 and SCLC, showing that SCLC with high FOXM1 expression associated with shorter PFS to first-line standard chemotherapy and OS than low FOXM1 expression group.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA18

低劑量電腦斷層掃描用於一般民眾之肺癌檢查：台東一地區醫院之經驗

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Low Dose Computed Tomography for Lung Cancer Survey in General Population:
Experience of a Local Hospital in Taitung

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Purpose: Lung cancer screen with low dose computed tomography (LDCT) has been shown to effectively reduce cancer mortality in heavy smokers. However, local experience for screening lung cancer in general population is limited. We aim to analyze the features of pulmonary nodules found by LDCT in general population, and evaluate the follow up results of this exam.

Materials and Methods: We enrolled patients receiving LDCT for lung cancer screen during Jan 2016 to Dec 2016, in a local hospital in Taitung. We collect the demographics, image features of pulmonary nodules, and other LDCT findings. The follow up results were collected up to Oct 2019, to evaluate the stability of pulmonary nodules.

Results: A total of 371 patients were collected. The mean age was 59.2 ±11.9 years. Ninety patients (24.3%) were current or ex-smokers. A total of 67.9% of patients have pulmonary nodules ≥2mm on LDCT. Smoking status was not significant different between patients with and without pulmonary nodules. Nodules with size 2-3mm, 4-5mm, 6-7mm, 8-14mm, and ≥15mm were found in 18.6%, 25.9%, 9.4%, 10.5% and 3.5% of patients, respectively. The most common nodule pattern was ground glass (45.2%), followed by solid (24.2%) and part-solid (9.9%). For patients with lung nodules ≥2mm, 57.1% of patients have at least 1 episode of LDCT follow up or referred further investigation, with mean follow up time of 21.3 ±10.6 months. Among these patients, 7.6% referred at 1st time, 67.4% had stable nodules, 4.2% had progressive nodules, and 20.8% showed nodule regression. For nodules < 6mm with LDCT follow up, 73.6% showed 1~2 year stable in size, 17.2% showed regression, and 8% had stable size but follow up time < 1 year. Only 1 nodule < 6mm (1.1%) had size progression (5mm, progressed at 24 months). The rest 5 progressive nodules had size range from 7mm to 14mm, with enlargement at 2 to 24 months of follow up.

Conclusions: This study shows that small pulmonary nodules < 6mm are very common in general population during LDCT survey in a local hospital in Taitung. More than 90% of these are stable or regressed during 1~2 years of LDCT follow up. However, up to 1/4 patients also have pulmonary nodules ≥6mm, and LDCT follow up or further investigation is needed. This indicates that LDCT may be an effective tool for lung cancer survey in general population. The high positive rate of LDCT screen may also result in excessive anxieties of the patients. Our result suggests the 1~2 year LDCT follow up interval may be adequate for low risk patients with lung nodules < 6mm. This can reduce unnecessary LDCT exam and radiation exposure.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA19

乙型阻斷劑對於肺腺癌患者使用第一線表皮生長因子受體激酶抑制劑之影響

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The impact of beta-blocker on survival of treatment-naïve advanced lung adenocarcinoma patients receiving first generation EGFR-TKIs

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Purpose: Chronic stress can trigger the secretion of neurotransmitters and hormones, which can enhance tumor growth, increase angiogenesis, and promote drug resistance via activation of adrenergic receptors. Beta-blockers can decrease the cytokines induced by sympathetic stimulation. We initiated this study to evaluate the impact of beta-blockers in patients receiving first-line epidermal growth factor receptor tyrosine kinase inhibitors (EGFR-TKIs).

Materials and Methods: This retrospective nationwide cohort study enrolled advanced lung adenocarcinoma patients who received first-line EGFR-TKIs in Taiwan between 2011 and 2014, identified in the National Health Insurance Research Database. The beta-blocker group was defined as receiving prescription of beta-blockers more than 60 defined daily doses (DDD) within 90 days before initiating EGFR-TKIs. The effect of beta-blockers in 2-year time-to-treatment discontinuation (TTD) and 4-year overall survival (OS) were compared using Cox regression analyses. Inverse propensity score weighting and a sensitivity analysis in patients with neither hypertension nor cardiovascular diseases were performed for bias adjustment.

Results: A total of 4988 patients, namely 552 (11.07%) were beta-blocker group, and 4436 (88.93%) were non-beta-blocker group. Patients in the beta-blocker group were more likely to be older than 75 and have comorbidities, including diabetic mellitus, hypertension, heart disease, cerebral vascular disease, peripheral artery disease, and secondary malignancy. They were less likely to have increased intracranial pressure (IICP). In the survival analysis, beta-blocker usage was associated with a longer TTD (hazard ratio, HR: 0.91 [0.86–0.96]) and OS (HR: 0.68 [0.64–0.72]). The results also favor beta-blocker group after bias adjustment.

Conclusions: In treatment-naïve advanced lung adenocarcinoma patients receiving first-line EGFR-TKIs, prior use of beta-blockers was associated with a longer TTD and OS. The findings support further prospective clinical study to evaluate the possibility of using beta-blockers as adjuvant anti-cancer therapy.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA20

Osimertinib 在不同 EGFR-TKIs 序列中，有不同生存效益

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Different survival benefit of osimertinib in different sequences: A real-world outcome of osimertinib treatment

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Purpose: To investigate the relationships among the clinical characteristics, different EGFR-TKIs, and osimertinib treatment in different treatment lines.

Materials and Methods: We retrospectively screened a total of 3807 patients diagnosed between 2013 and 2019 at Kaohsiung Chang Gung Memorial Hospital. Furthermore, 98 patients after re-biopsy or liquid with EGFR T790M mutation who received osimertinib were enrolled for analysis.

Results: Among all 98 patients, the median PFS of those who received osimertinib therapy was 10.48 months, and the median OS of those who received osimertinib therapy was 42.21 months. The OS of those who received osimertinib therapy after previous gefitinib, afatinib, or erlotinib therapy was 87.93, 49.00, and 42.00 months, respectively ($P=0.006$). There was a significant difference in disease control rate between those who received osimertinib treatment after previous chemotherapy (Group A) or immediately following EGFR-TKI therapy (Group B) (93.3% vs. 77.4%, $P=0.029$). There was also a significant difference in PS between those who received osimertinib as a second-line treatment and those who received it as a third-line treatment (10.83 vs. 17.33 months, $P=0.044$). In addition, COPD tended to be a poor prognostic factor for PFS and OS.

Conclusions: In this retrospective real-world analysis, it was determined that pretreatment with gefitinib and previous chemotherapy could affect the treatment outcomes of NSCLC patients treated with osimertinib. Furthermore, COPD tended to a poor prognostic factor for PFS and OS in such patients.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA21

使用 afatinib 治療晚期 EGFR 突變之非小細胞肺癌的馬偕醫院經驗

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台北馬偕紀念醫院胸腔內科 1

Real-world experience of afatinib in patients with EGFR-mutant advanced NSCLC: MMH experience

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Purpose: This study aimed to evaluate the safety and effectiveness of daily afatinib use in general practice.

Materials and Methods: This is a single-center observational study of afatinib in patients with EGFR-mutant advanced non-small cell lung cancer (NSCLC) in MacKay Memorial Hospital, Taipei. Patients' demographic, clinical and treatment data, and side effects to afatinib were retrospectively recorded. The statistical methods included independent t-test for variables and Kaplan-Meier curve for survival.

Results: Sixty-eight patient who were treatment-naïve or inoperable/recurrent on afatinib from May, 2014 to December, 2018 eligible for the study. EGFR mutations detected in tumors included exon 19 deletion in 67.6%, exon 21 L858R point mutation in 23.6%, rare or complex EGFR mutations in 7.3%, and unknown mutations in 1.5% of patients. Among these patients, 17.6% had Eastern Cooperative Oncology Group performance status of 2-4, and 14.7% had brain metastasis. 66.2% patients started with 40 mg afatinib and 33.8% started with 30 mg. Among patients on starting dose of 40 mg, 37.8% used 30 mg as maintenance dose. The objective response rate was 63.2% while the disease control rate was 83.8%. The most common side effect was skin rash/folliculitis (76.5%), but most were Gr.1-2. The median time to treatment failure (TTF) was 16.2 months, and the median overall survival (OS) was 34.1 months. Dose of 30 mg or 40 mg did not affect the TTF ($p=0.081$) and OS ($p=0.182$).

Conclusions: Afatinib is an effective treatment for patients with EGFR-mutant advanced NSCLC with a good response rate and long survival. The side-effects of afatinib were manageable. Whether dose of 30mg or 40 mg of afatinib is used does not affect the survival.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA22

預測胸部電腦斷層影像同時發現的肺結節之惡性機率

張育平,林炯佑,陳友木,張晃智,林孟志

高雄長庚呼吸胸腔內科

Predicting Malignant Risk of Synchronous Lung Nodules on Chest Computed Tomography

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Division of Pulmonary and Critical Care Medicine Kaohsiung Chang Gung Memorial Hospital

Background and Aims: Due to advances in chest computed tomography (CT) screening, small lung nodules were detected more frequently. To predict malignant risk remains a challenge. Factors such as nodule size, shape, ground-glass opacity (GGO) component were reported associated with malignant potential. But if more than one small nodule found on chest CT, can we treat them as the same origin or need to do study separately? Thus, our aim is to see if we could predict malignant risk of lung nodules seen simultaneously on chest CT.

Methods: Lung nodules less than 3 centimeters (cm) in diameter identified by chest CT from 2003/01/01 to 2016/12/31 and tissue-proved by resection were collected. Total 49 patients with more than one lung nodule were enrolled. Total 105 nodules were resected.

Results: Of 49 patients, 30 patients had 2 nodules, 8 patients had 3 nodules, 8 patients had 4 nodules, and 3 patients had ≥ 5 nodules. Patients were divided into two groups. Malignancy-risk group were defined as having malignancy history, or highly suspected having malignancy such as renal or liver tumor before perform chest CT. For those patients highly suspected having malignancy, all proved to have extra-pulmonary cancer. Others defined as Non-malignancy-risk group. As in table 1, there were significantly more probability of benign nodules in Non-malignancy-risk group. But even in Malignancy-risk group, only 53.7% lung nodules were malignant. In table 2, we compared max diameter of malignant and benign nodules. In both groups, there was a trend that malignant nodules tend to be larger but is insignificant.

Conclusion: For synchronous lung nodules less than 3 cm in diameter seen on chest CT, nodule size is not reliable to predict malignant potential. Only about half nodules were malignant in those with malignancy history or highly suspected having extra-pulmonary malignancy.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA23

運用表觀基因學和蛋白質體學的精確醫學方法在晚期肺癌治療中的細胞因子誘導殺傷細胞策略

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Epigenomic and Proteomic Precise Medical Methodologies for Cytokine-induced Killer Cell Strategy in Advanced Lung Cancer Therapy

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Despite the rapid development of precision genomic medicine and targeted drugs, lung cancer is still the world's leading cause of cancer death. In the latest global guidelines for the treatment of non-small cell lung cancer in 2016, patients who do not have special genetic mutations to provide targeted drugs often use drugs such as platinum-based chemotherapy, followed by 2nd line EGFR-TKI like erlotinib and suffered from the side effects. Cytokine-induced killing cell therapy and Chinese herbal medicine may provide novel therapeutic or auxiliary prognostic advantages.

We will use the method of precision medicine to apply the methods of translating medicine such as high-throughput, proteomics and bioinformatics to conduct a pilot study of patients with lung cancer. We will establish a two-stage drug-resistant lung cancer cell line, which is firstly treated with platinum to produce a first-order platinum cell-resistant cell line, and then the first-order drug-resistant strain is treated with erlotinib to produce a double-resistant drug cell line. Afterwards, we were able to explore the overall anti-cancer effects of anti-cancer Chinese medicines, cytokine-induced sputum cells or sputum cells in these different stages of cell lines, and to understand the reasons why these methods are most suitable for intervention and treatment.

After the completion of the cell experiment, we are likely to propose the next stage of the project, which will be further verified by animal model. The items to be observed include the number, size and weight of the tumor, and the measurement of the changes in the levels of various immune-related cytokines in the serum of animals.

In addition to academic value, this study can be used as a basis for consideration of the less side-effect therapeutic way for the patients of lung cancer who have no EGFR mutation.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PA24

肺類肉瘤之突變演化與分子診斷之角色-病例報告

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Mutational Evolution and Role of Molecular Diagnosis in a Pulmonary Sarcomatoid Carcinoma Patient

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Introduction: Recurred pulmonary sarcomatoid carcinoma (PSC) could present with different histology from original tumor and posed challenge for treatment decision. Targeted sequence panel at an acceptable cost, may provide more insights into the tumor evolution and potential treatment candidate.

Methods: We demonstrate a case with stage IIB PSC, who had been found to have three phenotypically distinct tumor sequentially in three years (adenocarcinoma from lymph node, carcinoma from neck lymph node, and adenocarcinoma from lung). The samples went through targeted sequencing (TruSight Oncology 500™, Illumina®) analysis.

Results: Mutation profiles from targeted sequences of the four sequential tissues showed 93% identical mutations, suggesting their shared origin of neoplastic cell despite their distinct morphology. There was no druggable driver mutation or fusion transcript detected, and the tumor mutation burden was relatively low (1.78-8.83/MB). Of note, KRAS mutation was present only in the initial tumor, while new mutations of SMARCA4 and TP53 were found in the latest lung tumor.

Conclusion: Whether this was due to tumor evolution or selection pressure from initial surgery and concurrent chemoradiotherapy remained unclear. The new mutation information supported the homology of the recurrent tumors, and may provide treatment options in the future.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PA25

鼻腔扁平細胞癌合併肺門縱膈腔淋巴結腫大竟是類肉瘤

李瑞源¹

台中醫院¹

Sarcoidosis imitating metastatic pulmonary hilar lymphadenopathy in Mucoepidermoid Carcinoma of Nasal Cavity patient: Case Report

Ruei Yuan Li¹

Taichung Hospiotal¹

Introduction:

Sinonasal malignancies are extremely rare and generally present as primary malignancies. They account for approximately 3% of upper respiratory tract malignancies in US . Long-term follow-up is necessary for proper routine surveillance. Follow-up should be lifelong as some tumor can recur many years after treatment .Follow-up should include a history and physical examination, including endoscopic evaluation of the mucosa of the upper aerodigestive tract to survey for both local disease recurrence and second primary head and neck malignancies. Surveillance with CT or PET-CT may be indicated for node-positive disease .

CASE PRESTATION

This 50 years old female had hisotry of Nasal cavity mucoepidermoid carcinoma(T4aN1M0),recieved CCRT about one year on medical center .In addition, her past illness include3d stone s/p ESWL, ectopic pregnancy s/p laparoscopic 30 years ago, and cervical spondylosis. She complained SOB ,DOE , right tinnitus , blurred version , left hand numbness with spasm for 1 week . So, she went to our hospital for help. For abnomal CXR finding, Chest CT examination revealed bil hilar *lymphadenopathy* and mediastinal lymphadenopathy. BAL and brushing cytology of bronchoscope displayed atypical squamous cells. PET demonstrated FDG-avid lesions in hilar and ,mediastinum. So we arranged mediastnal scope for her as tissue proved. Unexpected result was noncaseating granulomas: sarcoidosis.

DISCUSSION:

Nasal cancer is rare, and often presents as a locally advanced disease. Recurrence commonly occurs locoregionally, while fewer patients present with distant metastasis; the most common sites involved are the lung and bone. Regular routine follow up would increase survival.

Conclusion:

In conclusion, it is suggested that clinicians must consider that nasal sinus cancer may recur only at the distant organ. Distant metastases, is uncommon with cancer that starts in the nasal cavity or paranasal sinuses. It may occur when advanced tumor have spread to the lymph nodes. The chance of distant metastases increases with the positive lymph nodes.

The most common distant sites where cancer that started in the nasal cavity spreads are the: lung ,liver the spine.Typical findings in thoracic imaging (CXR, CT,PET) are hilar or mediastinal nodal enlargement .*Final diagnosis* based on an examination of *tissue* is the right way.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PA26

以罕見支氣管內病灶為表現之轉移性肉癌瘤

江國華

奇美醫學中心 內科部 胸腔內科

Metastatic Sarcomatoid Carcinoma Presenting as Unusual Endobronchial Lesion

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Abstract

Sarcomatoid carcinoma is a rare, aggressive malignancy containing both mesenchymal and epithelial components. Patients often present with advanced disease and survival is poor. Lungs may be metastatic site, but metastases presenting as endobronchial growth are quite unusual.

Herein we report a case of 56y/o female, presented with cough with sputum and right chest tightness for weeks. The CXR and chest CT disclosed central RLL mass with endobronchial extension with obstructive pneumonitis. Abdomen CT disclosed huge right ovarian tumor with liver metastasis. A bronchoscopy revealed protruding tumor growth over right intermediate main bronchus with nearly total obliteration of RML and RLL bronchus. The pathology of the bronchoscopy biopsy and the coming CT guided liver biopsy all revealed neoplastic cell are spindle to pleomorphic with diffusely positive for vimentin and focally positive for EMA but not cytokeratin AE1/AE3 and is consistent with a metastatic sarcomatoid carcinoma and considering the image findings, a metastasis from the ovary is more in favor . Endobronchial lesion in such case is very rare and highlight the importance of critical thinking and diagnostic evaluation.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PA27

一位 EGFR 突變且無 PD-L1 表現之肺腺癌患者使用保疾伏達成長期控制-案例報告

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Lung adenocarcinoma with activating EGFR mutation and 0% PD-L1 experssion that achieved long term response to Nivolumab monotherapy.

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The discovery of programmed cell death protein 1 (PD-1)/programmed death-ligand 1 (PD-L1) pathway and the development of PD-1/PD-L1 inhibitors was a major breakthrough for lung cancer treatment in this decade which offered a twilight for lung cancer patients that considered short living. However, not all lung cancer patients might benefit from PD-1/PD-L1 inhibitors. Studies showed that adenocarcinoma with activating EGFR mutation had very little chance-if any to respond to PD-1/PD-L1 inhibitors. Also were adenocarcinoma that express no PD-L1 protein. Here, we reported a lady with stage IVA right upper lung adenocarcinoma with pleura and bone metastases, exon 19 deletion and 0% PD-L1 expression. She had disease progression 3 months after afatinib use. She was then treated with nivolumab monotherapy systemically and had local SBRT at main tumor. She has complete response and is still under nivolumab monotherapy 20 months after starting of nivolumab when we reported this case. Clinicians should notice that there is still no reliable marker to guide PD-1/PD-L1 inhibitors use. Neither EGFR mutation nor 0% PD-L1 expression should exclude patients from PD-1/PD-L1 inhibitors use.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PA28

上下呼吸道及腸胃道中 *STREPTOCOCCUS* 和 *VEILLONELLA DISPAR* 可作為預測肺癌的微生物標記

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COEXISTED *STREPTOCOCCUS* AND *VEILLONELLA DISPAR* MICROBIAL MARKERS IN THE UPPER/LOWER BRONCHIAL TREE AND GUT PREDICT LUNG CANCER

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Background and Aims: Dysbiosis in the gut-lung axis has been associated with lung diseases. We aim to determine common disease-associated microbial markers from multi-sites including the upper and lower bronchial tree and the gut from the same lung cancer patient.

Methods: Fifty-nine healthy controls (Saliva-C, N=19; Feces-C, N=40) and 15 lung cancer patients [Saliva-LC, BAL-LC (left and right chest) and Feces-LC were collected from the same patients] were recruited in our institute. The library was constructed with the standard V3-V4 region of the 16S rRNA gene and sequenced on a MiSeq (Illumina, USA). Bioinformatics analyses were performed with the basespace (illumina, USA) and CLC genomics workbench (Qiagen, Germany). A *p* value less than 0.05 was considered statistically significant.

Results and Conclusions: *The relative abundance of Streptococcus and Veillonella dispar were found in 3 sites from the same patients. The α -diversity of Shannon index was lower in the feces when compared with the saliva and BAL, and microbiome compositions were different among 3 sites from the same patient ($p<0.001$).* Intriguingly noted, the microbiome composition of the BAL was nearly the same between the left and right chest. With the Venn diagram of the cross from Saliva-LC vs. Saliva-C and Feces-LC vs. Feces-C, low *Streptococcus* and high *Veillonella dispar* were found in both saliva and feces of lung cancer patients when compared with healthy controls. In addition, specific Saliva-LC markers: *Megasphaera*, *Actinomyces*, and specific Feces-LC markers: *Lachnospiraceae* were subsequently determined. When we conducted a ratio of *Streptococcus* to *Veillonella*+*Veillonella dispar* and a sum of *Streptococcus*, *Veillonella*, and *Veillonella dispar*, both saliva and feces showed an area under curve (AUC) of 0.761 ($p=0.009$) and 0.792 ($p<0.001$) in accessing lung cancer risk. Our preliminary results demonstrated a novel set of multi-site microbiome markers which might be used to discriminate lung cancer.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PA29

RELAY: 一項針對上皮生長因子受體突變陽性且未接受過任何治療的轉移性非小細胞肺癌病人以 erlotinib 加上 ramucirumab 或安慰劑的多國、雙盲、隨機第三期試驗 (encore abstract)

RELAY: a multinational, double-blind, randomized phase 3 study of erlotinib in combination with ramucirumab or placebo in previously untreated patients with epidermal growth factor receptor mutation-positive metastatic non-small cell lung cancer (encore abstract)

Chao-Hua Chiu(邱昭華)¹, Kazuhiko Nakagawa², Edward Garon³, Takashi Seto⁴, Makoto Nishio⁵, Santiago Ponce Aix⁶, Keunchil Park⁷, Silvia Novello⁸, Ernest Nadal⁹, Fumio Imamura¹⁰, Kiyotaka Yoh¹¹, Jin-Yuan Shih¹², Kwok Hung Au¹³, Denis Moro-Sibilot¹⁴, Sotaro Enatsu¹⁵, Annamaria H. Zimmermann¹⁶, Bente Frimodt-Moller¹⁷, Carla Visseren-Grul¹⁸, Martin Reck¹⁹

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Purpose: We aim to identify novel molecular mechanisms by which intermittent hypoxia with re-oxygenation (IHR) leads to adverse consequences, such as hypertension and excessive daytime sleepiness (EDS) in patients with obstructive sleep apnea (OSA).

Materials and Methods: We analyzed whole-genome gene expression profiles of peripheral blood mononuclear cells from 48 patients with sleep-disordered breathing stratified into four groups: primary snoring (PS), moderate to severe OSA (MSO), very severe OSA (VSO), and very severe OSA patients with long-term continuous positive airway pressure (CPAP) treatment (VSOC).

Results: Comparisons of the microarray gene expression data identified eight genes up-regulated with OSA and down-regulated with CPAP treatment, and five genes down-regulated with OSA and up-regulated with CPAP treatment (all *p* values<0.05). Protein expression levels of 2 genes related to endothelial tight junctions (AMOT P130, and PLEKHH3; both *p* values <0.001), and 3 genes related to anti-or pro-apoptosis (ADAR1 P150, BIRC3, and GALIG; all *p* values<0.05) were all increased in the VSO group, while AMOT P130 was further increased, and PLEKHH3, BIRC3, and ADAR1 P150 were all decreased in the VSOC group. AMOT P130 protein expression was increased in OSA patients with EDS, BIRC3 protein expression was decreased in OSA patients with hypertension, and GALIG protein expression was increased in OSA patients with chronic kidney disease (CKD). In vitro IHR (7 cycles/day, 4 days) stimuli resulted in over-expression of ADAR1 P150.

Conclusions: We identified a novel association between AMOT/PLEKHH3/BIRC3/ADAR1/GALIG over-expressions and high Apnea-Hyponea Index in OSA patients. AMOT and GALIG may constitute an important determinant for the development of EDS and CKD, respectively, while BIRC3 may play a protective role in the development of hypertension in OSA.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA30

氫氣吸入對表皮細胞生長因子接受器酪胺酸激酶抑制劑(EGFR-TKI)引起的皮膚副作用之療效

陳俊榮¹, 吳俊廷¹, 周柏安¹, 李和昇², 陳鍾岳², 黃明賢^{1*}

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The effect of hydrogen gas inhalation on papulopustular rash and paronychia induced by epidermal growth factor receptor tyrosine kinase inhibitor

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Purpose: Hydrogen gas inhalation has been reported with anti-inflammatory and anti-oxidative effect. We aim to identify the effect of hydrogen gas inhalation on papulopustular rash and paronychia induced by EGFR-TKI.

Materials and Methods: We enrolled 16 patients with lung adenocarcinoma under EGFR-TKI therapy who suffered from grade 1-3 skin toxicities and received usual care. Topical steroid, topical antibiotic, and oral antibiotic were allowed for skin toxicities control simultaneously. We analyzed the severity of EGFR-TKI related skin toxicities before and after hydrogen gas inhalation for 2 to 4 weeks. The exposure of hydrogen gas inhalation was at least 3 hours per day. Common Terminology Criteria for Adverse Events (CTCAE) version 5.0 was utilized for EGFR-TKI related skin toxicities grading. Grades of papulopustular rash and paronychia were recorded and analyzed with the Wilcoxon Rank Sum Test.

Results: Among these 16 patients, 1 patient took Gefitinib, 8 patients took Erlotinib and 7 patients took Afatinib. There were 2 patients with Afatinib treatment undergoing dose reduction due to grade 3 skin toxicities and diarrhea, respectively. The grade of papulopustular rash decreased in 6 patients after management. Significant reduction of papulopustular rash was noted after usual care combined with hydrogen gas inhalation.($p=0.014$) Greater improvement of papulopustular rash was noted in face area than trunk in several patients. However, paronychia was relatively refractory to usual care combined with hydrogen gas inhalation. ($p=0.157$) All patients tolerated hydrogen gas inhalation well without any associated adverse event.

Conclusions: We found a significant reduction of EGFR-TKI induced papulopustular rash after usual care combined with hydrogen gas inhalation. Direct exposure to hydrogen gas in face area probably yielded more effective reduction of EGFR-TKI induced papulopustular rash. Hydrogen gas inhalation is safe for lung cancer patient under EGFR-TKI treatment. However, there were only 16 patients in this study and usual care was allowed simultaneously. Further investigation is warranted to confirm the efficacy of hydrogen gas inhalation in reducing EGFR-TKI related skin toxicities.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA31

以心肺運動測試預測肺腫瘤切除術後病患咳嗽相關性

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Predicting Cough After Lung Tumor Resection with Cardiopulmonary Exercise Testing

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Background:

Cardiopulmonary exercise testing (CPET) is a complex procedure to evaluate dynamic cardiopulmonary functions. It can identify high-risk patients before lung resection. However, it is not clear whether it can predict symptoms after lung tumor surgery. Cough is a common symptom after patients receive lung tumor surgeries. The current study demonstrated that CPET detected the cough group after lung resection more specifically than the traditional lung function test.

Methods:

We retrospectively evaluated 30 patients with lung tumor who received lung surgeries at our center between January 2017 and December 2018. Logistic regression analyses adjusted by age and gender were performed to identify the prediction of CPET about postoperative cough. The Leicester Cough Questionnaire (LCQ) was adopted to evaluate the severity of cough in patients.

Results:

Logistic regression analyses showed that oxygen uptake at anaerobic threshold (ATVO₂) [odds ratio(OR): 0.641, 95% confidence interval (CI): 0.421-0.976, $p=0.038$] and oxygen uptake at peak exercise (peakVO₂) (OR:0.766, 95%CI: 0.587-0.999, $p=0.049$) were independent predictors of cough of patients after surgeries. After adjusting age and gender, ATVO₂ (OR: 0.640, 95% CI: 0.418-0.980, $p=0.040$) and peakVO₂ (OR: 0.723, 95% CI: 0.526-0.994, $p=0.046$) still had independent prediction. The mean of the LCQ score of the whole group was 17.98±3.79 before surgery and 16.70±3.30 after surgery.

Conclusion:

Increasing one millilitre of ATVO₂ and peakVO₂ reduced the risk of cough by 36% and 27.7% respectively. CPET thus predicted cough of patients after lung resection. Further studies are needed to investigate that if cardiopulmonary training improves cough of patients after lung resection, since it will increase ATVO₂ and peakVO₂.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA32

因呼吸衰竭而新診斷的晚期肺癌之 28 天及 6 個月結果分析

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Twenty-eight-day and 6-month outcome of patients with newly diagnosed advanced lung cancer initially presented with respiratory failure

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Purpose: This study aimed to evaluate the characteristics and outcomes in newly diagnosed advanced lung cancer patients requiring machine ventilator (MV).

Materials and Methods: A retrospective study analyzed the outcome of patients in the intensive care unit (ICU) with newly diagnosed advanced lung cancer placed on MV between January 2006 and January 2019. Newly-diagnosed lung cancer was defined as final pathology or molecular results for treatment decision not coming out when the patient admitted to ICU.

Results: 56 newly diagnosed extensive lung cancer patients were analyzed. Cancer-related to central airway obstruction (n=29, 51.8%) was the leading cause of respiratory failure. Twenty-three (41.1%) patients could survive at 28 days, and 14 of them (14/23, 60.9%) with ventilator dependence. The use of invasive MV was identified as an independent predictor of 28-day survival (p = 0.002). The 6-month survival was only 7.1% (n=4). Six months survival rate in patients receiving suitable targeted therapy for oncogenic mutation lung adenocarcinoma, accepting chemotherapy and best supportive care was 40%(2/5), 0%(0/7), and 4.5%(2/44), respectively. The significant etiologies of delay in the diagnosis of lung cancer were a diagnostic error as tuberculosis and missed hilar lesion.

Conclusions: Patients with newly diagnosed advanced lung cancer with acute life-threatening respiratory failure have poor outcomes. Patients with oncogenic mutation adenocarcinoma may benefit from targeted therapies after they survive from critical condition. Diagnostic error as tuberculosis and missed hilar lesions are two main etiologies of delay in the diagnosis.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA33

肺腺癌上皮生長因子接受器基因液態切片 T790M 突變檢測陽性因轉型成小細胞肺癌而對使用泰格莎產生抗藥性

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¹台大醫院內科部, ²台大醫學院

Primary resistance to osimertinib despite liquid biopsy T790M positive due to SCLC transformation

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Purpose:

EGFR tyrosine kinase inhibitors (EGFR-TKIs) represent the first-line treatment of advanced EGFR-mutated NSCLC. However, most patients develop acquired resistance. One of the most well known mutation is the EGFR T790M mutation, which accounts for 40-50% of all cases of resistance to first-generation EGFR-TKIs. Currently, T790M testing could be performed using liquid biopsy. If liquid biopsy is positive for resistance mutation, it may obviate the need for an invasive tissue re-biopsy. However, only liquid biopsy might lose information about other less frequent resistance mechanisms.

Case Presentation:

A never smoker 63-year-old gentleman was symptomatic for non-productive cough. He was diagnosed as stage IV lung adenocarcinoma with EGFR exon 19 deletion. Treatment started with Erlotinib 150mg QD and Bevacizumab 1000mg per 3 weeks since October, 2017. The treatment was continued for 15 months, when bone scan revealed disease progression at sternum and left 9th rib lesion. The research of resistance mutation through liquid biopsy showed exon 19 deletion and T790M (Mutant Allele Frequency 0.21%). The patient started osimertinib 80mg QD since February, 2019. Follow up CT in April, 2019 showed disease progression in left lower lung tumor, contralateral lung and liver. A new bronchoscopy was performed and histological assessment of left lower lung tumor was consistent with small cell lung cancer (SCLC). A liver tumor biopsy with concomitant radiofrequency ablation (RFA) was performed. The tumor biopsy also resulted small cell carcinoma, with positive synaptophysin stain. The patient was treated with 6 cycles of chemotherapy with Etoposide 80mg/m² and Cisplatin 80mg/m², following up studies revealed stable disease.

Conclusions:

Liquid biopsy to diagnose T790M presence in NSCLC patients resistant to EGFR-TKI might miss other possible resistance mechanism. Tissue biopsy should be considered to exclude the presence of SCLC transformation.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA34

支氣管內黏膜相關淋巴組織淋巴瘤-案例報告

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臺大醫院內科部¹

Mucosa-associated lymphoid tissue (MALT) lymphoma with isolated endobronchial involvement: A rare case report

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Background:

Primary pulmonary lymphoma is an uncommon disease, representing only 0.5–1% of lung neoplasm. Mucosa-associated lymphoid tissue (MALT) lymphoma is the most common type of pulmonary lymphoma. Patients with pulmonary MALT lymphomas typically have lung manifestations with alveolar localized opacity and air bronchogram under radiological study. Without lung parenchymal involvement, primary pulmonary MALT lymphoma with unique endobronchial involvement is rarely happened. We describe a case of primary pulmonary MALT lymphoma with isolated endobronchial involvement.

Case presentation: A 85 year-old female presented with cough and dyspnea for 4 months.

Hemoptysis was accompanied. Chest radiograph didn't reveal obvious lung lesion initially. Chest CT scan found left main bronchus severe narrowing without lung parenchymal lesion.

Bronchoscopy revealed mucosa nodularity with easy touch bleeding from left main bronchus to left upper deviation. The pathologic report via endoscopic biopsy revealed low-grade B-cell lymphoma, which cells are positive for CD20 and CD43. The lymphoma cells are negative for CD3, CD5, CD10, and cyclin D1. Bronchial mucosa was the only involvement site. Extranodal marginal zone lymphoma of mucosa-associated lymphoid tissue (MALT lymphoma) was most likely. There was no bone marrow involvement evidence. Whole body CT scan didn't show obvious lymphadenopathy. The diagnosis of pulmonary MALT lymphoma, Ann Arbor stage II, was made. Rituximab with 375mg/m² was administered every 4 weeks without significant adverse effect.

Conclusions: MALT lymphoma with endobronchial involvement alone is very rare. It is seldom included in the differential diagnosis of endobronchial manifestation. Therefore, tissue proof is necessary for accurate diagnosis and for further treatment planning. Bronchoscopic biopsy seems to be suitable for providing adequate tissue sample.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA35

以雙側肺葉實質化表現的肺部結外邊緣區淋巴瘤

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4 高雄醫學大學醫學院內科學科

Pulmonary extranodal marginal zone lymphoma presented with consolidation pattern of bilateral lung field

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Introduction: The extranodal marginal zone lymphoma (EMZL) is the subtype of the Non-Hodgkin lymphoma. It is also known as low grade B cell lymphoma of mucosa associated lymphoid tissue (MALT). Pulmonary EMZL is the most common type of indolent B-cell primary pulmonary lymphoma arises from post-germinal center memory B cells.

Case report: We present a case of a 51-year-old female with hepatitis B who presented with cough and yellowish sputum for 3 days. Associate symptoms included fever at night, decreased appetite. Her chest radiograph revealed bilateral consolidative lesions. Initial laboratory results as hemogram, renal function, electrolytes, and liver function tests were normal. Chest CT showed that consolidation patches and ground-glass patches were noted in bilateral lung fields. And lymph nodes were noted at the mediastinum and bilateral axillae. Bronchoscopy and endobronchial ultrasonography (EBUS) were done twice in the follow up two years, and both showed diffuse erythematous mucosa over bilateral airways and consolidation over left upper and ligular bronchus.

The pathological results of the bronchoscopic biopsy could not make definite diagnosis. The autoimmune titer and tumor marker were also within the normal ranges. Sputum acid fast stain showed negative, sputum culture showed no conclusive result. We followed Chest CT three times in 2 years interval and the results showed no obvious change of consolidative area in both lungs. We arranged video assisted thoracoscopic surgery for tissue proof. And pathology showed marginal zone lymphoma. We transferred the patient to Hemato-Oncology Department for further treatment.

Conclusion: Etiology of EMZL is considered to be associated with long-term antigenic stimulation or secondary to chronic inflammation due to infectious and/or autoimmune processes. Most of pulmonary EMZL are asymptomatic or non-specific and are usually presented with abnormal chest radiograph. Radiological findings include consolidation, nodules and masses. Tissue biopsy and immunohistochemical staining are needed for definite diagnosis. The prognosis is usually good. The current available treatments included surgery, and chemotherapy.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA36

合併吉舒達與健澤治療非小細胞肺癌造成肺結核再活化

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Reactivation of Tuberculosis Infection In a Patient Treated with a Combination of Pembrolizumab and Gemcitabine for Non-Small Cell Carcinoma: Case Report

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Introduction

Immune checkpoint inhibitors (ICBs) are widely used for promoting reactivation of anti-tumor immunity. ICBs may lead to some immune-related adverse event (irAEs). Reactivation of pulmonary tuberculosis may result from a consequence of excessive reactivation of immune responsiveness to latent Mycobacterium tuberculosis infection. Till now, 11 case reports of ICSs associated reactivation of tuberculosis were published in a pubmed search. Since Gemcitabine is a cytotoxic chemotherapy, combination of immunotherapy and chemotherapy may have higher opportunity to induce reactivation of pulmonary tuberculosis.

Here we presented one case with lung adenocarcinoma suffered from Mycobacterium tuberculosis infection after about 2 months of management with Pembrolizumab and Gemcitabine.

Case Presentation

A 76-years-old man with hypertension, prostate cancer post prostatectomy, and lung adenocarcinoma (T3N3M0, stage IIIB when diagnosed initially). Right middle lobe lobectomy and mediastinal lymph node dissection was performed accompanied by intraoperative radiotherapy. However, no driver mutation included EGFR, ALK and ROS-1. TPS of Programmed cell death 1 ligand 1(PD-L1) was up to 60%. After operation, vinorelbine and cisplatin were prescribed as adjuvant chemotherapy. 6 cycles of Doctaxel and Carboplatin were followed due to recurrence. Unfortunately, the follow-up chest CT showed progression and immunotherapy with Pembrolizumab alone was infused since Dec 2018. However, worsening status of lung consolidation lesions was still mentioned after 3 course of single Pembrolizumab therapy. Due to above, pemetrexed, carboplatin and pembrolizumab were prescribed for another 6 course. Because of poor response, we decided to prescribe gemcitabine plus Pembrolizumab since June 2019. However, after 2 course of combination of pembrolizumab and gemcitabine, the patient complained productive cough with sputum and fever up to 39.6°C. Acid-fast stain of sputum showed positive (3+) result and tuberculosis PCR was checked and also showed positive. Pulmonary tuberculosis was diagnosed and Rifater and Ethambutol were initiated since Sep 2019.

Discussion

Till now, 11 case reports of ICSs associated reactivation of tuberculosis were published in a pubmed search. Tuberculosis reactivation could be one complicated of immunotherapy. The exact mechanism of increasing susceptibility to MTB after administration of ICBs is still not known. PD-1/PD-L1 blocking T cell exhaustion may escape immune surveillance and TB reactivation may occur. Further studies and research should be required to resolving such challenges.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA37

酪胺酸激酶抑制劑(TKI)作為 EGFR 突變陽性非小細胞肺癌一線治療的臨床經驗

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² 天主教輔仁大學醫學系

Real-world experience of tyrosine kinase inhibitor (TKI) as first-line therapy for EGFR mutation-positive non-small cell lung cancer

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Purpose: Three tyrosine kinase inhibitors (TKI) have been approved as first-line therapy for non-small cell lung cancer (NSCLC) in Taiwan. Our study aims to evaluate the efficacy of these three TKIs in NSCLC patients in our hospital.

Materials and Methods: This is a retrospective study utilizing chart review. Enrollment included all patients with EGFR gene mutation-positive NSCLC verified by pathology or cytology specimens in our hospital who started first-line TKI treatment between June 2014 and May 2018. Patients who received treatment for less than 3 months were excluded from the study. A total of 107 patients was included in the final analysis. They were categorized into 3 treatment groups by choice of first-line TKI: 27 in the gefitinib group, 33 in the erlotinib group, and 47 in the afatinib group. **Results:** The age distribution was significantly different in the 3 treatment groups (92.6%, 87.9%, and 61.7% ≥ 60 years age in gefitinib, erlotinib, and afatinib groups, respectively, p = 0.002). ECOG performance status at initial presentation was also different in the 3 groups (70.4%, 63.6%, and 91.5% ECOG < 2 in gefitinib, erlotinib, and afatinib groups, respectively, p = 0.008). A higher percentage of NSCLC patients are alive at month 12, 24, and 36 on afatinib first-line as compared to gefitinib and erlotinib. Median time on treatment was 10.0 months for all 3 treatment groups. However, median overall survival time was 19.1, 22.9, and 35.6 months for gefitinib, erlotinib, and afatinib groups, with statistical significance between gefitinib and afatinib groups (p = 0.009). In the ≥ 60 years age group, afatinib group has statistically longer survival compared to gefitinib group (p = 0.01). Patient's performance status (ECOG ≥ 2 vs. <2) at the time of diagnosis and male sex are positively correlated with worse survival (hazard ratio 4.73 and 2.85). In patients with exon 19 deletion, afatinib is associated with better survival compared to both gefitinib and erlotinib groups (p = 0.004 and p = 0.005, respectively).

Conclusions:

In this retrospective, single-center, observation study, first-line afatinib in EGFR mutation-positive NSCLC patients is associated with longer overall survival despite similar median time on treatment compared to erlotinib and gefitinib groups. This survival benefit was seen especially in the ≥ 60 age group. Higher ECOG score and male sex are correlated with worse survival in the overall population.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA38

在現實世界中以抑癌寧做為接受過化放療且無法切除之第三期非小細胞癌患者之鞏固治療-初步結果報告

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林口長庚呼吸胸腔內科, 林口長庚胸腔腫瘤中心, 林口長庚腫瘤科, 高雄長庚呼吸及急重症科

Consolidation Treatment of Durvalumab after Chemoradiation in the Real World Patients of Stage III Unresectable Non-Small Cell Lung Cancer: The Preliminary Result

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Introduction: Treatment for the stage III non-small cell lung cancer (NSCLC) of unresectable disease mainly involves the concurrent chemoradiation (cCRT). Recently, consolidation treatment with durvalumab, given in the wake of cCRT, represented a major therapeutic advance that improved the survival in this group of patients (*Antonia et al. N Engl J Med 2017; 377:1919–29*). However, the performance of this treatment strategy in a real world setting remains unknown.

Method: Between January 2018 and November 2018, we retrospectively analyzed 30 patients with stage III unresectable NSCLC who had disease control confirmed by computed tomography in 6 week after the completion of cCRT. Twenty-eight of them participated in the durvalumab early access program. All patients received durvalumab 10 mg/kg every two weeks and the treatment efficacy was analyzed.

Result: Among the study population, the median age was 64 [52-72]; 25 (83.3%) patients were male, 22 (73.3%) patients were current or ex-smoker. Twenty (66.7%) patients were adenocarcinoma and 5 (16.7%) patients had driver gene mutation in which 4 were *EGFR* mutation and 1 was *ALK* fusion. The median time between the confirmation of cCRT response and the initiation of durvalumab treatment was 2.4 [1.0-3.4] months. At the time of analysis, the median progression free survival (PFS) of durvalumab treatment was not reached with the 1-year PFS at 57.6%. The objective response was noted in 8 (26.7%) patients who all had a partial response. Eighteen (60.0%) patients had a stable disease and 4 (13.3%) patients had a progression disease. The median absolute lymphocyte count (ALC) at durvalumab initiation was 960/ μ l where the median PFS of patients with high ALC was not reach (95% C.I. 11.4–not reach) compared to 12.6 months (95% C.I. 8.9 – not reach) for patients with low ALC.

Conclusion: Consolidation treatment of durvalumab for stage III unresectable NSCLC in the real world setting is comparable to the clinical trial results. ALC level may have an association with treatment efficacy.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PA39

由子宮轉移至肺臟及心臟腫瘤 – 個案報告

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Lung and cardiac masses, metastasis from uterus – case report

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Background: We present here a case that presented with bilateral lung nodule, masses and cardiac tumor at presentation, with the origin from uterine sarcoma.

Case presentation: This is a 60 years old female was referred to our hospital who presented with chronic cough and fatigue for more than 1 month. Chest images presented with lung nodules and masses. Chest CT with and without contrast presented with varying in size lung nodules and masses over bilateral lungs, also intracardiac mass was seen. The patient was admitted to hospital, and the consulting cardiologist performed an echocardiography, describing a large 4×3-cm solid mass adherent to leaflets of the tricuspid valve. Biopsy from lung mass was reported initially as necrotic debris, with no malignancy nor tuberculosis picture. Re-biopsy was done and the final report was sarcoma. Further evaluation with abdominal and pelvic CT showed a huge uterine mass. The final diagnosis was uterine sarcoma with lung and cardiac involvement. She opted for palliative care and died weeks later in the hospital.

Discussion: Uterine leiomyosarcoma is an uncommon mesenchymal neoplasm accounting for 1.3% of all uterine malignancies. Typically, early and frequent aggressive hematogenous dissemination can occur, with the lungs being the site most frequently involved. Lung metastases were seen as pulmonary nodules and masses varying in size between 5 mm to 14 cm with cavitation noted in larger nodules. Cardiac metastases from uterine leiomyosarcomas are extremely uncommon. There are no data which demonstrate an overall survival benefit from either adjuvant radiotherapy or adjuvant chemotherapy. Uterine leiomyosarcoma are aggressive tumors with poor survival rates.

Conclusion: In presence of lung nodule and masses concomitant with heart mass, metastatic sarcoma need to be considered, especially from uterine in female patients.

Airway Disease

Sleep Medicine

Interstitial Lung Disease

Other

- A. ☒ 原著論文 (Original Paper)

☐ 病例報告論文 (Case Report)
- B. ☒ 口頭報告 (Oral Presentation)

☐ 海報競賽 (Post)

OB01

慢性阻塞性肺病合併支氣管擴張症改變肺微生物叢基因體且有較高的嗜中性球胞外網狀結構及肺部發炎指數

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Coexistence of chronic obstructive pulmonary disease (COPD) and bronchiectasis is associated with the changes of lung microbiome, higher neutrophil extracellular traps (NETs) and airway inflammation

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Purpose: We aim to investigate the difference of lung microbiome and airway inflammation in chronic obstructive pulmonary disease (COPD) patients with concomitant bronchiectasis (Bronchiectasis-COPD overlap syndrome-BCOS) compared to those with or without emphysema.

Patients and Methods: Stable COPD patients received high resolution computed tomography (HRCT) to confirm the presence of bronchiectasis or emphysema. The severity of emphysema was quantified by the low attenuation volume percentage (LAV%) of whole lung volume using -950 Hounsfield unit (HU) threshold. The radiological severity of bronchiectasis was identified by radiologist using bronchiectasis severity index (BSI). Bronchoscopy and bronchoalveolar lavage (BAL) were collected for lung microbiome analysis via 16S rRNA sequencing. Neutrophil extracellular traps (NETs) level in BAL fluid were analyzed for myeloperoxidase (MPO)-DNA complexes level using enzyme-linked immunosorbent assay. Inflammatory cytokines of BAL were examined by multiplex immunoassays. The associated clinical information and blood samples of the patients were also collected for further analysis.

Results: A total of 40 patients were included for analysis, including 12 patients with BCOS, 16 patients with emphysema-predominant COPD ($\geq 10\%$ LAV), 6 patients with non-emphysema predominant-COPD ($< 10\%$ LAV) and 6 non-COPD patients. Lung microbiome analysis showed that BCOS group had significantly predominant Proteobacteria spp. (*H. Influenza* and *P. aeruginosa*) and the lowest shannon diversity compared to other groups, but had no change in the compositions of lung microbiome analyzed by principal coordinate analysis (PCoA). Moreover, BCOS group also had higher NETs formation compared to COPD and non-COPD groups ($p < 0.05$). Although the neutrophil count of BAL was similar in each group, the inflammatory cytokines such as IL-6, IL-8, TNF-alpha, IL-beta, MCP-1 were significantly higher in BCOS groups compared to other three groups ($p < 0.05$).

Conclusions: Patients with BCOS not only were associated with higher proportion of Proteobacteria spp. (*H. Influenza* and *P. aeruginosa*) colonization in airway, but also had increased NETs and marked airway inflammation compared to COPD patients with or without predominant-emphysema.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☒ 口頭報告 (Oral Presentation) ☐ 海報競賽 (Post)

OB02

NOTCH3 過度表現與肺阻塞患者 Th1 免疫反應之相關性

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NOTCH3 overexpression is associated with Th1-related response in patient with COPD

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Purpose: Chronic obstructive pulmonary disease (COPD) is characterized by airway inflammation associated with a Th1- biased cytokine environment. The CD4+Th1-specific conversion and activation may be an initiator of COPD inflammatory response, which typically expresses IFN- γ and commonly express T-bet. NOTCH signaling is required for differentiation into various T-cell subsets. Importantly, the involvement of Notch1/Notch3 in COPD have been documented. Moreover, blocking NOTCH signaling ameliorate airway inflammation in mice in a therapeutic setting. However, the role of NOTCH signaling in T cells development in COPD and the underlying mechanism is still unclear. In this study, we aimed to evaluate the correlation between Notch signaling and T helper cells in COPD.

Materials and Methods: In this study, we aimed to evaluate the correlation between Notch signaling and T helper cells in COPD. We isolated human peripheral blood mononuclear cell (PBMC) using Ficoll-Paque™. The mRNA expression of NOTCH1, NOTCH2, NOTCH3, T-bet, GATA-3, Foxp3, ROR γ t, IFN- γ , STAT1, STAT4 were determined by q-PCR. mRNA was calculated using the comparative cycle threshold (CT) ($2^{-\Delta\Delta CT}$) method with GAPDH as the endogenous control for data normalization. Statistical analysis was performed using a commercial software package (SPSS version 22).

Results: The result show that NOTCH1 and NOTCH3 levels were significantly different in health control, ever smoker with COPD, and smoker with COPD. Pearson's correlation analysis showed that NOTCH3, but not NOTCH1 or NOTCH1, was positively related to T-bet and IFN- γ in COPD, especially in smoker with COPD. Moreover, the expression of STAT-4, an essential role in Th1 differentiation, is also positively correlated with NOTCH3, instead of STAT1.

Conclusions: These findings suggest that overexpression NOTCH3 have strong correlation with Th1-derived response in patients with COPD and related to STAT4 activated, especially in smoker with COPD.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☒ 口頭報告 (Oral Presentation) ☐ 海報競賽 (Post)

OB03

實驗室睡眠多項生理檢查相較於居家穿戴式裝置檢測高估阻塞型睡眠呼吸中止症嚴重度的探討性研究

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Overestimation in severity of obstructive sleep apnea (OSA) of in-lab polysomnography (PSG) comparing to home-based sleep testing by the wearable device

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Purpose: Obstructive sleep apnea (OSA) is one of the most important public health issues in modern society, until now the polysomnography (PSG) is the golden standard for assessing the severity of OSA. However, the real-world situations of OSA patients' sleep at home and the sleep during in-lab PSG could be very different due to the environment factors, and the direction and magnitude of bias are unclear.

Materials and Methods: One hundred and twenty-five patients, referring to sleep center of Shin-Kong Wu Ho-Su Memorial Hospital and Shuang Ho Hospital were included in this study. Wearable device Rooti RX, which includes ECG and accelerometer signals was applied simultaneously in the PSG conducted night and the following two to four days. Patients were divided into 3 groups by two criteria, one is grouped according to supine percentage during home sleep (low, medium and high supine percentage) and the second is the severity which accessed by in-lab PSG (AHI<15, 15-30, >30). The study had been divided into two steps. First, we validated the accuracy of wearable device for detecting the severity of OSA. Second, we compared the testing results of OSA patients from in-lab PSG and home-based wearable device.

Results: In the first step of this study, the validation of wearable device revealed a significant correlation with the in-lab PSG on the severity of OSA ($r = 0.8452$, $R^2 = 0.7144$, $P < 0.0001$). In the second step of this study, patients who sleep in low and medium supine percentage at home were observed to have a significantly increased percentage of supine position during the in-lab PSG ($30.72 \pm 22.82\%$, $29.34 \pm 16.80\%$, $4.18 \pm 22.62\%$, respectively). Besides, the severities were also significantly increased in these two groups when they were assessed in hospital PSG (10.91 ± 15.61 , 9.81 ± 14.78 , $p < 0.001$). In clinical aspect, patients with severe OSA (AHI>30) detected by in-lab PSG showed lower supine percentage at home ($59.65 \pm 20.64\%$, $56.54 \pm 20.09\%$, $47.53 \pm 23.85\%$, AHI<15, 15-30, >30, respectively). There were significant increases of supine percentage in the moderate and severe OSA patients when they were assessed by in-lab PSG compared with the home test ($21.07 \pm 20.71\%$, $26.58 \pm 22.23\%$, $p < 0.001$). Moreover, 48% patients ($n=60$) in the severe OSA group had the significant increases of AHI during in-lab PSG than home test (1503 ± 1844 , $p < 0.001$).

Conclusions: We identified a novel association between the elevated supine percentage and the increased severity of OSA, when we compared the results from in-lab PSG with home sleep test by wearable device. It's the first study suggesting that the possibilities of positional change could relate the increased OSA severity by environmental factors including the plenty attached wires on the body, especially in the patients with severe OSA. The results showed the importance of considering the alternative, reduced interfering options for evaluating the severity of OSA.

- A. ☒ 原著論文 (Original Paper)

B. ☒ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☐ 海報競賽 (Post)

OB04

秘密客計畫-氣喘及肺阻塞個案師衛教流程分析

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Analysis the quality of asthma and COPD case manager patient education process – standardized patient approach and evaluation program with single-blinded setting

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Purpose: We aimed to evaluate the quality of the inhaler technique and disease education provided by COPD and asthma case managers in medical centers and regional hospitals in Taiwan.

Materials and Methods: We trained 2 standardized patients of COPD and asthma respectively for evaluating the 13 medical centers and 4 regional hospitals. We evaluated the care quality of the COPD and asthma case managers in 3 aspects, including disease education, implementing of disease assessment tool (ACT, CAT, mMRC), and inhaler technique education under single-blinded (case manager) setting. Ten items and nine items were evaluated in asthma and COPD case managers, respectively. Each item counted for one score. In inhaler technique education, the standardized patients used different inhalation device, including Rapihaler/MDI, Turbuhaler, Breezehaler, Ellipta and soft mist inhaler (SMI). Our evaluation was if case manager could detect the critical error maneuver of inhaler use performed by standardized patients.

Results: A total of 17 asthma and 17 COPD case managers were evaluated. The score of asthma case manager evaluation were 6.2 in medical centers and 7.7 in regional hospitals (total score: 10). The average score in north, central and south Taiwan were 7, 6.2 and 5.6, respectively. The score of COPD case manager evaluation were 6.8 in medical centers and 6.8 in regional hospitals (total score: 9). The average score in north, central and south Taiwan were 6.8, 6.8 and 6.7, respectively. In asthma case manager’s evaluation, the detection rates of error maneuver in inhaler use were 79% in MDI/Rapihaler, 88% in Turbuhaler and 93% in Ellipta. In COPD case manager’s evaluation, the detection rates of error maneuver in inhaler use were 95% in Respimat, 100% in Breezehaler and 100% in Ellipta.

Conclusions: The quality of COPD case manager patient education process was similar in different regions and hospital level in Taiwan. The detection rate of error maneuver in inhaler use was highest in Ellipta (asthma and COPD) and Breezehaler (COPD).

Acknowledgement: The evaluation program was supported by Taiwan Society of Pulmonary and Critical Care Medicine Airway Committee and GSK (GlaxoSmithKline)

- A. ☒ 原著論文 (Original Paper)

B. ☒ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☐ 海報競賽 (Post)

OB05

慢性阻塞性肺病作為支氣管擴張症的表現型之長期臨床預測

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With Chronic Obstructive Pulmonary Disease as a Phenotype of Bronchiectasis for Long-term Clinical Prediction

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Abstract:

Background: Bronchiectasis and COPD coexist often though the causality is not clear currently. Both diseases could lead to an accelerated deterioration of pulmonary function individually. However, the clinical influence of COPD on patient with major bronchiectasis over time is not yet investigated much. Also, we were interested to further determine whether extent of bronchiectasis effected the clinical prognosis through the longitudinal data.

Method: This was a retrospective study recruiting consecutive bronchiectasis patients from chest OPD since January 2006 to December 2007. Under the setting of patients’ agreement and quantification with HRCT, included patients should receive multiple pulmonary function and exercise test with regular OPD follow up. The final analysis consisted of 66 eligible patients who were evaluate with clinical status, treatment and sputum culture from 10-year electronic medical records.

Result: Enrolled patients were followed up for average 7.65 years (SD: 4.58 years). Of the 66 patients, 45 patients (68%) had bronchiectasis without COPD and 21 (32%) patients had COPD in addition. Patients with COPD group had higher bronchiectasis extent score (32.21±13.09 points vs. 21.89±10.08 points, P= 0.001). Sputum production were reported more frequently by patient with COPD [95.2% (with COPD) vs 66.7% (without COPD), P=0.012] but no significant difference after three years OPD follow up (82.4% vs 81.6%, P=0.945). Bronchiectasis extent score correlate with positive sputum culture with *Pseudomonas aeruginosa* without synergistic effect from COPD (OR:1.06, CI: 1.00-1.12, P=0.031). No matter patients had COPD or not, after ten years, proportion of using ICS and/or LABA between two groups was not significant different.

Conclusion: COPD aggravated bronchiectasis extension which correlated with chronic *Pseudomonas aeruginosa* colonization. Moreover, COPD only effected medium-term (in 3-5 years) bronchiectasis treatment with bronchodilator and inhaled corticosteroid. Therefore, COPD phenotype of bronchiectasis could be a clinical predictor for long-term treatment.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☒ 口頭報告 (Oral Presentation) ☐ 海報競賽 (Post)

OB06

間質幹細胞可藉由改善阻塞性睡眠呼吸中止症的細胞自噬不足來保護細胞免於間歇性缺氧誘發的細胞凋零和細胞毒性

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Mesenchymal stem cell protects against intermittent hypoxia with re-oxygenation-induced cell apoptosis and cytotoxicity via ameliorating autophagy impairment in obstructive sleep apnea

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Purpose: Autophagy is a catabolic process that maintains cellular homeostasis by recycling damaged organelles and acts as a pro-survival mechanism under oxidative stress through inhibiting apoptosis, but little has been known about autophagy dysfunction in obstructive sleep apnea (OSA).

Materials and Methods: Gene and protein expressions of core autophagy-related genes were examined in peripheral blood leukocytes from 48 patients with treatment-naïve OSA and 12 matched subjects with primary snoring (PS). Human monocytic THP-1 cell lines were induced to undergo apoptosis/necrosis with intermittent hypoxia with re-oxygenation (IHR) exposures.

Results: ATG5, ULK1, and BECN1 gene expressions of peripheral blood mononuclear cells were decreased in OSA patients versus PS subjects (all p values<0.05). ULK1 gene expression was further decreased in OSA patients with excessive daytime sleepiness, and negatively correlated with Epworth Sleepiness Scale (both p values<0.05) ATG5 and LC3BII protein expressions of blood monocytes, and ATG5 protein expressions of blood neutrophils were decreased in OSA patients versus PS subjects (all p values <0.05). LC3BII protein expressions of blood monocytes were negatively correlated with apnea hypnea index (p<0.05). OSA patients with insomnia had lower LC3BII protein expressions of blood T helper cell, while OSA patients with memory impairment had higher P62 protein expressions of blood monocyte. In vitro IHR exposure resulted in down-regulations of ATG5, ULK1, BECN1, ATG9A, and LC3BII genes along with increased reactive oxygen species generation and increased apoptosis/cytotoxicity (all p values<0.05), while mesenchymal stem cell-conditional medium treatment partly reversed these abnormalities (all p values<0.05).

Conclusions: Impaired autophagy in OSA was associated with disease severity and clinical phenotypes, and contributed to IHR-induced cell apoptosis and cytotoxicity, which could be improved with mesenchymal stem cell treatment.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB01

六分鐘走路距離、簡式身體機能量表及 BODE 指標對慢性肺阻塞病人急性發作的預測性

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Predictive value of the six-minute walking distance, short physical performance battery score and BODE index for exacerbation of COPD

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Purpose: Acute exacerbation (AE) of chronic obstructive pulmonary disease (COPD) not only poses a threat to patients' lives but increases the economic burden. During pulmonary rehabilitation, we can evaluate a patient's physical performance with different tools and predict the risk of acute exacerbation in the future. **Methods:** Patients with COPD who were under pulmonary rehabilitation and had received both a six-minute walking test and short physical performance battery (SPPB) test were enrolled. They were followed up every month, and the numbers of AE were reported by the patients. Medical records were also reviewed to disclose emergency department visits or hospitalization due to AE. We evaluated the proportion and frequency of exacerbation in different GOLD stages, groups, BODE index and SPPB score utilizing the logistic regression model. Receiver operating characteristic (ROC) analysis was used to compare the sensitivity and specificity of different composite scoring systems. **Results:** A total of 205 patients with COPD had received pulmonary rehabilitation from December 2017 to August 2019 with six-minute walking distance and SPPB data. The mean age was 70.4 years and 186 (90.7%) were male. Their mean body mass index was 23.6 kg/m², and the mean FEV₁ was 68.9% of predicted value. Fifty-nine (28.8%) patients were GOLD stage I, 103 (50.2%) stage II, 36 (17.6%) stage III and 7 (3.4%) patients were stage IV. Most of them belonged to group B (53.7%). The mean 6-minute walking distance was 379.2 meters (81.5% of predicted value). Their median BODE index was 2, and the median SPPB score was 11. Near half (44.4%) of the patients had at least one AE 6 to 18 months after the evaluation, and 25.4% had at least one moderate to severe AE. The proportion of admission due to AE was 7.8%. The patient's GOLD stage, previous AE times in 1 year, and BODE index were associated with the risk of either total AE, moderate to severe AE, or admission due to AE after the evaluation. SPPB score had a poor correlation with AE risk. Replacing the 6-minute walking distance score in BODE with gait speed score and chair-stand score in SPPB would yield similar predictive value of severe AE as the original BODE index, areas under ROC curves 0.75 vs. 0.77.

Conclusions: The BODE index was useful in predicting AE among COPD patients under pulmonary rehabilitation. The six-minute walking test might be replaced with a simpler modality such as gait speed or chair-stand score in SPPB, with similar predictive value.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB02

慢性阻塞性肺病病人之急性惡化預測模式：以肺功能、急性惡化病史、症狀嚴重度及血液嗜酸性球數為基礎的急性惡化風險分級

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Prediction of exacerbation in patients with COPD: a simple exacerbation risk score comprising lung function, exacerbation history, symptom score, and blood eosinophil count

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Purpose: Acute exacerbation of chronic obstructive pulmonary disease is associated with decline of lung function, hospitalization, and risk of death. Since 2017, GOLD removed spirometry from the ABCD assessment tool. It has been debated that although exacerbation history is the robust predictor of exacerbation, many other factors particularly lung function and eosinophil count are also good predictors. We aimed to develop a simple prediction model, using clinically available data, to predict high exacerbation risk in COPD patients.

Methods: Since Jan 1, 2016, 283 patients with spirometry-proven COPD were prospectively enrolled and followed till Sep 30, 2019. To simplify the prediction model, we dichotomized potential predictors. The potential predictors associated with high exacerbation risk (≥ 2 exacerbation or ≥ 1 hospitalization) in the univariate model were selected into the multivariable model, using backward selection algorithm, to determine the final independent predictors for calculation of the exacerbation risk score. Finally, we compared exacerbation conditions among COPD patients with different exacerbation risk scores.

Results: A total of 321 exacerbations were observed in the 283 COPD patients during the follow-up period (median= 18.7 months). In multivariable analysis, only positive exacerbation history (OR 2.59, 95% CI 1.35-4.98), poor lung function (OR 3.01, 95% CI 1.68-5.39), high symptoms (OR 2.07, 95% CI 1.16-3.69), and eosinophilia (OR 2.18, 95% CI 1.23-3.86) were independently associated with high exacerbation risk (AUC= 0.747). We calculated the exacerbation risk score based on these 4 predictors. The exacerbation conditions during the follow-up period was significantly different among patients with different exacerbation risk scores (Table).

Exacerbation Risk Score	0 (N= 73)	1 (N= 96)	2 (N= 70)	3 (N= 35)	4 (N= 9)	P value	P for Trend
Any exacerbation during follow up	15 (20.6%)	41 (42.7%)	44 (62.9%)	24 (68.6%)	7 (77.8%)	<.0001	<.0001
Any hospitalization or ER visit during follow up	0 (0.0%)	2 (2.1%)	9 (12.9%)	10 (28.6%)	3 (33.3%)	<.0001	<.0001
Exacerbation ≥ 2 /yr	7 (9.6%)	19 (19.8%)	26 (37.1%)	19 (54.3%)	5 (55.6%)	<.0001	<.0001
Exacerbation ≥ 2 /yr or hospitalization or ER visit	7 (9.6%)	19 (19.8%)	29 (41.4%)	20 (57.1%)	6 (66.7%)	<.0001	<.0001
Annual exacerbation rate	0.75 (0.48-0.97)	0.75 (0.45-1.32)	0.83 (0.66-1.93)	1.66 (0.80-2.89)	1.91 (1.55-5.22)	0.0006	

Conclusions: We proposed an exacerbation risk score to predict high exacerbation risk in COPD patients, based on 4 clinically available data: positive exacerbation history (≥ 2 exacerbation or ≥ 1 hospitalization), poor lung function (FEV₁%pred < 50%), high symptoms (CAT ≥ 10 or mMRC ≥ 2), and eosinophilia (blood eosinophil count ≥ 300 cells/ μ L). After external validation, this exacerbation risk score may have high potentials for clinical applications.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB03

丁香萃取物在 OVA 誘導氣道發炎之功效評估及其機制探討

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Anti-inflammatory effect of clove extracts in an ovalbumin (OVA)-induced murine asthma model

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Purpose: In Taiwan, clove was widely used as a folk medicine for their various claimed bioactivities, but most of them were lack of strict research to support the efficiencies. Thus, the objective of this project is to evaluate protective activities of clove extracts against OVA-induced allergic asthma. Effect of MEC on the levels of AHR and airway inflammation were evaluated using OVA-induced asthma model.

Materials and Methods: OVA-induced murine asthma model was used to evaluate anti-inflammatory effect of clove extracts. The levels of IL-4, IL-5, IL-13, in BALF were determined using ELISA kits. Statistical analysis was performed using a commercial software package (SPSS version 22).

Results: First, we found that methanol extract of clove (MEC) decreased OVA -induced AHR and airway inflammation in a dose-dependent manner. Moreover, MEC suppressed the production of OVA-induced Th2 cytokines in BALF, including IL-4, IL-5 and IL-13 expressions. Furthermore, MEC also reduced OVA-specific Ab in serum and T-cell expansion in thoracic lymph node (TLN).

Conclusions: In conclusion, we suggest that MEC is a potential nature compound to ameliorate OVA-induced AHR and airway inflammation.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB04

探討慢性阻塞性肺病個案與對照組個案間共病症形成的時序變化

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Trajectories of comorbidity development in patients with chronic obstructive pulmonary disease versus non-chronic obstructive pulmonary disease controls

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Purpose: Comorbidities impact a major proportion of patients with chronic obstructive pulmonary disease (COPD), and adversely affect their quality of life and increase the risks of hospitalization and mortality. Undoubtedly, timely identification and management of comorbidities are of paramount in caring for COPD patients. However, to date, little is known about the trajectories in comorbidity burden among patient with COPD.

Materials and Methods: From the institutional medical database, all spirometry-confirmed COPD patients with a 5-year follow-up period were identified as the case subjects. The prevalence of comorbidities and their trajectories in the COPD cases were compared with those in the non-COPD control subjects matched for age, sex and baseline Charlson comorbidity index (CCI).

Results: Over the study period, a total of 682 patients, 341 each in the COPD and control groups. The mean age of the whole population was 69.1 years and the vast majority (89%) of them were male. On baseline, the mean CCI was 1.9 for both groups of patients, and significantly increased to 3.4 and 2.7 in COPD and control groups, respectively (both $P < 0.001$). Notably, the increase was more prominent in patients with COPD than controls ($P < 0.001$). Hypertension, coronary artery disease and diabetes mellitus were the most prevalent comorbidities in both COPD and control patients on enrollment. Through the 5-year follow-up, a significant increase in the prevalence of hypertension ($P < 0.001$ vs. 0.007 for COPD and control, respectively) and coronary artery disease (both $P = 0.001$) was observed in both groups of patients; however, the increasing trend was similar between them ($P = 0.056$ vs. 0.116 for hypertension and coronary artery disease, respectively). With regard to diabetes mellitus, an increase in prevalence was remarkable in patients with COPD but not controls ($P < 0.001$ vs. 0.226, respectively). Among other less prevalent comorbidities, namely, heart failure and peptic ulcer disease, a dissimilarity in the trend of increasing prevalence was also observed between two patient groups, with more prominent change in the COPD cases.

Conclusions: Compared with non-COPD controls, an increasing trend in comorbidity burden was more apparent among patients with COPD. Further studies are required to investigate potential benefits of proactive surveillance of comorbidities in the COPD population.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB05

患糖尿病 COPD 患者在台灣的醫療費用，健康資源使用與相關抗糖尿病藥物-觀察型研究

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高雄長庚紀念醫院

The cost, health resources utilization, and medications in chronic obstructive pulmonary patients with diabetes mellitus: a population-based cohort study in Taiwan.

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Background

Chronic obstructive pulmonary disease (COPD) and diabetes mellitus (DM) often coexist. The mechanistic links between these two diseases are complex, multifactorial, and not entirely understood. DM was associated with worse outcomes in COPD patients and more frequent in COPD patients. Management of DM may be important in the clinical care of the COPD population. Dipeptidyl peptidase-4 (DPP-4) was highly expressed in bronchial epithelial cells of untreated chronic airway disease.

We wonder to explore the cost, health resources utilization, and medications in Chronic Obstructive Pulmonary Disease patients with Diabetes Mellitus and the effect of anti-DM medication including DPP-4 inhibitors on COPD patients

We conducted a cohort study and identified 147, 073 COPD patients from the Taiwan National Health Insurance Research Database (NHIRD) who had DM between 2010 and 2015.

Results:

After 1:1 propensity score matching of age, gender, Charlson index and co-morbidity, 121,844 COPD patients with DM were identified. COPD patients with DM had no difference in annual rate of acute severe and non-severe exacerbation of COPD but had higher medical cost of inpatient department (IPD) COPD patients with DM and controlled with DPP-4 inhibitors had higher health resource utilization and cost of outpatient clinics but lower cost of inpatient clinics, compared with those controlled with traditional DM medication, shown as Table 4 and 5.

Conclusion:

COPD patients with DM had no difference in the annual rate of acute severe and non-severe exacerbation of COPD. COPD patients with DM and controlled with DPP-4 inhibitors had lower clinics visit and the cost of inpatient care.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PB06

肺阻塞指引下的個人護照研究與規劃：一個原創的設計。

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A primary design of chronic obstructive pulmonary disease (COPD) passport for guideline-centered personal care plan: a study proposal

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Purpose: Education is important to COPD patient but there might be no evidence to change patient’s behavior in content of the current 2019 GOLD guideline. Physical activity could be a predictor of mortality before any pulmonary rehabilitation being applied to each individual case. A novel designed COPD passport and a system composed of group education program, on-line YouTube ® channel of 1080p high resolution (HR) videos and shared-decision making (SDM) program are introduced in this study proposal.

Materials and Methods: [Design] A prospective case follow-up study is designed with a primary introduction of guideline-centered COPD passport. [Primary goal] mortality at 25th week and 50th week follow-up days. [Second goal] quality of life and exercise endurance. [Criteria] Patient who meets criteria of both spirometry FEV1/FVC<0.7 and specified COPD symptoms in past 12 to 24 months is diagnosed to be COPD clinically. [Participants and Tools] A prepared 9cm*9cm card that is composed of figures with GOLD group (labeled A, B, C and D), CAT score (labeled 0, 10 and 20), admission number (labeled 0, 1 and 2) and written current-used inhaler would be delivered. Five sets in different color of the COPD passport are prepared to represent individual severity and to identify a different length-of-management directly to doctors in OPD or in emergency room (ER) at a regional teaching hospital. There are several prepared HR videos to introduce the main COPD knowledge, the life-quality target of COPD control by prescription of the current pharmaceutical inhalers for COPD, the content of COPD passport and its clinical management goals. [Methods] When patient come at the next visit in out-patient-department to show this COPD passport card to his/her pulmonary physician, a 10-to-20 minutes’ interactive education activity could be initiated smoothly by physician or by COPD case-manager. [Measures] Numbers of event-censored and length-of-date of event-free days are recorded.

Results: 1) White COPD passport card represents a basic use for who is in first 6 to 9 months after initiating medications. 2) Green card is used in entry management to patient kept in maintenance regular visits receiving full course of education. 3) Yellow card represents an enhanced management to those who with pulmonary rehabilitation at home or in hospital, and also to those who visited to ER once or twice without documented cardiac emergency or malignancy in 9 to 12 months after diagnosis. 4) Red card is an identity of challenge to present those who long-term followed-up for 12 to 18 months or longer, to whose FEV1%pred value in spirometry is less than 30% and, to those who achieved once or more hospital admission by acute exacerbation with a life-threatened event in past 3 months. It is also designed for those who with a specialists’ joint-recommendation and wait for thoracic surgery. 5) Colorful card is a special COPD passport for those who diagnosed to be COPD with or without a documented spirometry result in departments other than pulmonology or in local medical clinics. It offers a recommendation by doctors in charge of any COPD comorbidities from cardiovascular, orthopedics and even psychiatrics to each case for further help in pulmonary specialist’s OPD.

Conclusions: The results might be chased after 30th week of mid-term analysis and in the 60th week final analysis in late- 2020 to mid- 2021.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PB07

在台灣真實世界研究發現 Montelukast 使用與較低的憂鬱症有關

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Montelukast Use is Associated with a Lower Risk of Depression in Taiwan in a Real-World Setting

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Purpose: Montelukast is widely used in patients with bronchial asthma and allergic rhinitis. Recent studies reported some psychiatric side effect related to montelukast use in children. However, the association between montelukast use and depression in adults remains unclear.

Materials and Methods: Using the Taiwan National Health Insurance Research Database, we conducted a nationwide population-based study. Adults taking ≥ 30 days of montelukast during 2000-2013, without antecedent depression, were included. Data from 1,289 montelukast users and 4,980 age-, sex-, and enrollment date-matched subjects were analyzed. The two cohorts were monitored until December 31, 2013 for incident depression.

Results: Of the total 6,225 subjects, 1,022 (16.42%) developed subsequent depression. Multivariate analysis revealed a reduced risk of depression among the montelukast cohort (hazard ratio [HR] 0.77, 95% confidence interval [CI] 0.62-0.96; p=0.020). Compared with the matched group, montelukast use showed a dose-response relationship with the incident depression risk (300-600 cumulative defined daily doses [cDDD]: HR 0.88, 95% CI 0.64-1.22, p=0.438; >600 cDDD: HR 0.63, 95% CI 0.45-0.88, p=0.006).

Conclusions: Montelukast use was associated with a lower risk of depression development.

Table 2. The effects of montelukast on depression

Variables	Depression	
	HR (95% CI)	<i>p</i>
Montelukast (mg)		
No use	Reference	
≥ 300	0.77 (0.62-0.96)	0.020
300-600	0.88 (0.64-1.22)	0.438
>600	0.63 (0.45-0.88)	0.006
Every 300	0.93 (0.88-0.99)	0.015

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB08

急性呼吸衰竭為成年發病的粒線體疾病最初表現 – 病例報告

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Acute respiratory failure as a first manifestation of adult-onset mitochondrial diseases

- A case report

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Introduction :

Respiratory failure usually occurs in the late stage of the mitochondrial myopathy and is associated with deterioration of respiratory muscle weakness. An acute episode of respiratory failure as the initial and predominant presentation in adult-onset mitochondrial disease is rarely reported and is easily misdiagnosed as other neuromuscular disorders. Here we report an adult case who presented with acute respiratory failure as the initial manifestation of mitochondrial diseases

Case Report :

This 51-year-old woman with mitral valve prolapse presented to our emergent department due to general weakness and altered consciousness for 2 days. Her initial vital sign was stable with BT:35°C, HR:93/min, RR: 21/min, and BP: 117/69mmHg. GCS: E2V1M3. Arterial blood gas revealed pH: 6.985, PaO2: 63.7mmHg, HCO3: 41.2mEq/L, pCO2: 176.9mmHg, and SaO2: 92.1%. Emergent intubation was performed for acute respiratory failure. Checking urine benzodiazepine level reported over 800ng/ml yield. However, easily CO2 retention was noted even under normal urine benzodiazepine level. Brain MRI and polysomnography were arranged to rule out brain lesion or sleep apnea related hypoventilation syndrome with hypercapnia, which both reported negative result. EMG and NCV tests were done which showed negative finding for neuro-muscular problem. Pulmonary function test revealed severe restrictive pattern. Autoimmune and metabolic-endocrine examinations were evaluated which reported normal results. The patient used home BiPAP support for suspicious idiopathic hypoventilation syndrome. Later, the patient received a skeletal muscle biopsy and the serum genetic test which reported that the mitochondria disease mutation point of A3243G was detected. According to the findings above, the patient was finally diagnosed as an adult-onset mitochondrial myopathy with respiratory failure as the initial presentation.

Conclusion :

Mitochondrial diseases are caused by genetic mutations in either mtDNA or nuclear DNA which may lead to a diverse range of symptoms affecting virtually all organ systems. Although acute respiratory failure as the early and predominant manifestation in adult-onset isolated mitochondrial myopathy is very rare, this disease still needs to be considered when an adult patient presented with idiopathic hypercapnic respiratory failure.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB09

以 BODE 指數預測慢性阻塞性肺疾病的共病指數及醫療資源耗用相關性

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Using BODE index to predict health utilization resources and comorbidities in Chronic Obstructive Pulmonary Disease

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Background and objective: Chronic Obstructive Pulmonary Disease (COPD) is a common chronic respiratory disease. It may take a long time to develop into respiratory failure or even death and may coexist with other diseases. Over time, it may cost huge medical expenses and result in a heavy socio-economy burden. The BODE (body mass index, airflow obstruction, dyspnea, and exercise capacity) index is a predictor of the number and severity of acute exacerbations of COPD. This study focused on the correlation between the BODE index and healthcare resource utilization in COPD.

Patients and method: This is a retrospective study on clinical outcomes of the COPD patients with complete BODE index data who had undergone a 6-minute walk test (6MWT) in our hospital from January 2015 to December 2016. Based on the patient's medical records from our hospital's electronic database from January 1, 2015, to August 31, 2017, we analyzed the correlation between BODE index, medical resources, and Charlson comorbidity index (CCI).

Results: Of the 396 patients with COPD who met the inclusion criteria, 382 were male, which was 96.5% of the total, with an average age of 71.3 ± 8.4 years. In this study, there was a significant association between the BODE index and the CCI of COPD patients (p < 0.001). Healthcare resource utilization was positively correlated with the BODE index during the 32 months of retrospective clinical outcomes: positively correlated with the hospitalization expenses (p=0.005) (Figure A), total medical expenses (p=0.024) (Figure B), number of hospitalizations (p<0.001) (Figure C), and hospitalization days (p<0.001) (Figure D), respectively.

Conclusion: This study confirmed the value of the BODE index which was able to predict CCI and had a positive correlation with healthcare resource utilization.

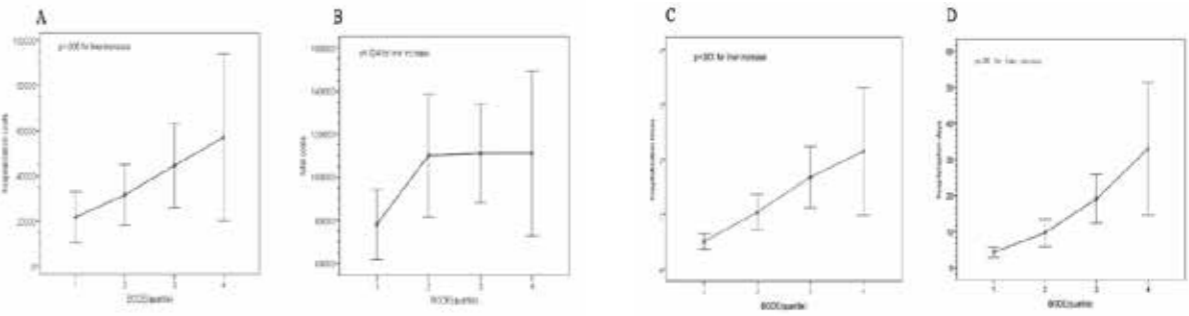


Figure. The relation between BODE Quartile and the fees: (A) Hospitalization expenses (B) Total medical expenses (C) Hospitalization time (D) Hospitalization days

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB10

疾病管理以及衛教護理介入以提升嚴重氣喘控制之成效

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The effectiveness of disease-management and healthcare nursing intervention to improve severe asthma control

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Purpose: Asthma is one of the most common chronic diseases worldwide. Although severe asthma is a major cause of patient disability and it impacts on all aspects of a patient's life. Patients fails to comply with asthma treatment for variety of reasons. The aim of this study was to evaluate the effects of a disease-management strategy delivered via a healthcare nurse on asthma control in patients with severe asthma.

Materials and Methods: Patients with severe asthma treated with omalizumab (xolair®) were enrolled from a Chest outpatient department of a medical center in Taipei. The asthma education includes: recognition of allergic asthma, treatment plans, understanding of asthma medications, how to use medications, assessment of severity, avoiding allergens, peak expiratory flow meter, and self-management. Data were collected prospectively covering patient demographics, comorbidities, peak expiratory flow rate (PEFR), and asthma control questionnaire assessment (ACT) score.

Results: From January 1 to September 30, 2019, a total of 23 patients were eligible, of whom were predominantly middle age (aged 40 to 59, 48%), female (78%), obese (BMI > 27 kg/m², 34.7%) and had numerous comorbidities (smoking 30.4%, gastroesophageal reflux 30.4%, allergic rhinitis 78.2%, obstructive sleep apnea syndrome 4.3%, food/environmental allergy 82.6%). After introducing a disease-management approach, PEFR showed a fluctuated and downward trend ($R^2 = 0.035$, $p = 0.150$); while ACT demonstrated a significantly steadily increased trend ($R^2 = 0.221$, $p = 0.034$).

Conclusions: For patients with severe asthma, a disease-management and healthcare nursing intervention will help to achieve higher ACT score and better asthma control, as well as improve their symptoms and raise quality of life.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB11

跨領域團隊合作治療肺阻塞病患之成效

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The effectiveness of cross-disciplinary teamwork to treat patients with chronic obstructive pulmonary disease

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Purpose: Chronic obstructive pulmonary disease (COPD) is complex disease and characterized by acute exacerbations and persistent deterioration. In COPD self-care, the priority is to educate patients to control their symptoms and to avoid the risk of serious attacks. The aim of the study is to examine whether a cross-disciplinary teamwork and follow-up care could improve patients' outcomes.

Materials and Methods: Patients with COPD were enrolled from a Chest outpatient department of a medical center in New Taipei City. The medical team consists of physicians, a case manager, and respiratory therapists. Information regarding COPD patient characteristics was registered on a standardized form and lung function was measured. Patients were categorized according to the GOLD classification.

Results: From December 13, 2017 to June 30, 2018, 70 patients were enrolled and followed-up for 1 year, who were elderly (age > 80 years, 36%) male (83%) predominant. At the initial and annual assessments, the degree of airflow obstruction (%FEV₁) ≥ 65, 50-64, 36-49, ≤ 35 were 48.4%, 25.8%, 22.6%, 3.2%, and 51.5%, 35.5%, 6.5%, 6.5%, respectively; the degree of dyspnea (mMRC) score 0-1, 2-3 were 51.6%, 48.4% and 90.3%, 9.7%, respectively; exercise capacity according to six-minute walking distance (6MWD) ≥ 350m, 250-349m, 150-249m, ≤ 149m were 45%, 26% 19.4%, 9.6% and 54.8%, 32.3%, 9.7%, 3.2%, respectively. The BODE index improved significantly (mean ± SD, from 2.47 ± 1.61 to 1.57 ± 1.14, $p = 0.015$). In addition, the rate of acute attacks decreased remarkably (from 20% and 7%, $p = 0.072$).

Conclusions: For patients with COPD, a cross-disciplinary teamwork and follow-up care will help to improve dyspnea, increase walking distance, reduce the BODE score, decrease risk of exacerbation, and raise quality of life.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB12

利用經支氣管鏡切片為嚴重氣喘患者選擇適當的生物製劑治療：病例報告及文獻回顧

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**Bronchoscopy Biopsy for Selecting Appropriate Biologics in Treating Severe Asthma Subjects:
A Case Report and Literature Review**

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In the era of precision medicine, thorough molecular profiling is crucial for selecting the biologic therapy in treating severe asthma subjects. Some of the severe asthma subjects are refractory to the initial biologic therapy after blood molecular test has been accomplished. The bronchoscopy biopsy remained the best policy for overcoming the inconsistency between local airway inflammation and systemic inflammatory signature. Here we reported two cases of severe asthma subjects, one is allergic while the other is eosinophilic, both are refractory to first line biologic therapy and improved after biologic therapy adjustments according to the findings of local airway tissue through bronchoscopy biopsy.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB13

以氣管狹窄為單一表現之多發性軟骨炎

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Relapsing polychondritis with isolated tracheal involvement- a case report

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Abstract:

Relapsing polychondritis (RP) is a rare autoimmune disease, characterized by the inflammation of cartilaginous structures and proteoglycan-rich tissues. Chondritis (especially auricular) and polyarthritis are the most common presentations, and the eyes, heart valves, and blood vessels could also be affected. The etiology of RP is not fully elucidated, and the therapeutic options beyond steroid is largely empirical. Due to the nonspecific and usually variable initial presentations, and RP has been associated with a diagnostic delay. Tracheobronchial involvement is seen at presentation in only 10% of cases, conferring a poor prognosis and high rates of morbidity and mortality.

Here we report a 47-year-old man with relapsing polychondritis who initially presented to a cardiologist with chest tightness and dyspnea on exertion for 6 months. During the subsequent surveys, computed tomography (CT) of the chest revealed diffuse thickening of the cartilaginous portion of his trachea. He did not have pain or deformity involving his nose, ears, or joints of extremities. Ophthalmologic evaluation, and transthoracic echocardiographic examination of his cardiac valves, were unremarkable. Blood tests reported elevated levels of the erythrocyte sedimentation rate (ESR) and C-reactive proteins (CRP), while screening tests for autoantibodies were all negative. The pulmonary spirometry showed a flow-volume curve that suggested a fixed central-airway obstruction. The diagnosis of RP was made through a multidisciplinary discussion. Treatment of high-dose systemic methylprednisolone (1 mg/kg/day) plus methotrexate was initiated. The treatment course was soon complicated with an episode of acute respiratory distress syndrome resulting from severe *Pneumocystic jerovecii* pneumonia. However, the patient recovered well from the complication, and the therapy of systemic steroid has been continued and the dosage carefully tapered down. About five months after the initiation of treatment, the patient described subjective improvement in his exertional dyspnea and cough, and is now back to work. Follow-up CT of the chest revealed a visible decrement in the cartilaginous wall thickness of his trachea. This case posts great challenges, not only in the initial diagnosis, but also in determining the best follow-up modalities, evaluation of disease activity, and therapeutic options.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PB14

肺阻塞病人的尖端吸氣流速研究

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Inappropriate Forced Peak Inspiratory Flow Rate in Patients with Chronic Obstructive Pulmonary Disease

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Purpose: Appropriate forced peak inspiratory flow rate (F-PIFR) is crucial for optimizing dry powder inhaler (DPI) effectiveness for chronic obstructive pulmonary disease (COPD). Knowledge on the prevalence and factors associated with inappropriate F-PIFR against internal resistance of different DPIs, among patients with varying severities of COPD is lacking.

Materials and Methods: From May 2017 to February 2019, 138 COPD patients were enrolled. F-PIFR against different DPI internal resistances (medium-high, medium, medium-low, low) were evaluated and classified as excessive (≥ 90 L/min), optimal (60–89 L/min), suboptimal (30–59 L/min) or insufficient (< 30 L/min).

Results: F-PIFRs were measured against different resistances positively correlated with post-bronchodilator forced expiratory volume in one second and forced vital capacity, but negatively correlated with age. Proportion of excessive, optimal, suboptimal, and insufficient F-PIFR were 2%, 54%, 41%, 3%, respectively, against medium-high resistance; 2%, 77%, 20%, 1%, respectively, against medium resistance; 27%, 63%, 9%, 1%, respectively, against medium-low resistance; and 64%, 33%, 3 %, 0%, respectively, against low resistance ($p<0.01$). Insufficient F-PIFRs were infrequent. Medium resistance had highest probability of optimal F-PIFR; medium-high resistance showed most suboptimal F-PIFRs; low resistance were mainly excessive ($p<0.01$), irrespective of age ($p<0.01$), body-mass index ($p<0.01$), dyspnea severity score ($p<0.01$), and COPD severity ($p<0.01$). Suboptimal, and insufficient F-PIFR were more prevalent in patients > 75 years than in younger patients (36% vs. 56%, $p=0.036$) against medium-high resistance.

Conclusions: Inappropriate F-PIFR risk is affected by internal resistance of DPIs among COPD patients. F-PIFR should be measured before prescription of DPIs.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PB15

藉由延緩肺阻塞臨床重要惡化參數的方式來決定單一或是複方支氣管擴張劑的治療先後

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Determinate mono-bronchodilator or dual bronchodilator base on clinically important deteriorations in COPD treatment

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Purpose: The concept of "clinically important deterioration" (CID) has been developed in recent years. It is a novel composite end point assessing three important aspects (lung function, health status, and exacerbations) of worsening in COPD. Given the progressive nature of COPD, it is arguably more important to understand whether the available therapies are able to delay the CID. In our study, we compare mono or dual bronchodilator to evaluate which one can delay these deterioration and also want to determinate mono or dual bronchodilator can be used first base on the concept of delay CID in COPD treatment.

Materials and Methods: We retrospectively analyzed the newly diagnosed COPD patients from 2018-01 to 2018-07. The time to first CID was based on the first occurrence of any of the following: a decrease of ≥ 100 mL from baseline in FEV₁, an increase of ≥ 2 units from baseline in COPD assessment test (CAT) score, the occurrence of a moderate/severe COPD exacerbation.

Results: There were 110 COPD patients in our study, The initial treatment included dual bronchodilator (n =63), long-acting Muscarinic Antagonists (LAMA) (n=39), long acting beta agonists (LABA) (n=8). Fewer patients experienced a first CID with dual bronchodilator (40%) versus LAMA (72%), and LABA (75%). The risk of a first CID was reduced with dual bronchodilator (hazard ratio [HR]: 0.44 [95% confidence interval, CI: 0.37, 0.51]) versus mono bronchodilator. ROC curve analysis identified FEV1 was predictive of delay CID when use mono bronchodilator [area under the curve (AUC) 0.897] at a cutoff point of $> 70\%$. CAT score was also highly predictive with an AUC of 0.741 at a cut-off point of < 16 .

Conclusions: The risk of a first CID can be reduced by dual bronchodilator than mono bronchodilator. Mono bronchodilator may reduce the risk of a first CID if FEV1 $> 70\%$ or CAT score < 16 at initial evaluation COPD treatment.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB16

慢性肺阻塞病人進行六分鐘行走測驗導致血氧下降之預測因子探討：單一醫學中心經驗

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Predicting factor of exercise induced desaturation during 6-minute walking test in COPD: single center experience

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Purpose: Exercise induced desaturation (EID) limits COPD patient to achieve adequate physical activity and pulmonary rehabilitation. Previous study focused on pulmonary function alone and neglected cardiac function. We aim to identify determining factors of EID in COPD patients

Materials and Methods: We analyzed 264 COPD patients who performed 6-minute walking test (6MWT) during 2017-2018. We analyzed baseline characteristics, spirometry, 6MWT from all patients and echocardiography in 104 patients with none EID (SpO2≥95%), mild EID (SpO2 92-94%), moderate EID (89-91%), severe EID (≤88%). Kruskal- wallis test assessed difference between groups and multivariate logistic regression assessed individual predictors of severe EID.

Results: EID was observed in 190(71.9%) patients and 40(15.2%) of them with severe EID. Comparing each EID group, patients with severe EID showed significantly lower FEV1, FVC, DLCO and higher TRPG. Multivariable logistic regression analysis revealed severe EID was independently associated with Age≥74 years (OR 4.45, 95% CI 1.39-14.3; p=0.01), Female (OR 7.90, 95% CI 1.01-61.70; p<0.05), GOLD stage ≥3 (OR 3.71, 95% CI 1.19-11.58; p=0.02), SpO2 (OR 6.43, 95% CI 2.03-20.42; p<0.01). COPD acute exacerbation rate(event/year) showed no significant difference between EID groups (p=0.351)

Conclusions: Similar to previous literature, airflow limitation, reduced resting O2 saturation were major predictors for EID in COPD patients. Echocardiography parameter (EF, TRmaxPG) showed no significant role in EID prediction but may need larger cohort to clarify.

Determinants	Crude OR (95%CI)	p value	Adjust OR (95%CI)	p value
Age				
≥74	2.44(0.97-6.16)	0.06	4.45(1.39-14.3)	0.01*
Sex				
Female	4.96(0.78-31.49)	0.09	7.90(1.01-61.70)	<0.05*
GOLD				
3-4	4.20(1.62-10.89)	<0.01**	3.71(1.19-11.58)	0.02*
SpO2(%)				
≤95	5.83(2.20-15.45)	<0.01**	6.43(2.03-20.42)	<0.01**

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB17

利用肺量計與問卷評估肺阻塞於心臟內科門診盛行率

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Prevalence of chronic obstructive pulmonary disease by questionnaire and spirometry screening in the cardiac outpatient clinics

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Background and objective: The use of spirometry to screen chronic obstructive pulmonary disease (COPD) is not recommended in asymptomatic individuals. Patients who have COPD may visit cardiac outpatient clinics due to similar symptoms. We aimed to investigate whether a COPD questionnaire and spirometry facilitate early detection of COPD for the population who visit cardiac clinics.

Methods: A voluntary screening study for COPD was conducted for patients who visited cardiac clinics of E-Da hospital in southern Taiwan. Subjects with age ≥ 35 years and at least one cardiovascular comorbidity were eligible for COPD screening with a questionnaire and spirometry. COPD was defined as a ratio of forced expiratory volume in the first second/forced vital capacity less than 0.7 by spirometry. COPD questionnaire scores, including the presence of COPD symptoms (including cough, sputum production, and shortness of breath), COPD assessment test [ACT] scores, and smoking intensity (by pack-years) were collected for analysis.

Results: A total of 810 patients were eligible and enrolled from May 2012 to November 2012 in this study. Among these patients, 28 of them fit COPD criteria by spirometry screening but only 21 patients confirmed the diagnosis of COPD after bronchodilator challenge test. The prevalence of COPD is only 2.6% in subjects who visited cardiac outpatient clinics. Compared to not-COPD patient group, the prevalence of COPD was higher in the age group ≥ 70 years, ex-smoker, more COPD symptoms, higher CAT score, and a smoking history over 20-pack-years. In subgroup analysis, the prevalence of COPD in patients with a smoking history over 20-pack-years combine with more than 1 or two COPD symptoms was 4.3% and 5.9%, respectively. The prevalence, sensitivity, and specificity in patients with a COPD score ≥ 21.5 were 6.7%, 62%, and 77%, with a low positive predictive value of 7% and a high negative predictive value of 99%.

Conclusion: A COPD questionnaire before spirometry screening is more effective for COPD screening in the cardiac outpatient clinics. Especially in those patients with a COPD score ≥ 21.5 or with a smoking history over 20-pack-years combine with COPD symptoms.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB18

高嗜酸性白血球合併高免疫球蛋白 E 嚴重型氣喘導致接受 omalizumab 治療後效果不佳的因子

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The factor reducing omalizumab treatment response in severe asthma patients with high blood eosinophil and IgE

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Purpose: Omalizumab is an add-on therapy in severe allergic asthma. We investigated the predictive factors that may affect omalizumab response in severe asthma patients with high blood eosinophil and IgE.

Materials and Methods: We retrospectively analyzed the severe asthma patients with high blood eosinophil and IgE and under omalizumab treatment from 2014-01 to 2019-01 at China Medical University Hospital. High blood eosinophil is defined as more than 150 /ul, and high IgE was defined as more than 150 IU/mL. Responder to omalizumab was defined as asthma exacerbation rate reduction than 50%, Asthma control test (ACT) increase than 3 score or oral corticosteroid dose reduction than 50% after 4 months treatment with omalizumab.

Results: There were 26 severe asthma patients with high blood eosinophil and IgE under omalizumab treatment. Twenty out of 26 patients (76.9%) were classified as responders. Compared with 20 responders, six patients with non-responders to omalizumab after treatment for 4 months had higher eosinophil (191 /ul vs 392 /ul, p = 0.035), Higher BMI (30.1 vs 26.1, p= 0.031), more adult onset asthma (n=5, p=0.02) and more nasal polyposis (n=4, p= 0.003).

Conclusions: Of severe asthma patients with high blood eosinophil and IgE, higher eosinophil, the asthma was adult onset, and comorbidity with obesity and nasal polyposis may reduce the effectiveness of omalizumab treatment.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB19

固定劑量複方長效支氣管擴張劑與單方長效抗膽鹼製劑在預防肺阻塞急性發作比較-系統性文獻回顧與統合分析

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LABA/LAMA fixed-dose combinations versus LAMA monotherapy in the prevention of chronic obstructive pulmonary disease exacerbations – a systematic review and meta-analysis of randomized controlled trials

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Background: Long-acting muscarinic antagonist (LAMA) monotherapy is recommended for chronic obstructive pulmonary disease (COPD) patients with high risk of exacerbations. It is unclear whether long-acting β 2-agonist (LABA)/LAMA fixed-dose combinations (FDCs) are more effective than LAMAs alone in preventing exacerbations. The aim of this study was to systematically review the literature to investigate whether LABA/LAMA FDCs are more effective than LAMA monotherapy in preventing exacerbations.

Methods: We searched several databases and manufacturers’ websites to identify relevant randomised clinical trials comparing LABA/LAMA FDC treatment with LAMAs alone \geq 24 weeks. Outcomes of interest were time to first exacerbation and rates of moderate to severe, severe and all exacerbations.

Results: We included ten trials in nine articles from 2013 to 2018 with a total of 19,369 patients for analysis in this study. Compared with LAMA monotherapy, LABA/LAMA FDCs demonstrated similar efficacy in terms of time to first exacerbation (hazard ratio, 0.96; 95% confidence interval [CI] 0.79-1.18; $P=0.71$), moderate to severe exacerbations (risk ratio [RR], 0.96; 95% CI 0.90-1.03; $P=0.28$), severe exacerbations (RR, 0.92; 95% CI 0.81-1.03; $P=0.15$), and a marginal superiority in terms of all exacerbations (RR, 0.92; 95% CI 0.86-1.00; $P=0.04$). The incidence of all exacerbation events was lower in the LABA/LAMA FDC group for the COPD patients with a history of previous exacerbations and those with a longer treatment period (52-64 weeks).

Conclusion: This study provides evidence that LABA/LAMA FDCs are marginally superior in the prevention of all exacerbations compared with LAMA monotherapy in patients with COPD.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB20

單一中心橫斷單盲式研究評估口內負壓裝置在阻塞性睡眠呼吸中止患者的效果及安全性

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A single center cross-over and evaluator-blind Pivotal Study to Evaluate the Efficacy and Safety of intraoral Negative Air Pressure device in Adults with Obstructive Sleep Apnea

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Purpose: There are many Intraoral devices, such as tongue retaining devices, palatal lifting devices and mandibular repositioning devices designed to increase the patency of the airway and to decrease airway obstruction, are used to treat Obstructive Sleep Apnea (OSA). The investigational product (iNAP®) was designed to prevent airway obstruction by forming negative pressure within the oral cavity. The negative pressure will pull the tongue forward and stabilizing the soft tissues around pharynx, thereby decreasing the sleep-disordered breathing for OSA patients.

Materials and Methods: This a prospective, self-controlled, first-night order cross-over and evaluator-blind pivotal study to evaluate the efficacy and safety of intraoral Negative Air Pressure device in adults with OSA. The patients diagnosed with OSA by AHI between 15~55 and the body-mass index (BMI) < 33 were enrolled. The primary endpoints of the study were the treated response rate. The polysomnography (PSG) report was all scored, following the AASM 2012 guideline, by an independent scorer who is blinded to baseline/control or treatment status.

Results: An overall of 35 patients had signed the informed consent and 34 were enrolled in this clinical study in one sleep center in Taipei, North Taiwan. There are 32 evaluable patients, 28 were male and 4 were female, with an average BMI and the age of 26.5 ± 3.2 kg/m² and 47.4 ± 11.24 years, respectively. By the treatment of the intraoral negative air pressure device, the AHI statistically significantly decreased from 32.04 ± 11.30 to 8.79 ± 9.49 , resulted in 75% of patients whose treated AHI lower than 20 and reduced more than 50%.

Conclusions: By providing well training of education of device use, many OSA patients could achieve effective treatment (treated AHI <5). There is no device-related adverse events were reported, and no SAE occurred during the entire study. The study result shows this investigational product is a well tolerated and alternative treatment for adults with OSA.

This study was sponsored by Somnics, Inc.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB21

Alpha-1 腎上腺素拮抗劑會增加睡眠呼吸中止症的風險：健保資料庫研究

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Alpha-1 Adrenergic-Antagonist Use Increases the Risk of Sleep Apnea: A Nationwide Population-Based Cohort Study

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Study Objectives: Decreased upper-airway muscle responsiveness is one of the major phenotypes of obstructive sleep apnea. Use of $\alpha 1$ -adrenergic antagonists is correlated with decreased muscle responsiveness in animal studies, but this association has not yet been demonstrated in humans. This study examined whether use of $\alpha 1$ -adrenergic antagonists is an independent risk factor for sleep apnea in humans.

Methods: Data for this retrospective cohort study were obtained from the National Health Insurance Research Database from Taiwan. Between 2000 and 2012, 25,466 hypertensive patients and 18,930 non-hypertensive patients were enrolled. These groups were divided into $\alpha 1$ -adrenergic antagonist users and non-users, matched by age, sex, and index year. Individuals were monitored for diagnosis of sleep apnea until 2013.

Results: After adjusting for propensity score and potential confounders, including age, geographic location, enrollee category, income, urbanization level, comorbidities, and medication, the adjusted HRs for developing sleep apnea with $\alpha 1$ -adrenergic antagonist use were 2.38 (95% CI, 1.82–3.10) and 2.82 (95% CI, 1.79–4.44) in the hypertensive and non-hypertensive groups, respectively. Similarly, the adjusted HRs for developing severe sleep apnea with $\alpha 1$ -adrenergic antagonist use were 2.74 (95% CI, 1.78–4.22) and 4.23 (95% CI, 1.57–11.40) in hypertensive and non-hypertensive patients, respectively. The interaction between $\alpha 1$ -adrenergic-antagonist user and hypertensive patients was tested using multivariable Cox regression. The results showed that there are positive additive interactions for developing sleep apnea and severe sleep apnea, respectively.

Conclusion: Our study suggests that hypertensive patients using $\alpha 1$ -adrenergic antagonists have a higher risk of sleep apnea. Routine sleep apnea screening would be beneficial for hypertensive patients who take $\alpha 1$ -adrenergic antagonists.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB22

以人類臍帶間質幹細胞有效修復大白鼠因藥物引起的嚴重肺纖維化

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Human Umbilical Mesenchymal Stem Cells Effectively Reverses Drug induced Severe Pulmonary Fibrosis in Rat

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Pulmonary fibrosis (PF) is a progressive and irreversible condition with various causes, and no effective treatment has been found to reverse the existing fibrotic lungs. Successful recovery from PF requires inhibiting active inflammation, effectively promoting collagen degradation and stimulating alveolar regeneration. Human umbilical mesenchymal stem cells (HUMSCs) not only regulate immune responses but also synthesize and release anti-inflammatory molecules to improve lung regeneration. This study investigated the feasibility of HUMSC engraftment into rats with bleomycin (BLM)-induced PF to explore HUMSC therapeutic effects/outcomes.

Methods: An unique BLM-induced PF animal model was established. Rats were transplanted with low-dose (5×10^6) or high-dose (2.5×10^7) HUMSCs on Day 21 after BLM. Combinations in co-culture of pulmonary macrophages, fibroblasts, HUMSCs treated with BLM and the same conditions on alveolar epithelia versus HUMSCs were evaluated.

Results: Rats treated with high-dose HUMSC engraftment displayed significant recovery, including improved oxygen saturation levels and rats' respiratory rates. High-dose HUMSC transplantation reversed alveolar injury, reduced inflammatory cell infiltration and significantly improved collagen deposition of lung. One month post-transplantation of stem cells, HUMSCs in the rats' lungs remained viable and secreted cytokines and the HUMSCs did not differentiate into alveolar or vascular epithelial cells in rats' lungs. Moreover, HUMSCs decreased the epithelial–mesenchymal transition of type 2 alveolar cells from pulmonary inflammation, enhanced macrophage matrix-metalloproteinase-9 (MMP-9) expression for effectively collagen degradation, and promoted toll-like receptor-4 (TLR-4) expression in the lung for alveolar regeneration. In our co-culture studies, HUMSCs elevated the MMP-9 level in pulmonary macrophages, released anti-inflammatory molecules into the medium and stimulated the TLR-4 quantity in the alveolar epithelium.

Principal Conclusions: Transplanted HUMSCs exhibit long-term viability in rat lungs and can effectively decrease pulmonary inflammation and associated lung collagen deposition then finally reverse rats' lung fibrosis.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB23

要命的併發症：塵肺症合併急性呼吸衰竭及反覆氣胸

李瑞源¹

台中醫院 1

Life threatening complication of Pneumoconiosis with COPD: Recurrent Pneumothorax in Acute Respiratory failure

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Purpose:

Complications occurs in patients with pneumoconiosis include COPD, hemoptysis, pneumothorax, pleural disease, TB, chronic interstitial pneumonia and malignancy. Generally, imaging workup starts with plain chest X-ray. However CXR has limited role in the diagnosis of pulmonary complications of pneumoconiosis because of overlapping pneumonia infiltration. Rupture of emphysematous bullae is the main etiological factor of pneumothorax. We retrospective to review small case series about such population about this issue

Material and Methods:

We report and discuss of pneumothorax development in a case series of penumoconiosis ,who suffered Serious illness died during the course of the disease later on .One small case-series review were look back for Exploring those end stage pneumoconiosis with severe COPD about their serious course of illness. And their hospital staying and prognosis.

Results: Average73 day of admission, difficult weaning, persisten air leakage and high mortality all were impressive. In other word, their prognosis were very poor.

Conclusion:

The majority of patients showed pneumothorax, chiefly with collapse of an upper lobe. However, respiratory distress was severe because of advanced pneumoconiosis died due to pneumothorax. In cured cases the re-expansion for longer days even persisten air leakage . Spontaneous pneumothorax is complication that can develop in such patients. Lung transplant has been performed in patients with end stage of pneumoconiosis . Rapid deterioration of the clinical condition of a patient is due to complications like PMF, infection, cor -pulmonale , pneumothorax, . Occurrence of spontaneous pneumothorax, should always be kept in mind as a complication in a patient with a known history of pneumoconiosis. While episode of acute respiratory failure occurred with recurrent pneumothorax, their long-term prognosis was poor. Early prevention in occpuational enviroment condition, respiratory protection mask, Strict enforcement of labor regulations then medical intervtn are actual strategy.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PB24

Pirfenidone 在自體免疫疾病導致間質性肺病之治療經驗：個案報告

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Pirfenidone in the Treatment of Autoimmune Related Interstitial Lung Disease : A Case Report

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Introduction: Up to now, the treatment effect of pirfenidone in idiopathic pulmonary fibrosis was confirmed in the previous randomized trials. However, the application of pirfenidone in the treatment of autoimmune related pulmonary fibrosis is not well established. We would like to share the treatment experience of pirfenidone in a patient with sicca syndrome.

Case report: A 63-year-old female, with irritable bowel syndrome and cervical spondylosis in the past, presented with exertional dyspnea for years. Initial chest x-ray demonstrated bilateral basal reticular infiltrate, and pulmonary function showed mild restrictive ventilatory impairment (vital capacity 78%). Chest CT revealed interstitial infiltrate with some fibrotic change involving right lower, left lingular lobe, and left lower lobe. Blood test and autoimmune survey suggested sicca syndrome. Pirfenidone was given for no improvement of dyspnea over 8 months. We could find gradual and near-total resolution of interstitial infiltrate on subsequent chest CT. Marked improvement of pulmonary function (vital capacity 96%) was also noted. Therefore, we concluded that pirfenidone may play some role in the treatment of autoimmune related interstitial lung disease.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PB25

Crizotinib 相關急性發作的間質性肺炎

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Crizotinib-associated acute-onset interstitial pneumonitis- to severe to be good

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Abstract

Little is known about the outcome of crizotinib-associated acute-onset interstitial pneumonitis (IP). Here we reported three crizotinib-treated female patients, all developing pneumonitis in less than 2 weeks of treatment and not surviving the post-pneumonitis period. Two of them were diagnosed with anaplastic lymphoma kinase (ALK)-rearranged, stage IVB adenocarcinoma and one with stage IVB non-small cell carcinoma with spindle cell carcinoma harboring MNNG HOS Transforming gene (c-MET) exon 14 skipping (c-METex14) mutations. At diagnosis, they were presenting with respiratory failure or impending respiratory failure related to high tumor burden, including massive malignant pleural effusion. All of them responded drastically to treatment with crizotinib. However, one patient succumbed to refractory hypoxia after prolonged support with extracorporeal membranous oxygenation (ECMO) and mechanical ventilation, and her high-resolution computed tomography (HRCT) of the chest revealed mixed patterns of diffuse alveolar damage (DAD) and hypersensitivity pneumonitis (HP). The second patient developed organizing pneumonia (OP) pattern and deceased under bilevel positive airway pressure (BiPAP). The final case also appeared OP pattern and died from severe diarrhea after retreatment with crizotinib. The management of crizotinib-associated acute-onset IP remains challenging since the response to steroid and interruption of treatment are not always satisfactory. Dose reduction at initial treatment and careful monitoring for a patient population with risk should be considered.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PB26

胸部電光片發現看似肺腫瘤的病灶：石綿造成肋膜斑

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Incidental Lung Mass-Like Lesion in Chest X Ray- asbestosis pleural plaque

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Purpose: Lung mass found by X ray is the main essential lesion that we want to make diagnosis. Many diseases may looks like lung mass. Here, we presented a case that his lesion on chest X ray mimicking lung mass.

Case presentation: This 60 year-old male was a air conditioning technician for over 30 years. He had smoking for 1 pack per day for over 20 years. This time he was being hit in the chest by others. He felt chest pain and visited our ER. He denied any respiratory symptoms, such as cough, sputum, chest tightness or shortness of breathing. Physical examination showed no obvious bruits on the chest. Crackles was heard in right basal area. Chest X ray showed a mass like lesion over right upper lobe. Chest computer tomography showed poor enhancing subpleural mass, about 4.2 x 1.9 cm, at right lower lobe and a nodule, about 2.8 x 1.4 cm, at right middle lobe. He was suggested to admission for further survey. Elevated ESR was found, otherwise other laboratory data were relative normal. Tumor marker showed all negative results. Antigen including cryptococcus neoformans, legionellaor chlamydia showed all negative results. CT guided biopsy was performed via right lower lobe lung. Histology report showed hypocellular, “basket weave” of collagen, with occasional small foci of chronic inflammation and extremely rare to see asbestos bodies inside a plaque on light microscopy. Some calcified and dystrophic calcification was also found. Suggested by patient’s history, clinical finding and pathologic report, pleural plaque by asbestosis was diagnosed.

Conclusions: The incidence in asbestos workers increases with age and period of exposure. Plaque formation in radiology usually was found 30-40 year after exposure. Most of the patient were male and over 50 years of age. Pleural plaque usually arise in the lower thorax (especially the diaphragm), parietal pleura, often with a parallel orientation to ribs, and sometimes mimicking lung mass. We should be noticed and aware about the diagnosis.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PB27

電腦斷層下細網狀異常的鑑別診斷- 瀰漫性肺骨化

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Diffuse high –attenuation pulmonary reticular abnormalities: Idiopathic diffuse dendriform pulmonary ossification

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Abstract: Dendriform pulmonary ossification (DPO) is a rare pulmonary entity and is usually established on postmortem examination in the past. Histologically, it is characterized by widespread ectopic fine branching osseous fragment formation in the lung parenchyma. On chest radiographs, it mimics other interstitial lung diseases and may present as diffuse high-attenuation nodular and/or branching abnormalities on high-resolution computed tomography. The disease presents at the chronic stages without remarkable clinical manifestation and the majority of cases are found in the middle to the old-aged male population. Here we present a case of a young female adult with idiopathic dendriform pulmonary ossification confirmed via video-assisted thoracoscopy surgery biopsy.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PB28

在台灣台北市區通勤期間接觸 PM2.5 的情況

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High exposure to PM2.5 during commuting in the metropolitan area of Taipei, Taiwan

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Purpose: Citizens living in a large Asian metropolitan area usually commute using different modes of transport by itself or in combination, including mass rapid transit (MRT), walking, bus, bike, car, and in subtropical cities, motorcycle. They are exposed to air pollutants near the ground that are emitted from different mobile sources. Ambient pollutant concentrations measured at monitoring stations that are 10-15 m above the ground thus may not reflect personal exposure to air pollutants when citizens travel across the city.

Materials and Methods: We measured PM2.5 levels during various commuting trips in Taipei metropolitan area with a goal to provide more detailed data on personal exposure to PM2.5 that can be used for more accurate risk assessment. We recruited volunteers who used different modes of transportation (walking, motorcycle, car, bus and MRT) to commute across the metropolitan area. They were asked to measure PM2.5 using a hand-held PM2.5 detector (Temtop P600 Air Quality Laser Particle Detector) during their trips. The measurements were performed between April and August 2019, when ambient PM2.5 tends to be the lowest in northern Taiwan without the influence of smog from mainland China.

Results: There were high PM2.5 levels in underground MRT stations (median [range]: 80 [30-210 $\mu\text{g}/\text{m}^3$]), in MRT cars traveling on underground tracks (80 [55-185 $\mu\text{g}/\text{m}^3$]), during motorcycle ride on busy roads (75 [60-105 $\mu\text{g}/\text{m}^3$]) and along busy roads (52.3 [17.5-275 $\mu\text{g}/\text{m}^3$]). PM2.5 levels were lower in elevated MRT stations (32.5 [15-35 $\mu\text{g}/\text{m}^3$]), in MRT cars traveling on elevated tracks (27.5 [12.5-67.5 $\mu\text{g}/\text{m}^3$]), air-conditioned buses (36.8 [15-65 $\mu\text{g}/\text{m}^3$]) and air-conditioned private cars (15 [7.5-80 $\mu\text{g}/\text{m}^3$]). PM2.5 levels were extremely high (over 300 $\mu\text{g}/\text{m}^3$) near the temples and in the underground food court of a night market. Ambient PM2.5 levels measured by the monitoring stations ranged from 2-38 $\mu\text{g}/\text{m}^3$ with a median of 14 $\mu\text{g}/\text{m}^3$.

Conclusions: Our study identified locations during traveling across Taipei metropolitan area where citizens may be exposed to high PM2.5 levels. The results should facilitate a more focused management of air quality in Taipei metropolitan area and provide necessary data for a more accurate assessment of health risk associated with PM2.5 exposure for future studies.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PB29

使用人工智慧模式來預測單純性肺炎 (TW-DRGs: 089、090) 的住院天數

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臺中榮民總醫院胸腔內科¹, 中興大學生命科學系², 臺中榮民總醫院感染科³, 臺中榮民總醫院品質管理中心⁴, 東海大學資訊工程學系⁵

Applying Artificial Intelligence to Predict the Length of Hospital Stay for Simple Pneumonia (TW-DRGs: 089、090)

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Purpose: Pneumonia was the third leading cause of mortality in Taiwan. Medical Payment was based on the concept of Diagnosis Related Groups(TW-DRGs) nowadays. Quality control and continuous monitoring could not be completely reflected by classification of TW-DRGs. The real status of medical condition was not fully related to TW-DRGs. Based on this concept, we focus on the simple pneumonia (TW-DRGs:089、090) group and try to utilize the artificial intelligence (AI) for predicting quality control monitor, including the length of hospital stay.

Materials and Methods: We retrospectively analyzed the TW-DRGs (089、090) simple pneumonia data between 2014 to 2018 in our hospital. The medical fee, lab data, medical records (vital sign, antibiotics, in charge doctors, section.....), PSI (pneumonia severity index), CURB-65 score were collected respectively. Data processing was preformed step by step. We provided conventional statistic method by SPSS 22th edition for calculation. We further performed AI data training by Python 3.7 edition analysis. We tried to utilize seven AI models, including logistic regression, decision tree, random forest, support vector machine, XGBoost, multiple-layer perceptron and Naïve-Byes.

Results: Total 3,981 patients were retrospectively analyzed. The convention analysis method showed the mean of length of hospital stay among TW-DRGs (089、090) was around 11.48 days. Only 30% of patients could reached the goal of within 7 days of length of hospital stay (including emergency room and ward stay). The medical fee for per case per day was around NT 61,000. The Machine learning algorithm including above seven methods provided accuracy was around 0.7. The random forest model showed the initial 24-hours vital sign was association of prediction the length of hospital stay.

Conclusions: We need to adjust more specific and candidate features and modify the current AI models to achieve more accuracy prediction. Further integrate prospective on line monitor system and AI models are anticipated for real time elucidate the outcome for simple pneumonia patients (TW DRGs-089、090)。

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PB30

亞急性呼吸照護病房臨床資料分析

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A study of prolonged mechanical ventilation based on six years' experience in Taiwan

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ABSTRACT:

Background: An increasing number of patients survived from critical care who must keep prolonged mechanical ventilation to maintain their lives. It is crucial to emphasize that prolonged mechanical ventilation is a negligent disease in chest medicine. We reported our six years' experience of prolonged mechanical ventilation patients' clinical outcome and long term survival.

METHODS:

We retrospectively analyze respiratory care center patients data and try to make opinions about the main causes of respiratory failure lead the patients to PMV, influence factors of the ventilator weaning rate, influence factors of PMV patients long term ventilator dependent, PMV patients' hospital mortality and long-term survival.

RESULTS:

Five hundred seventy-four patients were admitted to RCC during the six years. Four hundred and twenty-eight patients (74.6%) were older than 65-year-old. Three hundred and ninety-one patients (68.1%) successfully weaned from the ventilator. Eighty-three patients (14.4%) unsuccessfully weaned from the ventilator. Ninety-five patients (16.6%) died during RCC hospitalization. The most common cause of acute respiratory failure lead to patients PMV were pneumonia. The factors that affect whether successfully liberated from the ventilator for PMV patients is the causes of respiratory failure lead the patients to PMV. Our hospital mortality was 32.4%, the 1-year survival rate was 24.3%. There is a relation to increasing patients' age with high hospital mortality rate and poor 1-year survival rate. No comorbidity patients with good 1- year survival rate and four comorbidities patients with a poor 1-year survival rate found.

CONCLUSION:

The factors that affect whether successfully liberated from the ventilator for PMV patients is the causes of respiratory failure lead the patients to PMV. Patients with old age, renal failure requiring hemodialysis and numerous comorbidities demonstrated poor long term survival.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PB31

在家中進行肺部復健與肺復原運動的醫病共享決策之設計與執行

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A proposal and result of shared decision making (SDM) for personalized choice of home-based pulmonary rehabilitation.

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Purpose: Shared Decision Making (SDM) is a patient-centered, research-based method in current medical practice. An education program for chronic obstructive pulmonary disease (COPD) or chronic lung diseases (CLDs) had been developed since 2012 and documented in 2017 NICE guideline. However, individual consideration of home- or hospital-based pulmonary rehabilitation (PR) was not mentioned to be practically followed in current SDM literatures.

Materials and Methods: A clinical observation study under our SDM program which initially started since 2019 January. This program was composed of several parts including a). SDM team training, b). on-line health education video and interactive world wide web, c). education paper manual writing and, d). personal or group education in out-patient-department or in hospital ward. A real-world practice of SDM using a six-items, two-sides comparison table (table 1) was applied since 2019/July to 2019/September. Each proper-answered table from individual patient or main companied family member would bring a result under a score-calculation system to show which site (at home or in hospital) would be the proper place to complete PR.

Results: Sixty-one cases completed our SDM interactive interview and question answer in OPD or in group-education at our chest ward. 3 cases were excluded to statistical analysis due to miss-filled the items of the table. 3 cases were excluded due to the answered contents showed a significant alfa error. Total 55 cases (n=55) were available for statistical result finding. 21.8% (n=12) made a choice to do PR at home and 78.2% (n=43) selected PR in hospital. There were 11 cases (20%) changed their preferred site from home-based PR to hospital-based PR after interview of our SDM material (video, paper manual and/or person-by-person education). There were about 25.5% cases with the range of score -1 to +1 might show their difficulty to make a clear-cut decision after our SDM activity.

Conclusions: Our group-education SDM program and publications of paper manual, online YouTube® streamed-video or high-resolution 1080p films are feasible in OPD and in hospital ward cases. To use a table of six-items and -5-to-5 scores in real-world pulmonary medicine practice could help patient's decision-making to pulmonary rehabilitation much clearer and increase their intensity.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB32

電腦斷層導引切片應用於少量黏稠肋膜液併肋膜病變心得

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CT guided biopsy for serosanguinous pleural effusion with pleural lesion: case sharing

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Introduction

There are many causes for pleural effusion. Pleural fluid obtained by mean of invasive procedure for analysis . Percutaneous pleural biopsy is a less invasive alternative, indicated while pleural malignancy or TB were suspected. Closed pleural biopsies under CT guidance to target areas of pleural disease has been shown to increase the sensitivity Percutaneous CT-guided biopsies is considered a better diagnostic method. These are performed by radiologist with experience. We underwent CT-guided biopsy for suspected pleural disease with feature of pleural nodularity which may prove challenging to access percutaneously. Chest US is a useful tool in pleural disease which may allow further assess and targeting of lesion.

CASE PRESTATION:

This 43y/o Indonesian foreign worker had past history of right side plural effusion s/p treatment in local hospital. This time, the patient suffered from Lung problem from routine labor health suveying, referred to CM OPD from health center due to suggest furthre servey. right flank pain was also noted. The patient ever visited an CM OPD but the symptoms sustained. Due to above condition, CXR showed right side pleural effusion. Under the impression of right side pleural effusion .he admitted for survyed. First time, US guided thoracocentesis extracted very few serosanguinous pleural effusion; exudate in nature and ADA 28.For Confirmed diagnosis, CT guided biopsy over RT lateral side.After procedure,no pneumothorax or hemothorax occurred.F inal diagnosis was TB pleursy with caseous necrosis granuloma.

Discussion:

rapidly become the guidance modality of choice for performing biopsy of pleural lesion; moreover, CT-guided biopsy offers a readily accessible, minimally invasive, rapid and low-cost alternative approach when compared to thoracoscopy to obtain sample tissues .Biopsy volume was significantly larger in the the real-time image guidance afforded in this technique may allow focused targeting of pleural tissue resulting in a satisfactory yield.

Conclusion:

CT guidance lung biopsy provides excellent spatial resolution and enables accurate needle placement making it the most widely used guidance technique for percutaneous transthoracic intervention. We pruvded CT as a safe, effective modality for the biopsy of pleural lesions. VATS may be required to obtain a definitive diagnosis .There are several factors, which possibly contributes to the diagnostic advantage of CT-guided pleural biopsy, enable the biopsy specimen is taken from an area of abnormal pleural tissue, substantially improved in quality of samples. CT-guided biopsy also revealed its effectiveness in cases where pleural effusion present also in cases of pleural thickening. In conclusion, it is appropriate to state CT-guided needle biopsy of pleural lesion as a safe procedure with low risk of complications.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB33

病例報告: 肝臟竈位〔註〕至右肺大裂

王東衡¹, 陳啟仁², 劉中平³, 陳敏華⁴, 樊聖⁵

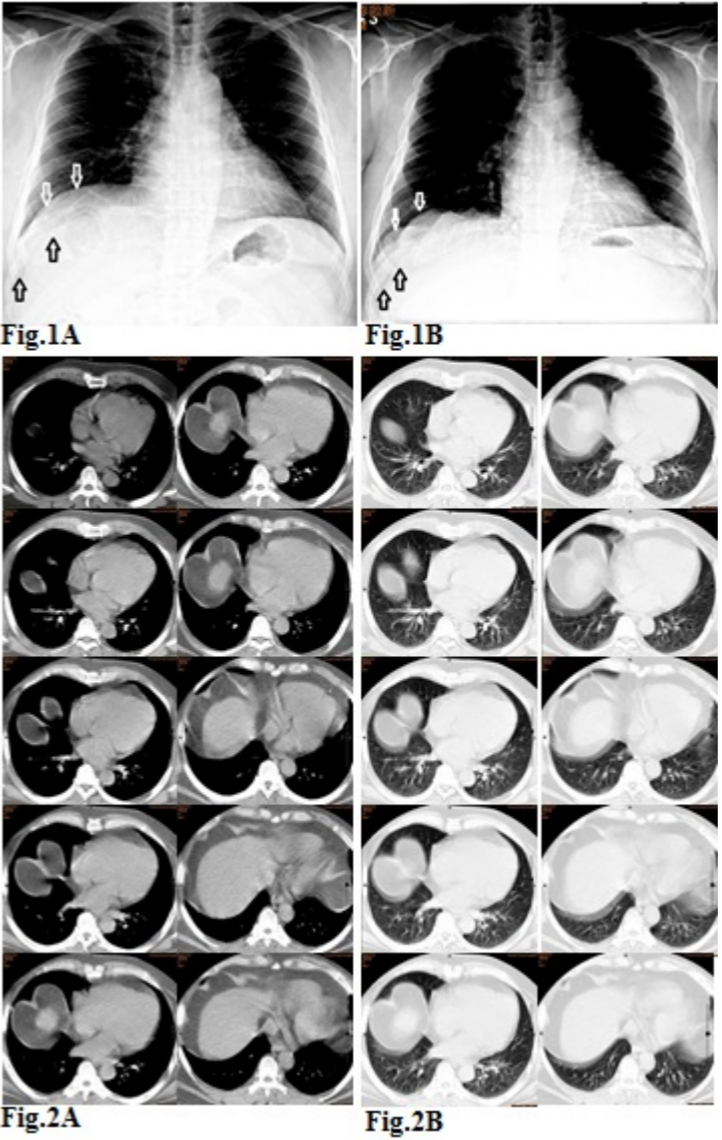
成功分院胸腔內科(尤憲明內兒科診所合夥醫師, 執行衛生福利部醫療網專科醫師支援偏遠與醫療資源不足地區門診計畫)¹、衛生福利部雙和醫院影像醫學部²、臺東醫院放射線科³、成功分院院長⁴、院長⁵

Report of a Case: Hepatic Herniation through the Diaphragm to the Major Fissure of the Right Lung

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Case Report : The



Chest posterior-anterior views (Fig. 1A&B) demonstrated changes in the contour of the right hemi-diaphragm (white arrow heads). Computed tomography, as arranged above from openings of lower lobe bronchi down to the abdomen with soft tissue (Fig. 2A) and lung (Fig. 2B) windows, showed hepatic herniation through the diaphragm along the right major fissure of the lung. Congenital hepatic herniation should have had been found considering the mass effect on respiration. However, our patient could not recall any trauma before. We wonder long term strong and exertion maneuvers required for occupational porter as the cause of hepatic herniation through the diaphragm all way up the right major fissure, for so far as we sought in the literatures there was only one case report [Chest 1980: 78(2); 346-8.] with the same diaphragmatic abnormality.

〔註〕臟器位移的疝氣民俗用語上可分為：向下的“墜”如墜腸；向上叫“竈”如“竈胃”。

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB34

鈉鉀氯離子共同轉運通道亞型一對嗜中性球滅菌功能之調控

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NKCC1 Regulates Inflammatory Response in Neutrophils

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Background: Sepsis is a life-threatening organ dysfunction caused by dysregulation host response to infection. Neutrophils are the most abundant innate immune cells in human peripheral blood. Dysregulation of neutrophils lead to control failure of the bacterial growth in human body. Therefore, neutrophils are tightly regulated by numerous factors in the microenvironment. It has been suggested that Na⁺-K⁺-2Cl⁻ cotransporter 1 (NKCC1) can mediate the inflammatory response.

Purpose: My specific aim is to investigate whether NKCC1 affects the bactericidal response of neutrophils in sepsis.

Materials and Methods: Neutrophils were isolated from C57BL/6J wild type mice blood and stimulated with LPS (25ug/ml) to simulate the sepsis condition. Then checked the p-NKCC1 expression and immune functions of neutrophils.

Results: Our results showed that LPS stimulation increased p-NKCC1 express in neutrophils, while pretreated with bumetanide (NKCC1 inhibitor) inhibited the expression. NKCC1 inhibitor can significantly restore the transmigration of neutrophils comparing to the lipopolysaccharides (LPS) treatment group. LPS stimulation increased phagocytosis in neutrophils, while pretreated with bumetanide (NKCC1 inhibitor) inhibited the phagocytosis. Also, NKCC1 inhibitor can suppress NETs formation.

Conclusions: The results of this study suggested that NKCC1 inhibitor can improve the bactericidal response of neutrophils in sepsis. Therefore, NKCC1 inhibitor may potentially provide a novel therapeutic option for sepsis.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB35

每週一次在醫院肺復原運動訓練在慢性肺病之病人的臨床效益

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Clinical efficacy of weekly hospital-based pulmonary rehabilitation training program in patients with chronic lung disease.

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Introduction: Pulmonary rehabilitation (PR) is well known to improve respiratory symptoms, increase exercise performance and endurance, enhance quality of life and even prolong survival in patients with chronic obstructive pulmonary disease (COPD). However, in patients with other chronic lung diseases, the evidence of PR is not abundant to date. The primary aim of this study is to find out if there is any differences between COPD and non-COPD group receiving PR training program.

Material and method: This is a retrospective observational study conducted in a tertiary medical center in northern Taiwan

Patients with chronic lung diseases who participated in pulmonary rehabilitation were included. The patients were involved in a modified weekly hospital-based pulmonary rehabilitation training program for total 12 weeks. Patients were encouraged to continue self PR at home. At each hospital visit, the patients received 40 minutes PR training and 15 minutes of chest percussion therapy. Patients' characteristics, including demographics, comorbidities, respiratory symptoms by Modified Medical Research Council dyspnea scale and COPD assessment test, symptoms of anxiety and depression by Beck Anxiety Inventory and Beck Depression Inventory II, quality of life by St. George's Respiratory Questionnaire, pulmonary function test and 6-minute-walking distance were recorded and analyzed before and 12 weeks after completing PR training program.

Results: From January 1, 2017 to April 30, 2018, we enrolled 121 patients completing 12 weeks of PR training program. Subjects in COPD group were older, male predominant, more smokers, poorer lung function and less exercise ability compared with non-COPD group. All subjects had significant improvement in respiratory symptoms scores, quality of life, and decreased anxiety and depression without change of pulmonary function and 6-minute walking distance after the program. The clinical benefits of such program by means of improvement in 6 minutes walking distance, respiratory symptoms scores, quality of life, anxiety as well as depression scores between COPD and non-COPD group were similar.

Conclusions: Our modified weekly hospital-based PR training program is beneficial to patients with chronic lung diseases. There is similar clinical efficacy among COPD and non-COPD groups.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PB36

回流正常之肺靜脈變異(Meandering pulmonary veins): 病例報告

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Meandering pulmonary veins: A Case Report

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Abstract: Meandering pulmonary veins (MPV) is one of the rare diseases of congenital pulmonary vein anomalies. On the chest radiograph, MPV presents with a scimitar sign, which is similar to scimitar syndrome. The difference between these two diseases is the returning of the tortuous pulmonary vein, which usually located in the right lung. In recent years, computed tomographic angiography (CTA) with 3D reconstruction is the primary tool for the diagnosis of pulmonary vein anomalies. Traditional angiography, which used to be the golden diagnostic standard, remains an important tool when CTA with 3D reconstruction is not available. Herein, we presented a case of MPV which was initially misrecognized as pulmonary arteriovenous malformation (AVM) in the right lung according to the contrast-enhanced computed tomography without 3D reconstruction. Traditional angiography provided an accurate diagnosis of MPV.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PB37

肺血管肉瘤-病例報告及文獻回顧

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Pulmonary artery intimal sarcoma, a case report and literature review

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Abstract: Pulmonary artery intimal sarcoma is a rare disorder arising from the intima of the pulmonary artery. Histopathology reveals that it is a tumor cell of mesenchymal origin. The signs and symptoms include chronic shortness of breath and other features of right ventricular failure, which mimic chronic pulmonary thromboembolism. The definitive diagnosis can rarely be made based on the symptoms and signs alone, and other investigations including echocardiography, computed tomography, MRI, and PET are often required. The gold standard for diagnosis is tissue biopsy. The mainstay for treatment is surgery, and curative intent surgery with endarterectomy provides survival benefit. According to recent evidences however, multimodal treatment provides better survival outcomes than monotherapy such as surgery alone. Despite the newer upcoming treatment strategies, patients with pulmonary intimal sarcoma continue to have a poor prognosis. We present a case of pulmonary artery intimal sarcoma and review the literature associated with the disease.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PB38

Cunninghamella bertholletiae 雙側膿胸：個案報告及文獻回顧

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Bilateral Cunninghamella bertholletiae empyema case report and literature review

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Abstract

Pulmonary mucormycosis infection is an uncommon pathogen that carries high mortality in immunocompromised patients, especially in haematological disorders and transplant recipients. In a global review of more than 900 reported cases of mucormycosis, Cunninghamella bertholletiae account for only 7%, but Cunninghamella species has the worst outcome which may be due to its angioinvasion. We reported a very rare case of mucormycosis empyema with pneumothorax caused by Cunninghamella bertholletiae after influenza B infection. Cunninghamella bertholletiae has high mortality and most of the survived patients underwent early anti-fungal therapy with amphotericin B or liposomal amphotericin B along with aggressive surgery intervention. Thus, early recognition is important and aggressive operation should also be considered in such patients.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PB39

瀰漫性肺部小動靜脈瘻管與肺內分流導致慢性缺氧－病例報告

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Chronic hypoxia due to diffuse pulmonary small arterio-venous fistula with intrapulmonary shunt - A case report

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Introduction：

Diffuse pulmonary arterio-venous fistula indicates abnormal communications between pulmonary arteries and veins. It is an uncommon but important consideration in the differential diagnosis of common pulmonary problems, including hypoxia, pulmonary nodules, and hemoptysis. Here we present a case present with chronic hypoxia with the final diagnosis of diffuse small arterio-venous fistula with intrapulmonary shunt.

Case Report：

This 35-year-old man with gastroesophageal reflux disease visit out-patient department due to progressed exertional dyspnea in one year. His initial vital sign was HR:115/min, BP: 130/71mmHg, and SpO2:84% under room air. Physical examination found clear breathing sound but obvious clubbing fingers. ECG showed sinus rhythm and CXR showed no active lung lesion. Cardiac echocardiography reported LVEF 62%, mild MR, mild TR (PG 26.92mmHg), normal LA and LV size, and normal LV contractility. Serum laboratory data revealed microcytic anemia(Hb:12.8g/dl and MCV:71fL) and normal D-dimer level. Pulmonary function test revealed normal pattern and DLco test reported moderated reduction. Lung perfusion scan and chest CTA reported low possibility of pulmonary embolism. Contrast echocardiography found the presence of echo contrast over left side chambers 5 beats after agitated saline injection which indicates intra-pulmonary shunt. Pulmonary artery catheterization was arranged which revealed rapid coming into venous phase with rapid pulmonary venous flow and the saturation of Ao: 90%; SVC:70%; IVC:76%; RA:75%; main PA:77%. No large arterio-venous malformation found in selective pulmonary arterial graph nor pulmonary hypertension was found. Finally, the patient was diagnosed with chronic hypoxia due to diffuse pulmonary small arterio-venous fistula with intrapulmonary shunt.

Conclusion：

Diffuse pulmonary arteriovenous fistula are structurally abnormal vascular communications that provide a continuous right-to-left shunt between pulmonary arteries and veins. Patients may have chronic dyspnea with desaturation. Serial examinations including cardiac and pulmonary image are needed to confirm the diagnosis.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB40

病例報告：使用電子菸致肺損傷合併肺腺癌個案

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Case Report: A case of vaping-induced lung injury (VILI) co-existing with lung adenocarcinoma

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Introduction: Outbreak of lung injury associated with E-cigarette use, or vaping was first reported in July, 2019 in the United States. We herein present a case of VILI co-existing with lung cancer.

Case Summary: A 36-year-old male was admitted for hemoptysis and progressive dyspnea on exertion for 1 month. He was told in 2015 that he had a right lung nodule during a routine health examination. He was otherwise healthy and worked as a food manufacturer. He smoked 1 pack per day for more than 10 years and switched to E-cigarettes 2 months prior to presentation. Family history was significant for his father who died of lung cancer. On examination, his vital signs were within normal limit, SpO2 89% on ambient air. Chest X-ray showed bilateral alveolar opacities, some appeared nodular, some confluent. Blood tests including survey for collagen vascular disease and multiple tumor markers were done, which were unremarkable except for elevated CA-125 at 161.9 U/mL (normal range: 0.5-35 U/mL). Computerized tomography (CT) scan showed multiple various sized part-solid nodules, many with visible air bronchogram within, throughout both lungs in predominantly peribronchovascular distribution, some abutting pleura, some coalescing into confluent patches of ground-glass opacities. There was also a 1.8cm solid, spiculated nodule in the right middle lobe which was proven to be lung adenocarcinoma by CT-guided biopsy.

Bronchoalveolar lavage (BAL) was done and the cytology report was suspicious of malignancy. Transbronchial lung biopsy (TBLB) revealed numerous pigmented-laden histiocytes with foamy cytoplasm in alveolar spaces. In addition, several large cells with mildly hyperchromatic nuclei, small nucleoli and vesicular cytoplasm were also noted in alveolar spaces, consistent with VILI. His symptoms improved after treatment with intravenous methylprednisolone. Lung cancer treatment was deferred.

Discussion: There have been reports of a recent outbreak of VILI in United States which raised our attention to possible E-cigarette associated lung problems in Taiwan. Thus far, reported cases of VILI in the literature demonstrated a heterogeneous collection of pneumonitis patterns. There are as yet no definite criteria to diagnose VILI either by radiology or pathology.

Conclusions: VILI is a world-wide, ongoing problem with unclear mechanism which may possibly cause life-long health problems. Physicians should be highly alert of VILI in smokers, especially in young adults.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PB41

Catamenial hemoptysis：病例報告及文獻回顧

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Catamenial hemoptysis: a case report and review of the literature

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Introduction: Catamenial hemoptysis, periodic hemoptysis occurring in association with the menstrual cycle, is a rare manifestation of thoracic endometriosis. Diagnosis is mainly based on clinical history and exclusion of other causes of recurrent hemoptysis. Computed tomography (CT) is the first-line imaging method. Therapeutic strategies for catamenial hemoptysis include medical treatments and surgery. Due to low diagnostic yield from bronchoscopic examination and risk for surgery, histopathological confirmation of the diagnosis has been obtained in only one-third of cases. Our case demonstrates the typical presentation and image findings of catamenial hemoptysis. The patient underwent surgical resection and the diagnosis was proved by histopathological examination.

Case report: An 18-year-old female presented to our hospital complaining of monthly hemoptysis accompanied by the menstrual period for 2-3 months. Hemoptysis developed around 24 hours later after the beginning of her period and resolved with the cessation of menstruation. At the visit, physical examination showed no significant findings and chest radiograph showed no active lung lesion. Bronchoscope was arranged two days later (4th day of the menstrual cycle) and showed some blood spots but no endobronchial lesion. One month later, chest computed tomography was arranged on the 1st day of the menstrual cycle and showed two cavitation lesions surrounded by ground-glass opacities in right upper lobe. Bronchoscope was arranged with assistance of endobronchial ultrasound (EBUS) evaluation. There was no visible lesion on EBUS. Bronchoscopic biopsy and bronchial brushing were done and showed negative for malignancy, negative cultures for Mycobacterium tuberculosis and fungi. She was referred to Chest surgeon and received Video-assisted thoracoscopic (VATS) segmentectomy of segment 2 of right upper lobe. Histopathological examination showed endometrial stroma with hemorrhage and hemosiderin-laden macrophages aggregation. There was no recurrence of hemoptysis 3 months after the operation.

Conclusion: The relationship of any symptoms to the menstrual cycle can sometimes provide an important clue to the precise diagnosis of catamenial hemoptysis. Our case demonstrates the limited role of bronchoscopy for evaluation of mild hemoptysis and suggests computed tomography as first-line choice for evaluation of hemoptysis. Treatment depends on the severity of hemoptysis, patient's preference, and availability of treatment modalities. In cases where an ectopic endometrial implant could be localized, excision is diagnostic and curative but results from long-term follow-up are needed.

Respiratory Tract Infections

Critical Care Medicine

Tuberculosis

- A. ☒ 原著論文 (Original Paper)

B. ☒ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☐ 海報競賽 (Post)

OC01

誘導多功能幹細胞經由白血病抑制因子減少中性白血球穿越內皮細胞能力改善敗血症引起之急性肺損傷

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Induced pluripotent stem cells through leukemia inhibitory factor to attenuate neutrophil transendothelial migration in sepsis-induced acute lung injury

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Purpose: Induced pluripotent stem cells (iPSCs) can attenuate neutrophil recruitment and endothelial leakage of lipopolysaccharide (LPS)-induced acute lung injury (ALI). However, the mechanism of iPSCs on the interaction between neutrophils and endothelial cells are still unknown. **Materials and Methods:** Murine iPSCs (miPSCs) were delivered intravenously to male C57BL/6 mice (8–12 weeks old) 4 hours after intratracheal lipopolysaccharide (LPS) injection. Twenty-four hours later, bronchoalveolar lavage fluid and lungs were collected to perform histology, immunohistochemistry, neutrophil counts, and western blot. Human iPSCs (hiPSCs), DMSO-induced HL-60 cells (D-HL-60, neutrophil-like cells), and human umbilical vein endothelial cells (HUVECs) were also employed as an *in vitro* model to access the interaction of neutrophils and endothelial cells.

Results: Compared to untreated controls, miPSCs significantly diminished the histopathological changes of lung and neutrophils count in BALF in ALI mice. Both immunohistochemistry stains and western blots demonstrated that miPSCs therapy attenuated the expression of adhesion molecule of endothelium [vascular cell adhesion molecule 1 (VCAM-1)] and neutrophils [very late antigen-4 (VLA-4)] in ALI mouse lungs. *In vitro* human cell-line model further confirmed that hiPSCs treatment reduced the expression of VCAM-1 in HUVEC and VLA-4 in D-HL-60 to decrease neutrophils transendothelial migration (TEM). The conditioned medium of iPSCs (iPSC-CM) has more effects than iPSCs in both mouse and human models. Angiogenesis protein assay demonstrated high level of leukemia inhibitory factor (LIF) in iPSC-CM, and anti-LIF antibody reversed the effect of hiPSC-CM on neutrophils TEM. In addition, anti-LIF antibody reduced the effect of miPSC-CM on the expression of VCAM-1 and VLA-4 in ALI mouse lungs. Moreover, anti-LIF antibody diminished the effect of miPSC-CM on the pulmonary histopathological changes in ALI mice, but controlled IgG injection had no such effect.

Conclusions: In sepsis-induced ALI, iPSCs through LIF to decrease the expression of VCAM-1 (endothelial cells) and VLA-4 (neutrophils), attenuate neutrophils TEM, and reduce the severity of ALI.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☒ 口頭報告 (Oral Presentation) ☐ 海報競賽 (Post)

OC02

在急性呼吸窘迫症候群病患於不同吐氣末正壓下有類似的呼吸系統順應性時使用電阻抗影像分析其通氣分布

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Electrical impedance tomography analysis between two similar respiratory system compliance during decremetal PEEP titration in ARDS patients

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Background :

The PEEP level with best respiratory system compliance(Crs) is frequently used for PEEP selection in mechanically ventilated ARDS patients. In some occasions, two best Crs could be found, i.e. the difference between Crs of two PEEP levels is less than 1 ml/cmH₂O. Assessment of global and regional ventilation distribution may help in elucidating the difference between these two PEEP levels. Our purposes were to apply electrial impedance tomography (EIT) measures and airway stress index (SI_{aw}) in ARDS patients with two best Crs to provide rationale in PEEP selection.

Results:

We have recorded eleven cases with best Crs at two different PEEP levels during a prospective study using decremental PEEP titration and EIT examination in 33 ARDS patients (35 recording, including two prone position). Extended sigh was used as recruitment maneuver and Crs was measured at PEEP 25 cmH₂O (PEEP₂₅), 20 cmH₂O (PEEP₂₀), 15 cm H₂O (PEEP_H), 11 cm H₂O (PEEP_I), and 7 cm H₂O (PEEP_L). In 3 cases, PEEP_H and PEEP_I shared the best Crs, while in 8 cases, similar Crs was found with PEEP_I and PEEP_L. For the two PEEPs sharing similar best Crs,the higher PEEP was designated as PEEP_{upper}, the lower PEEP was designated as PEEP_{lower}. SI_{aw} was signifcantly higher with PEEP_{upper} vs PEEP_{lower} (1.07 ± 0.15 vs 0.99 ± 0.13 , $p < 0.05$). PEEP_{upper} was associated with significantly higher porportion of hyperdistension than PEEP_{lower} ($8.6 \pm 5.8\%$ vs $0.6 \pm 1.4\%$, $p < 0.05$). On the other hand, PEEP_{lower} is associated with higher porportion of recruitable lung collapse than PEEP_{upper} ($16.9 \pm 6.1\%$ vs $6.1 \pm 4.4\%$, $p < 0.05$). Cyclic alveolar collapse and reopening during tidal breathing was higher with PEEP_{lower} than PEEP_{upper} ($31.3 + 17.0\%$ vs $17.1 + 7.9\%$, $p < 0.05$). Intratidal gas distribution (ITV) index was also higher with PEEP_{lower} than PEEP_{upper} ($2.7 + 1.4$ vs 1.8 ± 0.7 , $p < 0.05$). In three cases, ITV index of PEEP_{upper} was equal or less than 1.1. PEEP_{upper} in these three cases were all in PEEP_H.

Conclusions

It is more appropriate to select PEEP_{upper} from our study but should be more cautious if the selected PEEP is high as hyperditension may be excessive.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☒ 口頭報告 (Oral Presentation) ☐ 海報競賽 (Post)

OC03

藉阻斷鈣離子釋放激活鈣離子通道降低大鼠動物呼吸器引起內質網壓力與改善肺損傷

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Blocking calcium release-activated calcium channel attenuates ventilator-induced endoplasmic reticulum stress and lung injury in rats

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Purpose: Endoplasmic Reticulum (ER) Stress as a key modulator of acute respiratory distress syndrome (ARDS). Calcium release-activated calcium channel (CRAC) participate in the pathogenesis of ER stress. CRAC inhibitor, BTP2, may be a therapeutic agent for ARDS.

Materials and Methods: Male Sprague-Dawley rats were anesthetized and randomized to be mechanically ventilated for 4 h at normal or high tidal-volume ventilation (22 ml/kg; ventilator-induced lung injury; VILI model) without or with intraperitoneal injection of BTP2 (1 mg/kg and 2 mg/kg).

Results: VILI significantly induced the lung injury of SD rats, such as the high levels of TNF-alpha, IL-1 beta and IL-6, in bronchoalveolar lavage (BAL) fluids, and lung edema (lung wet/dry ratio). BTP2 significantly reduced the pulmonary inflammatory injury and the levels of TNF-alpha, IL-1beta, and IL-6 in BAL fluids and lung edema. BTP2 significantly suppressed VILI-induced increased protein expression of ICAM-1 and RIP3, markers of endothelial injury, the increased translocation of NFATc1 to nucleus, and the increased expression of Egr-3, involved in the endothelial permeability. Moreover, BTP2 significantly suppressed VILI-induced increased protein expression of PERK, ATF4, CHOP, ATF6 and XBP1, markers of ER stress.

Conclusions: BTP2, a CRAC inhibitor, attenuates ventilator-induced lung injury by suppressing ER stress and lung inflammation. In the future, CRAC inhibitor have the potential to be a revolutionary new treatment for ARDS.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☒ 口頭報告 (Oral Presentation) ☐ 海報競賽 (Post)

OC04

結核菌特異性蛋白 ESAT-6 引發巨噬細胞的 TREM-1 表現- 小鼠模式研究

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Induction of TREM-1 expression by ESAT6 protein of *Mycobacterium tuberculosis*- a mouse model study

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Purpose: Triggering receptor expressed on myeloid cells 1 (TREM-1) has extensive interaction with toll like receptors and amplifies pro-inflammatory responses. The effect of TREM-1 in modulating *Mycobacterium tuberculosis* (MTB) related immune response remains to be elucidated..
Materials and Methods: We isolated bone marrow derived macrophages (BMDM) from wild type mice and TREM-1 KO mice and treated them with MTB whole cell lysate and ESAT-6, either alone or in combination. Differences in cytokines production and mRNA expression between wild type mice and TREM-1 KO mice were investigated. Gene expression of TREM-1 upon stimulation with MTB related proteins was also evaluated. We further treated wild type mice and TREM-1 KO mice with intratracheal instillation of heat-killed MTB (HKMTB) and analyze the presence of TREM-1 positive macrophages by immunohistochemistry staining..
Results: BMDM isolated from wild type mice produced more pro-inflammatory cytokines and had higher inflammatory gene expression than TREM-1 KO mice when stimulated with MTB whole cell lysate. ESAT-6 had a synergistic effect with MTB whole cell lysate in inducing pro-inflammatory responses. Gene expression of TREM-1 escalated when mice macrophages were treated by MTB related proteins. TREM-1 positive macrophages were clearly identified in lung tissues from active TB patients and from wild type mice with intratracheal instillation of HKMTB..
Conclusions: In mice macrophages, TREM-1 enhances pro-inflammatory immune responses when stimulated by MTB related proteins. Gene expression of TREM-1 could also be induced by MTB related stimulation.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☒ 口頭報告 (Oral Presentation) ☐ 海報競賽 (Post)

OC05

血液第 2a 型單核球極化和第一、二、三型甲酰肽受器在潛伏性結核感染進展至活動性肺結核疾病所扮演的角色

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The role of M2a monocyte polarization and formyl peptide receptor1/2/3 expressions in the progression from latent TB infection to active pulmonary TB disease

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Purpose: *Mycobacterium tuberculosis* (*M.TB*) can inhibit the development of M1 phenotype and reprogram macrophages toward M2 phenotype for better survival in the host, while formyl peptide receptors (FPR) can mediate macrophage polarization. The role of M1/M2 polarization and FPR expressions in the progression from latent tuberculosis infection (LTBI) to active TB disease has not yet been determined in patients.
Method: M1/M2a monocyte percentage and FPR1/2/3 protein expressions of blood immune cells were measured in 43 patients with sputum culture (+) active pulmonary TB disease, 11 subjects with LTBI (IGRA+), and 23 non-infected healthy subjects (NIHS; IGRA-) by flowcytometry.
Results: CD14⁺CD209⁻ M1 monocyte percentage was significantly decreased in active TB group as compared with either NIHS or LTBI group, and negatively correlated with FPR3 expression of M1 monocyte. CD14⁺CD209⁺ M2a monocyte percentage was increased in active TB group versus either NIHS or LTBI group, and positively correlated with FPR3 expression of M2 monocyte. FPR3 protein expression of CD16⁺ neutrophil was decreased in active TB group versus NIHS group, while FPR1 over FPR2 expression ratio on CD16⁺ neutrophil was increased in LTBI group as compared with either NIHS or LTBI group. Subgroup analysis showed that FPR2 expressions on M1 monocyte, CD16⁺ neutrophil, and CD3⁺CD56⁺ natural killer cells were all decreased in active TB patients with systemic symptoms (defined as either fever or body weight loss at diagnosis) as compared with that in those without systemic symptoms or subjects without active TB disease (NIHS+LTBI groups).
Conclusions: Increased M2a and decreased M1 phenotypes of blood monocyte along with decreased FPR3 expression of blood neutrophil may serve as a marker of active TB disease, while increased FPR1 over FPR2 expression ratio of blood neutrophil may indicate LTBI status.

- A. ☒ 原著論文 (Original Paper)

B. ☒ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☐ 海報競賽 (Post)

OC06

修改稀釋技術以減少 Colistin 在噴射霧化治療時結晶的形成

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Modified Dilution Technique Using a Jet Nebulizer to Reduce Colistin Crystallization at the End of Aerosol Therapy

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Purpose: Nebulized colistin is effective and safe for treating ventilator-associated pneumonia caused by multidrug-resistant *Pseudomonas aeruginosa* and *Acinetobacter baumannii*. When high doses of colistin are prescribed, clinicians may reduce the dilution volume, and air is mixed with high concentrated colistin solution in a nebulizer to shorten the treatment time. Colistin is likely to foam during the dilution procedure and produce large quantities of crystal in a ventilator circuit and nebulizer kit. However, the increase of drug concentration and the quantity of the drug remaining in the nebulizer at the end of aerosol therapy have patients exposed to higher concentrations of inhaled colistin, which may cause more toxicity. Therefore, we want to find easy and reproducible dilution techniques with nebulization to reduce crystallization.

Materials and Methods: Colomycin® (Toyo, Taiwan) enables 0.9% sodium chloride to be added to or withdrawn from a vial with the use of a needle. Aseptic techniques were used for preparation, according to the study: 4 million units (133.6 mg, two vials) of colistin powder were dissolved in 2, 3, 5, 6, and 12 mL of 0.9% sodium chloride (experimental) or in 4 mL of 0.9% sodium chloride (recommended), and we compared different diluted skill related foaming formulation. The jet nebulizer kit (PAHSCO®) assembly with mouthpiece and delivery time of more than 60 min, powered by oxygen at 8 L/min. These experiments were repeated three times.

Results: The two groups were similar in crystal-associated bubble formation. The dilution volume less than 4 mL easily induces colistin crystallization in the nebulizer kit. We increased the dilution volume to 6 and 12 mL of 0.9% sodium chloride to avoid foaming formation. Using a modified dilution technique (rotary injection), 5 to 15 minutes (mean, 9.16 minutes) of mild shaking was required for the powder to dissolve in 2 to 6 mL or in 12 mL, and for the bubbles to disappear . The traditional dilution technique (vertical injection) without shaking required 14 to 30 minutes (mean, 21.7 minutes) for the powder to dissolve in 2 to 6 mL and 12 mL and the bubbles disappeared. The foaming effect of high dose colistin extended nebulization time. In our study, the colistin between the 6 and 12 mL diluent volumes without foaming effect reduced crystallization at the end of aerosol therapy.

Conclusions: We suggest dilution of 4 million units of colistin powder in 6 mL of 0.9% sodium chloride by using a modified dilution technique including rotary injfeciton and slow shaking to reduce foaming formation and increase time efficiency. The previous study showed that 4 million units of colistin diluted in 6 mL of 0.9% sodium chloride generated MMADs of 3 μm, which is suitable for distal lung deposition. There is no significant difference in plasma pharmacokinetic parameters and urinary excretion of colistin between 6 and 12 mL diluent volume, but colistin stability is superior with the 6 mL diluent volume. In bedside observation, many factors influence aerosol delivery of colistin, such as nebulizer position in ventilator circuits and humidification. We need further investigations to continuously improve nebulization techniques and practices.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PC01

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探討經支氣管鏡診斷之非分枝桿菌肺部感染疾病相關影像學惡化之危險因子

Explore the predictors of radiographic progression for NTM–pulmonary disease diagnosed by bronchoscopy

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Introduction: A single isolate of nontuberculous mycobacterium (NTM) from bronchoscopic samples satisfies the microbiological criterion for diagnosing NTM-pulmonary disease (PD). Studies investigating patients with NTM-PD and multiple culture-negative sputum samples but culture-positive bronchoscopic samples are lacking. We investigated the clinical characteristics, outcome, and predictors of radiographic progression in this special population.

Methods: Patients with negative NTM culture from ≥2 expectorated sputum samples within the 3 months prior to bronchoscopy diagnosis of NTM-PD between 2009 and 2017 were included. Patient characteristics and clinical course were described. Predictors for radiographic progression of NTM-PD within 2 years were analysed by using multivariate logistic regression.

Results: Among 66 patients with bronchoscopy-diagnosed NTM-PD, radiographic progression occurred within 2 years in 17 (26%). Of the 60 patients not initially treated, radiographic progression occurred in 17 (28%). Among them, 10 never received treatment, with 6 deteriorating and 3 dying. Of the 6 and 7 patients who received treatment immediately after NTM-PD diagnosis and after radiographic progression, respectively, none had further radiographic progression. The independent predictors of radiographic progression were male sex, body mass index < 18.5 kg/m², use of inhaled corticosteroids, and acid-fast smear grade ≥ 2 of index bronchoscopic samples.

Conclusions: Among patients with bronchoscopy-diagnosed NTM-PD, one fourth experienced radiographic progression within 2 years. The risk was even higher in those with the aforementioned predictors, immediate treatment or close monitoring is recommended. For others, conservative management by regular microbiological monitoring for sputum samples and image follow-up may be the optimal choice.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC02

不同菌株次分型對鳥型分枝桿菌肺病患者之疾病惡化的影響

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Impact of different subspecies on disease progression in patients with *Mycobacterium avium* complex lung disease

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Purpose: Disease progression is a strong indicator of treatment for *Mycobacterium avium* complex-lung disease (MAC-LD). However, the impact of MAC subspecies on the risk of disease progression remains uncertain in MAC-LD patients.

Materials and Methods: In this multi-center cohort study, we included MAC-LD patients from 2013 to 2018. By genotyping MAC into subspecies, we classified patients into those with *M. intracellulare*, *M. avium*, *M. chimaera* and other subspecies. We observed disease progression defined as having antibiotic initiation and/or radiographic progression. We used Cox regression analysis to assess predictors for disease progression.

Results: Of the 105 MAC isolates from unique MAC-LD patients, 35 (33%) were *M. intracellulare*, 41 (39%) *M. avium*, 16 (15%) *M. chimaera*, and 13 (12%) other rare subspecies. After a mean follow-up time of 1.3 years, 56 (53%) patients developed disease progression, which were 71%, 54%, 31%, and 31% in patients with *M. intracellulare*, *M. avium*, others, and *M. chimaera*, respectively ($p=0.022$). The corresponding incidences were 6.7, 4.2, 2.2 and 2.1 case per 10 person-years. The independent predictors for disease progression were *M. Chimaera* subspecies (HR 0.356, 95% CI [0.134-0.943], $p=0.038$, compared to reference group of *M. intracellulare*), body mass index ≤ 20 kg/m² (HR 1.788 [1.022-3.130], $p=0.042$), and initial fibrocavitary pattern (HR 2.840 [1.190-6.777], $p=0.019$) after adjustment by age, sex, and sputum-smear positivity. Among patients without fibrocavity lesions ($n=94$), the risk of disease progression significantly decreased in patient with other subspecies (HR 0.217 [0.050-0.945], $p=0.042$) and remained low in those with *M. chimaera* (HR 0.352 [0.131-0.947], $p=0.039$).

Conclusions: This cohort study in patients with MAC-LD differentiate *M. chimaera* from *M. intracellulare* in a ratio of 1:2 and found that, compared to *M. intracellulare*, *M. chimaera* was negatively correlated with diseases progression. Considering risk of disease progression, our finding may suggest that MAC subspecies identification is worthwhile to prioritize patients.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC03

肺囊蟲肺炎併呼吸衰竭患者中的磺胺類藥物抗藥性基因突變

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High prevalence of *Pneumocystis jirovecii* dihydropteroate synthase gene mutations and the associated treatment failure among patients with *Pneumocystis* pneumonia and respiratory failure receiving trimethoprim/sulfamethoxazole as initial therapy

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Purpose: *Pneumocystis jirovecii* pneumonia (PCP) remains an important cause of morbidity and mortality among immunosuppressed patients. Trimethoprim/sulfamethoxazole (TMP-SMX) is the first-line treatment regimen for PCP. However, the widespread use of this regimen has raised alarms about the emergence of resistant organisms. We aim to investigate mutations in the dihydropteroate synthase (DHPS) gene and their clinical impacts among PCP patients with respiratory failure.

Materials and Methods: Hospitalized adult patients (≥ 20 years of age) with a diagnosis of PCP at the National Taiwan University Hospital from September 2016 to February 2019 were investigated. The PCP was diagnosed by clinical symptoms, radiographic changes and positive results of a quantitative PCR (qPCR). The patients with positive qPCR without relevant clinical symptoms or radiographic change would be defined as *Pneumocystis* colonization. DHPS genotyping and mutational analyses were performed and the data were correlated with clinical characteristics and treatment outcomes among patients with respiratory failure and respiratory *Pneumocystis* isolation.

Results: A total of 45 PCP patients and 14 colonized individuals were enrolled. DHPS gene mutations were detected in 19 patients (32.2%). Compared to PCP patients, colonized individuals had the following: higher median qPCR cycle threshold value (indicating lower fungal load, 31.0 vs. 26.4, $p < 0.001$); a higher rate of DHPS gene mutation (57% vs. 24%, $p = 0.022$); and a lower rate of mortality (21% vs. 67%, $p = 0.003$). Among PCP patients with respiratory failure receiving TMP-SMX as initial therapy, treatment failure was more likely to occur in patients with DHPS gene mutations (37% vs. 10%, $p = 0.039$). Multivariable logistic regression analysis showed that DHPS gene mutations (odds ratio = 7.43, 95% confidence interval = 1.16–47.55, $p = 0.034$) were the independent risk factor for treatment failure. Kaplan–Meier survival curves revealed that 60-day survival was significantly worse in patients with treatment failure than those without ($p < 0.001$).

Conclusions: The prevalence rate of DHPS gene mutations was relatively high in our cohort. DHPS gene mutations were the independent risk factor for treatment failure among PCP patients with respiratory failure receiving TMP-SMX as initial therapy. Because treatment failure was the strong predictor of 60-day mortality, alternative treatments to TMP-SMX should be considered for PCP patients with respiratory failure and DHPS gene mutations.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC04

非結核分枝桿菌肺部感染與移生的流行病學分析

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Pulmonary Infection and Colonization with Nontuberculous Mycobacteria in Taiwan—An Update

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Purpose: Mycobacterium tuberculosis (TB) and nontuberculous mycobacteria (NTM) are two important groups of pathogen to cause pulmonary disease in Taiwan. When the incidence of new TB infection has gradually decreased in the recent two decades, the increasing trend of new pulmonary NTM infection begins to draw our attention. Previous epidemiology study in Taiwan showed increased prevalence of pulmonary NTM disease and colonization during the 2000-2012 period. The aim of this multisite study is subsequent surveillance of the incidence and prevalence of pulmonary TB and NTM disease in Taiwan after 2012.

Materials and Methods: From 2013 to 2018, patients in National Taiwan University Hospital and its branch hospitals whose specimens with positive cultures for TB or NTM were enrolled into analysis. Their clinical information were collected retrospectively and all the positive cultures underwent species identification. We categorized NTM colonization and disease using the microbiologic criteria of the 2007 ATS/IDSA NTM guideline. Subgroup distribution by sex and age were also reported and compared using Chi-square test.

Results: From 2013 to 2018, the rate of pulmonary NTM disease/colonization was still on an increasing trend. Though the incidence and prevalence of NTM disease was still lower than NTM colonization, it is noteworthy that the isolation rate of NTM that caused disease (39.9%) had surpassed the rate of which were deemed to be colonization (26.6%). TB was still the most prevalent isolated pathogen for male patients (TB: 43.1%, NTM disease: 32.1%, NTM colonization 24.8%), but the rate of NTM isolation resulting in disease (49.5%) and colonization (25.4%) were both higher than the rate of TB isolation (25.1%) among female patients. By age group, the prevalence of TB isolation was still the highest if the patient's age was younger than 44 or older than 85 years old. On the contrary, the rate of disease-causing NTM isolation exceeded the rate of TB or colonizing NTM isolation in patients whose age ranging between 45 and 84 years old.

Conclusions: In this updated epidemiology study focusing on pulmonary NTM infection and colonization, the tendency of increasing NTM isolation and decreasing TB isolation between 2013 and 2018 seemed to be more prominent compared to the findings in 2000s, especially among male, middle-age (45-64) and old-age (65-84) patients. Future studies are needed to clarify the causal relationship of this phenomenon and novel prevention and treatment strategy should be invented to conquer this emerging infectious disease.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC05

牙齒塞住支氣管導致的非消散性肺炎-阻塞性肺炎的肺部表現：病例報告及文獻回顧。

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Nonresolving pneumonia due to obstructed bronchus by teeth- A Presentation of Obstructive Pneumonia: A Case Report and Literature Review.

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Introduction

Pneumonia is a common disease of internal medicine and a leading cause of morbidity and mortality worldwide. The common causes of pneumonia are bacteria, virus or even Mycobacterail tuberculosis. After antibiotics treatment, nonresolving pneumonia is always a clinical challenge. Here we presented a case of severe pneumonia with respiratory failure. After antibiotics treatment, fever and consolidation through image persisted. After computed tomography and bronchoscope, we found bronchial obstruction by teeth.

Case Report

The 82 year-old woman had past history of diabetes mellitus and hypertension. She suffered from dyspnea and CXR showed pneumonia. Intubation with mechanical ventilation was performed due to respiratory failure. We've prescribed broad-spectrum antibiotics and weaning from ventilator started after vital sign stable. Extubation was performed after adequate spontaneous breathing trial. After extubation however, she suffered from recurrent fever and CXR showed worsening consolidation. A high density lesion was found at right lower lobe bronchus through CXR. We arranged chest CT, which showed obstructed bronchus by calcified foreign body. We performed bronchoscope study and a tooth was found in RLL bronchus. We've removed the tooth. After that, fever subsided and the patient got improving clinical condition.

Discussion

Patient with pneumonia should have subjectively improving symptoms after days to 2 weeks. However, the improvement of CXR infiltration differs and should take into account comorbidities, age, severity, and etiology. If a patient has unsatisfying clinical condition and unimproving CXR findings, we should evaluate the potential cause of nonresolving pneumonia, including loculated infection(empyema, lung abscess), bronchial obstruction(foreign body, tumor), pathogens that cause subacute/chronic pneumonia(TB, NTM, fungus), and incorrect initial diagnosis(malignancy or inflammatory lung disease). Chest CT and bronchoscope study could help us for differential diagnosis.

As our case, recurrent fever and worsening consolidation through image were found clinically. Chest CT study and bronchoscope showed obstructed bronchus by a tooth. We should also pay attention to non-intubated patients with poor cough ability to avoid suffocation by foreign body, such as teeth.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC06

經由氣管內視鏡超音波導引針吸術診斷之放線菌化膿性淋巴腺炎-病例報告

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Suppurative Lymphadenitis Caused by *Actinomyces Odontolyticus* Successfully Diagnosed by Endobronchial Ultrasound-Guided Transbronchial Needle Aspiration (EBUS-TBNA), a Case Report

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Introduction: Lymphadenopathy is a common finding in many malignant and infectious diseases. However, mediastinal actinomyces lymphadenitis is a rare condition. Infectious diseases caused by actinomyces species are usually indolent, and may mimic malignancy, tuberculosis, or fungal infection. The diagnosis of actinomycosis is difficult, and some patients may require surgical intervention for histological or microbiological examinations.

Case report: A 71-year-old male patient, with history of cardiac surgery 11 years ago and radiofrequency ablation for hepatocellular carcinoma one year ago, presented with dry cough and intermittent fever for two months. He was treated with empirical antibiotics for pyuria initially but had persistent symptoms. His underlying disease has been proved to be stable during admission. Chest images and Gallium scan showed a 3.5cm mass with central necrosis over right lower paratracheal space, with intensely increased Gallium uptake. A bronchoscopic examination with the assistance of endobronchial ultrasound (EBUS) and transbronchial needle aspiration (TBNA) was performed for sampling the mediastinal mass. The results showed suppurative lymphadenitis and the culture yielded *Actinomyces odontolyticus*.

Conclusions: EBUS-TBNA helps sparing some patients with mediastinal lesions from operation. In addition to pathological examination, routine microbiological studies of TBNA specimens are required when the rapid on set examination (ROSE) suggests an inflammatory disease or while lacking ROSE assistance.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC07

支氣管麴菌瘤一罕見病例報告

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Endobronchial aspergilloma: A rare case report

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Purpose: *Aspergillus spp.* exists widespread in our environment. Based on human immunity and abnormal structure of the lung, Aspergilus can be presented as invasive pulmonary aspergillosis, chronic necrotizing aspergillosis, allergic bronchopulmonary aspergillosis, and aspergilloma. Pulmonary aspergilloma usually results from the cavities of patients with underlying lung diseases and a pulmonary cyst. However, it is a rare report that pulmonary aspergilloma comes in ingrowth of colonized *Aspergillus* in a bronchial tree. We presented a rare case of 58-year-old healthy mam who complained of hemoptysis. Afterwards, we implemented the chest computer tomography (CT), video assisted thoracoscopic surgery (VATS) with segmentectomy, and pathology to prove endobronchial aspergilloma.

Case report

The 58-year-old man operated a fast food restaurant and was accustomed to jogging. He denied preexisting pulmonary diseases and nor systemic diseases. He was rather well until hemoptysis developed. He complained of occasionally productive cough with mucoid sputum in recent 2 months. Physical examination did not reveal obvious abnormality except localized wheezing at the right lower lobe. The chest roentgenography did not show discernible lesions. A chest CT disclosed a sized 1.2 cm nodule with air crescent sign and eccentric calcification over the right lower lobe. (Figure 1) Serum aspergillus antigen showed negative reaction. The chest surgeon implemented a VATS with segmentectomy for posterior segment of right lower lobe. Pathology revealed intrabronchial fungal granuloma, which showed dichotomous branching of hyphae with positive GMS and PAS stains in microscopic examination. (Figure 2 and Figure 3)

- A. ☐ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- 病例報告論文 (Case Report)

■ 海報競賽 (Post)

PC08

非典型分枝桿菌與麴菌交替感染於肺開洞病例分析

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Alternately infection With Aspergilus and Mycobacterium Avium in the Identical Chronic Cavity Lung Disease Victim

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Introduction:

The lung cavity on chest radiography suggests the presence of lung disease, including lung cancer, tuberculosis, and fungal infection. The radiographic appearance of cavitary lesions can sometimes be useful to differentiate among a broad spectrum of etiologies but should be combined with clinical and laboratory data to obtain an accurate diagnosis.

Case presentation:

The 68Y/O gentle man complained progressive of hemoptysis since 1 weeks ago. . Due to progressive hemoptysis, he came to our CM OPD for help. He just completed his antifungal treatment course for his LUL giant cavity with image and BAL aspergilus antigen confirmation PE: showed no pale conjunctiva, no iteric sclera, decrease breathing sound of left lung, no crackle, rales or wheezing was heard. Soft and flat abdomen with normoactive bowel sound. No tenderness. Under the impression of hemoptysis, suspect bronchiectasis related and NTM infection, Bronchoscope arranged for BAL over his lung cavity lesion. Finally Mycobacterium avium was isolated BAL by his previous aspergilus cavity lesion site. From then on,,he still completed his anti-NTM medication course .No more symptoms bothered him again.

Discussion:

This association between NTM disease and Aspergillus-related lung disease remained significantly correlation. Patients with structural lung disease and nontuberculous mycobacterial disease have a higher prevalence of coexisting Aspergillus-related lung disease. Diagnosis of Aspergillus-related lung disease is based on serology, BAL and CXR integration confirmation NTM disease itself may prove difficult to diagnose due to its nonspecific clinical and radiographical presentation, although characteristic radiographical features of some NTM species have been described. NTM infection and concomitant Aspergillus-related lung disease have been reported previously. Aspergillomas may originate in large cavity lesions of may complicate pulmonary disease caused by M. avium .

Conclusion:

Combined serology, sputum and radiology for Aspergillus-related lung disease will help reduce diagnostic uncertainty and inadequate treatment of NTM disease until new, more accurate tests become commonly available. There are many examples NTM disease and coexisting Aspergillus-related lung disease: a case series of four patients with NTM infection who deteriorated or relapsed after treatment due to concomitant Aspergillus infection has been reported. We propose that association between nontuberculous mycobacteria and Aspergillus-related lung disease, which is important for diagnosis of the disease .The practical implication of the present findings is that in patients with bronchiectasis and nontuberculous mycobacteria infection for coexisting NTM have higher prevalence of Aspergillus-related lung disease Patients with bronchiectasis and nontuberculous mycobacterial disease have a higher prevalence of coexisting Aspergillus-related lung disease .NTM pulmonary disease afflicts persons with pre-existing structural pulmonary diseases such diseases are genetically susceptible to pulmonary infection with NTM. The diagnosis of NTM pulmonary infection relies on a combination of symptoms, imaging and microbiological findings. The treatment of NTM pulmonary disease is challenging and should be tailored to the particular patient, based on the infecting species and appropriate test. Diagnosing the cause of cavitary lung disease is a challenge given the broad differential diagnosis and varying manifestations. Significant advances have been made in chest imaging with CT especially increasing awareness lung cavities. Although imaging findings constitute an important component of CXR findings alone are usually insufficient for definitive diagnosis .The most common organism associated with pulmonary disease is Mycobacterium avium. The first underlying risk factors that include immunosuppression such as HIV; transplant; or structural lung disease such as COPD, silicosis, prior TB infection,.Patients with NTM may have positive sputum microscope or culture results. Radiographically, MAC appears similar to reactivation TB, with fibrocavitory disease.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

■ 海報競賽 (Post)

PC09

鳥型分枝桿菌肺部疾病病人的自然病程及預後影響因子

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Nature course of pulmonary disease caused by *Mycobacterium avium* complex in untreated patients

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Purpose: To understand the risk factors of disease progression with *Mycobacterium avium* complex pulmonary disease (MAC-PD).

Materials and Methods: This retrospective study was conducted at the National Taiwan University Hospital from January 1, 2013 to December 31, 2015. The baseline clinical characteristics, microbiological and radiographic outcomes of patients with MAC-PD during a 2-year follow-up were collected. MAC isolates were identified based on the findings of several molecular identification methods. Minimum inhibitory concentrations (MICs) of 13 antimicrobial agents were determined using the Sensititre® SLOMYCO panel (TREK Diagnostic Systems, Cleveland, OH, USA).

Results: Among the 144 patients with MAC-PD, 57 (39.6%), 37 (25.7%), and 28 (19.4%) patients were infected with *M. intracellulare*, *M. aviam* and *M. chimaera*, respectively. Patients with *M. avium* PD were the youngest ($p=0.003$) and most (27%) of them had HIV infection ($p<0.001$) in comparison with those infected with *M. intracellulare* and *M. chimaera*. Twenty-two (15.3%) patients had spontaneous sputum culture conversion and 15 (13.9%) patients had disease progression by radiographic studies within two years. Patients with *M. chimaera* PD had the highest rate of 2-year sputum culture conversion ($p=0.048$) and the lowest rate of fibro-cavity radiographic pattern ($p=0.034$). In a multivariate Cox proportional hazard analysis, asthma (Hazard ratio [HR], 6.15; 95% CI: 1.25-30.56; $p=0.026$) was the independent factors for radiographic progression. Radiographic pattern of nodular bronchiectasis was associated with less radiographic progression than fibro-cavity (HR, 0.18; $p=0.023$). More importantly, *M. chimaera* PD (HR, 0.03; $p=0.008$) and *M. intracellulare* PD (HR, 0.19; $p=0.014$) had less radiographic progression than *M. avium* PD. Based on CLSI breakpoints, the MIC distribution of clarithromycin, amikacin, and linezolid were similar between species. The susceptibility rates of all MAC isolates to clarithromycin and amikacin (inhalation) were both 98.6%. However, only 32.6% of isolates were susceptible to amikacin (intravenous), as well as, 85.5% and 91.5% of all isolates were resistant to moxifloxacin and linezolid, respectively. Compared to other species, *M. avium* isolates had the lowest susceptibility rate to moxifloxacin ($p=0.001$).

Conclusions: Among patients with MAC-PD, the rate of spontaneous sputum culture conversion and radiographic progression within a 2-year follow-up was not uncommon. Asthma was an independently risk factor of radiographic progression. The resistance rates to moxifloxacin (particularly, *M. avium* isolates) and linezolid were high.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC10

女性氣喘病患者有較高 Gemifloxacin 引起皮疹的風險，特別強調延遲性皮疹的發生

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Female Asthmatic Patients Have Higher Risk to Develop Gemifloxacin-Associated Skin Rash, Highlighting Unique Delayed Onset Characteristics

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Purpose: The aim of this study was to investigate the clinical presentations and the risk factors of Gemifloxacin-related skin eruptions through a retrospective review of all patients who received Gemifloxacin for lower respiratory tract infections at a university-affiliated teaching hospital in Taiwan.

Materials and Methods: We retrospectively reviewed all patients who received Gemifloxacin for lower respiratory tract infections from 1 January 2011 to 31 May 2016. Data were entered and analyzed using JMP statistical software (version 9.0, SAS Institute Inc., Cary, NC, USA). Demographic data as well as underlying diseases including asthma, allergic rhinitis, and related covariates were compared between the groups with and without drug eruptions using Fisher's exact test for categorical variables and the Wilcoxon rank sum test for continuous variables. Cox multivariate logistic regression analysis with stepwise variable selection was performed to identify the risk factors associated with Gemifloxacin-induced skin eruptions. Statistical significance was set at $p < 0.05$.

Results: A total of 1358 patients who received Gemifloxacin treatment during the study period were enrolled, of whom 36 (2.65%) had skin eruptions (the case group) and the remaining 1322 (97.35%) patients did not (the control group). The female patients had a higher odds ratio (OR) of 2.24 (95% confidence interval (CI) = 1.11–4.53, $p = 0.021$), and a history of asthma was also a risk factor of having skin eruptions (OR 2.04, 95% CI = 1.01–4.14, $p = 0.043$). Drug exposure for longer than seven days had a trend of increasing the risk of a skin rash, but without significance (OR 2.25, 95% CI = 0.92–5.52, $p = 0.077$). In a backward selection logistic regression model to estimate adjusted odds ratios, female asthmatic patients had the highest risk of skin eruptions (10/129, 7.2%; aOR 4.45, 95% CI = 1.81–10.93, $p < 0.001$).

Conclusions: This is the first study to report that female asthmatic patients have the highest risk of Gemifloxacin-associated skin eruptions in Asia, and a unique delayed onset skin rash should be highlighted as a potential reaction following treatment with Gemifloxacin.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC11

隔離肺造成的年輕男性反覆肺炎

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Pulmonary sequestration associated recurrent pneumonia in a 25-year-old man Wen-Te Liu^{1,2,3,4},

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Introduction

Pulmonary sequestration is one of the cause of respiratory distress and recurrent lower respiratory tract infection in childhood but, though rare, also affect adult. Lack of familiarity often fails us to recognize this potential treatable disease.

Case report

This is a 25 years old man without known systemic underlying disease but several episode of pneumonia since childhood. Intermittent spiking fever with much copious sputum production was complained for 3 days and he visited our emergency department for help. Mild chest tightness with pleuritic pain during deep inspiration was also noticed. Physical examination disclosed bilateral lower lung field coarse crackles especially left side via posterior auscultation. Chest plain film (CXR) revealed a vivid consolidation over left lower lung field with elevated left hemidiaphragm. Leukocytosis with bandemia (125800/micro-liter, band form 15%) and marked increased C-reactive protein level (377 mg/L) was detected on initial biochemistry study. Chest computed tomography(CT) without contrast was performed and found left lower lobe consolidation with air-bronchogram and multiple scattered tiny calcification, also several small air space confined in the consolidation. Bronchoscopy investigation was arranged and mucosa swelling with orifice narrowing found at superior segment of left lower lobe(LB6) without obvious atypical mucosa change. Much improved clinical condition and inflammation index was observed during hospitalization. However, poor resolution of pulmonary consolidation was recorded on followed series CXR. Under concern of specific anatomic lesion, enhanced chest CT was arranged under inform-consent at out-patient department and disclosing pulmonary sequestration over left lower lobe with feeding artery originating from celiac trunk. Surgical intervention was suggested due to recurrent symptoms.

Conclusion

Non-functioning lung mass without normal connection to the bronchopulmonary tree and possessing aberrant artery supply from systemic circulation is the main character of pulmonary sequestration. Anomalous connection to normal bronchi often leads to recurrent pulmonary infection in intra-lobar type. Here we present a case of 25 years old man with pulmonary sequestration who has suffered from episodes left lower lobe pneumonia for years but changed into a whole new life after definite treatment.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC12

免疫功能正常病人以左嘴角腫塊及單一肺結節表現之全身性隱球菌感染 – 病例報告

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Disseminated cryptococcal infection in an immunocompetent patient present with left mouth corn mass and solitary pulmonary nodule - A case report

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Introduction :

Disseminated cryptococcosis is a potentially fatal fungal infection and it rarely infects immunocompetent hosts. Here we present a case with disseminated cryptococcal infection present as left mouth corner mass and solitary pulmonary nodule.

Case Report :

This is a 56-year-old man with type 2 diabetes, hypertension, and chronic kidney disease. He visited out-patient department of oral surgery for noticing left mouth corner mass for 2 weeks. Biopsy of the mass was performed which reported acute and chronic inflammation. However, poor wound healing was noted and he was admitted for further mass excision. During the pre-operation examination, chest X-ray revealed a solitary right upper lung nodule. He was referred to chest out-patient department after the operation. Denying the history of fever or body weight loss. Contact history of chicken work was told. Chest CT reported a lobulated lesion with mildly irregular margin and mixed component in the right upper lung. Serum examination revealed no leukocytosis nor abnormal biochemistry data. CT-guided biopsy for the right upper lung lesion rule out malignancy. Final pathology of mouth mass and right upper lung lesion reported positive finding for cryptococcus on PAS stain, GMS stain, and Mucicarmine stain. No malignancy cell was found. Following up HIV test was negative and serum cryptococcus antigen titer was positive at a titer of 1:256. The patient finally diagnosed as disseminated cryptococcal infection with lung and left mouth involved. Fluconazole was prescribed as treatment and following up chest X-ray and his left mouth corner wound showed the lesion was improved.

Conclusion :

Cryptococcosis is an opportunistic infection which may involve multiple organ systems beyond the lung. Although disseminated cryptococcosis was rarely occurred to immunocompetent patients, we should keep in consideration if there was a contact history and multiple lesions involved.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC13

膿胸的危險因子及其對預後的影響

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Risk Factors of Empyema and their Impacts on Prognosis

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Purpose:

The incidence of empyema is increasing, indicating that it is an important disease worldwide. This study aimed to investigate the risk factors of empyema and their impacts on the prognosis.

Materials and Methods:

We conducted a cross-sectional study by using data from the National Health Insurance in Taiwan. We established an empyema group comprising 1,851 newly diagnosed adult patients during 2000–2012 and a non-empyema group comprising 7,404 individuals who were 1:4 frequency matched by age, sex, and date of empyema diagnosis. Variables included age, sex, and comorbidities of cerebrovascular disease (CVD), chronic obstructive pulmonary disease (COPD), chronic liver disease and cirrhosis (CLD), chronic kidney disease (CKD), diabetes mellitus (DM), rheumatic disease, immune disorders, human immunodeficiency virus (HIV) infection, cancer, depression, and malnutrition. We monitored 30-day and 90-day mortality in the empyema group. Logistic regression analysis was utilized to estimate odds ratios (ORs) and 95% confidence intervals (CIs).

Results:

The significant factors leading to empyema occurrence included HIV infection (OR = 5.36, 95% CI = 1.29–21.8), malnutrition (OR = 3.09, 95% CI = 2.25–4.23), cancer (OR = 2.77, 95% CI = 2.31–3.33), CVD (OR = 2.35, 95% CI = 2.01–2.74), DM (OR = 2.27, 95% CI = 1.97–2.60), COPD (OR = 2.01, 95% CI = 1.74–2.33), CKD (OR = 1.81, 95% CI = 1.44–2.27), and CLD (OR = 1.19, 95% CI = 1.06–1.33). The 30-day mortality rate was 4.3% (n = 79) and the 90-day mortality rate was 21.4% (n = 397). The significant factors for 30-day mortality included old age (OR = 2.20, 95% CI = 1.36–3.55) and cancer (OR = 2.76, 95% CI = 1.66–4.58). The significant factors for 90-day mortality included old age (OR = 1.93, 95% CI = 1.49–2.51), malnutrition (OR = 2.39, 95% CI = 1.54–3.71), cancer (OR = 1.78, 95% CI = 1.30–2.43), COPD (OR = 1.60, 95% CI = 1.22–2.10), CVD (OR = 1.59, 95% CI = 1.21–2.08), and DM (OR = 1.47, 95% CI = 1.14–1.90).

Conclusions:

We successfully identified several risk factors of empyema, and some of them were significantly associated with poor prognosis.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC14

加護病房嚴重社區型肺炎病患之侵入性麴菌感染分析

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嘉義長庚呼吸胸腔內科

Invasive aspergillosis in patients admitted to the intensive care unit with severe community acquired pneumonia : A 3 years retrospective cohort study.

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Purpose: We aim to identify the incidence and mortality of invasive aspergillosis in patients admitted to intensive care unit with severe community acquired pneumonia and respiratory failure.

Materials and Methods: We retrospectively reviewed 346 adult patients with severe community acquired pneumonia and respiratory failure in Chang Gung Memorial Hospital, Taiwan from August 2015 through July 2018. 235(68%) of 346 patients had received diagnostic bronchoscope. The definition of putative invasive aspergillosis required abnormal radiological findings and positive Aspergillus galactomannan (GM) antigen and/or Aspergillus isolation from culture or pathologic evidence (proven invasive aspergillosis) via bronchoscope.

Results: 41(17%) from 235 patient were diagnosed as influenza pneumonitis. Proven aspergillosis and putative aspergillosis were diagnosed in 9(22%) and 32 (78%) of patients with influenza pneumonitis. Besides, proven aspergillosis and putative aspergillosis were defined in 25(13%) and 169(87%) of patients with severe community acquired pneumonia (CAP). In-ICU mortality of Aspergillus group (32% in CAP and 56% in Flu patients) was significantly higher than no defined aspergillus group (24% in CAP and 13% in Flu patienys)

Conclusions: Incidence and mortality of putative or proven invasive pulmonary aspergillosis in ICU patient with severe community acquired pneumonia is higher than prior recognition. An aggressive and faster diagnostic approach should be pursued. Earlier therapy also should be cautiously considered for patients with severe community acquired pneumonia ICU.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC15

血管外肺水容積和凝血酶對敗血病患者生存的影響

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林口長庚胸腔內科, 呼吸治療科

Impacts of extravascular lung water and thrombin on survival of septic patients

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Purpose: Endothelial cell (EC) activation may increase systemic vascular permeability caused an extravasation of water (EVLW) in sepsis. The correlation of thrombin and EVLW in sepsis hasn't addressed.

Materials and Methods: Septic patients were prospectively enrolled during 2013 and 2016 at hospitals of North Taiwan, and EVLW and serum thrombin on day 1 and 3 were measured and compared between those with survival and non-survival. Additionally, morphologic change of human umbilical vein endothelial cells (HUVECs) with serum from patients with high and low EVLW was conducted.

Results: Twenty-seven patients were enrolled and the baseline characters including age, gender, APACHE II, prior 24hrs fluid balance, BMI, and shock status were similar between survivors and non-survivors. But day 1 EVLW was higher in non-survivor (27.5 ± 8.4 vs. 22 ± 6.5 ml/kg, $p=0.049$). EVLW of survivor was improved from day 1 to day 3 (22 ± 6.5 vs. 11 ± 3.8 ml/kg, $p=0.0001$), but it did not improve in non-survivor (27.5 ± 8.4 vs. 28 ± 6.7 ml/kg, $p=0.89$). Thrombin level of survivor significantly improved (1.03 ± 0.55 vs. 0.87 ± 0.25 U/ml, $p=0.04$) but it did not improve in non-survivor (1.97 ± 0.75 vs. 2.2 ± 0.75 U/ml, $p=0.07$) from day 1 to day 3. EVLW and thrombin revealed a positive correlation ($r^2=0.71$, $p<0.0001$). In vitro, the morphology and junction of HUVECs were changed when serum of patients with high EVLW was added, but those did not change when serum of patients with low EVLW was added.

Conclusions: The level of EVLW and thrombin correlated positively and may impact the survival of these patients. Thrombin inhibitor may act as a novel valuable approach for preventing endothelial hyper-permeability and provides the rational basis for the use of this kind of drug in patients with severe sepsis.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC16

敗血症合併代償性肝硬化的病患，其死亡率並不高於敗血症且無肝硬化的病患

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The mortalities of septic patient with compensated liver cirrhosis was not inferior to septic patients without Liver cirrhosis--a propensity score matched analysis
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Objectives. To determine factors associated with poor outcome in sepsis patients with liver cirrhosis.

Methods. This study evaluated 799 adult sepsis patients admitted into the medical intensive care units of Kaohsiung Chang Gung Memorial Hospital during 2013 to 2017. These patients were evaluated according to the criteria for sepsis. 23 patients was excluded due to re-admission. Sepsis patients were divided into two group, with liver cirrhosis group and without liver cirrhosis group. Septic patients with liver cirrhosis was divided into two group, compensated liver cirrhosis and decompensated liver cirrhosis. Propensity scoring was also used for control of selection bias. Variables included in the propensity model were age, sex, presence of diabetes mellitus, hypertension, cardiovascular accident, chronic kidney disease, malignancy, APACHE II score, hemoglobin and platelet data at ER. After correcting these confounding factors, 7-days mortality, ICU and hospital mortality were analyzed.

Results. Of the 776 sepsis patients in the study, 444 patients survived, and yielding mortality rate of 42.8 %. Only 67 sepsis patients with liver cirrhosis (8.6 %). Septic patient with compensated liver cirrhosis had higher mortality rate on 7-days mortality, ICU and hospital mortalities before propensity score patching. However, after propensity score matching some factors, including hemoglobin and platelet at ER, the mortalities of septic patient with compensated liver cirrhosis was not inferior to septic patients without Liver cirrhosis.

Conclusions. After propensity score matching some factors, including hemoglobin and platelet at ER, we found the mortalities of septic patient with compensated liver cirrhosis was not inferior to septic patients without liver cirrhosis.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC17

胸腔復健後之功能狀態做為長期使用呼吸器病患其脫離成功與存活狀態之預測因子

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Function Status after Pulmonary Rehabilitation as a Predictor of Weaning Success and Survival in Patients Requiring Prolonged Mechanical Ventilation
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Purpose: Comprehensive rehabilitation programs are recommended in patients with prolonged mechanical ventilation (PMV) to speed up functional recovery and to reduce the risk of ventilator dependence. The aim of this study is to evaluate the association of functional status after pulmonary rehabilitation in PMV patients and the weaning and survival outcome.

Materials and Methods: We retrospectively enrolled patients requiring PMV support who were admitted to the respiratory care center (RCC), a specialized post-intensive care weaning facility, from January 2016 through December 2017. All patients received protocolized physical training program conducted by an experienced physical therapist 5 times per week during the entire RCC stay. Functional status was measured by the de Morton Mobility Index (DEMMI). The outcome measurements included the weaning status at RCC discharge and survival rate at hospital discharge and 3 months after RCC discharge. Multivariate regression analyses were used to identify significant parameters associated with weaning success and survival status.

Results: In total, 320 patients were enrolled. The weaning success rate was 71.6%, and survival rates at hospital discharge and 3 months after RCC discharge were 77.5% and 66.6%, respectively. Multivariate logistic regression models showed that chronic obstructive pulmonary disease (odds ratio [OR], 0.298; 95% confidence interval [CI], 0.120–0.742; *P* = 0.010), post-operative respiratory failure (OR, 2.450; 95% CI, 1.002–5.992; *P* = 0.0496), post-rehabilitation DEMMI ≥ 20 (OR, 3.514; 95% CI, 1.436–8.598; *P* = 0.006), post-rehabilitation rapid shallow breathing index ≤ 105 (OR, 2.644; 95% CI, 1.290–5.419; *P* = 0.008) and platelet counts (OR, 1.031; 95% CI, 1.005–1.058; *P* = 0.020) were significantly associated with weaning success. The weaning success and high post-rehabilitation DEMMI were the two most significant factors associated with both hospital survival (OR, 12.272; 95% CI, 5.281–28.517; *P* < 0.001 for weaning success; OR, 6.298; 95% CI, 1.302–30.477; *P* = 0.022 for post-rehabilitation DEMMI) and 3-month survival after RCC discharge (OR, 38.788; 95% CI, 11.505–130.762; *P* < 0.001 for weaning success; OR, 4.830; 95% CI, 1.072–21.756; *P* = 0.040 for post-rehabilitation DEMMI).

Conclusions: Functional status after pulmonary rehabilitation was significantly associated with weaning success in patients requiring PMV support. In addition to weaning success, functional status after pulmonary rehabilitation was the most important determinant associated with both hospital survival and 3-month survival after RCC discharge.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC18

前三天血糖最高值可預測敗血症病人預後

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高雄長庚紀念醫院

Peak serum glucose in 3 days predict outcomes in sepsis patients with or without Diabetes mellitus in intensive care units

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Purpose: To determine whether peak serum glucose in 3 days predict outcome of sepsis with and without Diabetes mellitus (DM) in intensive care unit(ICU) and its association with immune dysfunction

Materials and methods: This study evaluated adult medical ICU patients (>18 y/o) with sepsis in Kaohsiung Chang Gung Memorial Hospital. 799 consecutive patients met the criteria of sepsis-3 were enrolled. After excluding patients died in 3 days,we defined patients into 6 groups (by with DM or without DM, and their peak serum glucose in 3 days) (Eu: glucose <140 mg/dl, mild: glucose between 140 and 220, severe: >220) regardless of antihyperglycemic agent usage.
Results:Overall, patients with DM (n=386 vs. n=336 without DM) had better survival (28d mortality 25.6% vs. 33.6%, p=0.02). Different mortality rates were noted regarding peak serum glucose in 3 days (90-day mortality; Eu(n=121)43.0%, mild(n=262) 37.0%, severe(n=339) 47.8%, p=0.03). Although with compatible infection source, Charlson comorbidity index and SOFA score on day 1,there were significant differences among 6 groups regarding 7d,14d, 28d, and 90d mortality (28d mortality; DM(+)Eu(n=30) 40%, DM(+)mild(n=99) 19.2%, DM(+)severe(n=257) 26.5%, DM(-)Eu(n=91) 29.7%, DM(-)mild(n=163) 28.2%, DM(-)severe(n=82) 48.8%, p<0.01). In patients with DM, euglycemic group had worst outcome with impaired immune function (mean HLA-DR expression=77.1±24.3% vs.92.9±10.9in DM(+)mild, p<0.05). However, in patient without DM, severe hyperglycemic group had the worst outcome with immune dysfunction (DM(+)severe: mean HLA-DR expression=81.2±18.1% ,IL10= 448.9±664.6pg/uL vs.DM(-)Eu:HLA-DR=96.3±3.8%, IL10=36.7±53.4, p<0.05).
Conclusions:Peak serum glucose in 3 days help predict outcome of sepsis with and without DM in medical ICU. Immune reaction plays animportant role in the difference.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC19

運用 CURB65 看住加護病房嚴重肺炎之進展

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Application of CURB65 for severe pneumonia progression in medical intensive care unit (ICU) admission

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Purpose: CURB65 (consciousness, BUN, respiratory rate, blood pressure, age over 65) was an easy tool for pneumonia severity stratification in outpatient department and can help determine site of care. We aimed to determine whether it feasible for predicting severe pneumonia progression on ICU admission.
Materials and methods: This post hoc analysis enrolled consecutive adult severe pneumonia admitted to ICU. Baseline characteristics and clinical factors including human leukocyte antigen DR (HLA-DR) expression and cytokines were analyzed.
Results:Patients were grouped into low (CURB65 score 0 to 1 point, n=65), intermediate (2 points, n=345), and high (score >=3, n=104) groups.Although correlated with increasing age, APACH II score (low:19.5±7.7 vs. intermediate:23.9±8.1 vs. high:27.3±7.4,p<0.01), pneumonia severity index (PSI) score(97.7±32.1 vs. 133.2±29.0 vs. 167.1±31.7, p<0.01), frequency of comorbidity (Hypertension, stroke history, chronic kidney disease), the score cannot discriminate 7d, 28d, 90d, ICU, and hospital mortality (28d mortality; low 24%, intermediate 27.1%, high 26%). However, rate of decisionon do-not-resuscitation order were different (29%, 37%, 52%, p=0.004). There was ventilator dependency (duration of mechanical ventilation over 21 days) trend (15%, 31.6%, 33.8%). There were significant differences regarding sequential organ failure assessment (SOFA) score on day 1 , day 3, and day7 (day 1; 1.4±0.7 vs. 1.6±0.6 vs. 2.1±0.6, p<0.01). In subgroup population with immune profiles, we found different cytokine expression (day1 serum IL-6: 107.9±245.8 vs. 123.5±253.3 vs. 1104.7±3446.7pg/mL, p<0.05)(day 1 HLA-DR expression%: 90.8±10.6 vs. 86.1±16.2 vs.82.0±17.2, p=0.343). There were also difference in fluid accumulation (for first 4 days: 1723.3±2558.2 vs. 2246.3±3303.3 vs. 3627.8±3333.3, p<0.01).
Conclusions:Although day 1 CURB65score cannot discriminate mortality in patients with severe pneumonia in ICU.It may be helpful for predict immune status and SOFA progression, which possibly correlated with DNRdecision.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC20

加護病房內泌尿道感染相關之敗血症的流行病學及死亡危險因子

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Epidemiology and risk factors for mortality in patients admitted to the ICUs with urosepsis

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Purpose: Urinary tract infection (UTI) is one of the leading sources of sepsis or septic shock in intensive care units (ICU), mostly caused by *Enterobacteriaceae*. With the emerging prevalence of multidrug-resistant pathogens, treatment for urosepsis has become challenging. However, data of urosepsis in the ICUs is lacking. Only few studies have focused on urosepsis. We aimed to study the epidemiology of urosepsis, and to explore the risk factors for mortality.

Methods: We conducted a multicenter, retrospective cohort study in three hospitals in Taiwan. Patients admitted to the medical ICUs with microbiology-proven urosepsis during 2010-2016 were included. Patients with significant coinfections were excluded. Clinical information and microbiology data including drug resistance were collected. We use multivariable logistic regression to identify risk factors associated with ICU mortality.

Results: During the study period, 1024 patients admitted to ICUs with positive urine culture ($> 10^5$ CFU/mL) were screened. We excluded 566 patients with clinically significant coinfections, 58 patients with candidemia, and 26 patients without antibiotic treatment from analysis. Among the 412 patients admitted to ICUs with urosepsis, 262 (63.6%) were female, 337 (81.8%) were from the emergency department, 162 (39.3%) received mechanical ventilation, and 211 (51.2%) received vasopressor infusion. The overall ICU mortality was 21.1%. *E. coli* (168/412, 40.8%) was the most common causal pathogens, followed by *Klebsiella* spp. (57/412, 13.8%), *Enterococcus* spp. (36/412, 8.7%), and *Proteus mirabilis* (34/412, 8.3%). Multidrug resistant pathogens were isolated from 232 (56.3%) patients. After stepwise selection in the multivariable analysis, the independent risk factors for ICU mortality included higher APACHE II score (adjusted OR [aOR] 1.11, 95% CI 1.07-1.15, $P < 0.001$), vasopressor infusion within 48 hours of ICU admission (aOR 4.30, 95% CI 2.30-8.03, $P < 0.001$), *Proteus mirabilis* (aOR 2.82, 95% CI 1.21-6.54, $P = 0.016$), and nosocomial UTIs (aOR 3.16, 95% CI 1.30-7.67, $P = 0.011$). Appropriate empiric antibiotic treatment was associated with lower ICU mortality (aOR 0.52, 95% CI 0.29-0.91, $P = 0.023$).

Conclusions: More than half of patients admitted to ICUs with urosepsis had significant coinfections. For those without coinfections, the overall ICU mortality was 21.1%. Most causal pathogens were multidrug resistant. Higher APACHE II score, vasopressor infusion, *Proteus mirabilis*, nosocomial UTIs, and inappropriate empiric antibiotic treatment were associated with higher ICU mortality.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC21

重症安寧的進展：外科重症病人臨終前是否有氣管內管之回溯型研究

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Dying without endotracheal tube: Changing trend in endotracheal intubation at the end of live in the intensive care unit

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Purpose: For critically ill patients receiving invasive life supportive treatments in the intensive care unit (ICU), dying with dignity and comfort has become an option for many critically ill patients and their families. Endotracheal intubation is a necessary method to treat respiratory failure, but it may also increase pain and discomfort at the end of live. With the advancement of hospice care in the past decade, it is important to examine if there is significant change in the epidemiology of patients dying in the ICU without endotracheal intubation.

Materials and Methods: This is a retrospective cohort study. All adult patients admitted to the surgical ICU during the period of 2011/1/1 to 2017/12/31 and subsequently died during the same ICU admission will be included in this study. We assessed the existence of endotracheal tube at the end of live and analyzed the annual incidence of patients dying without endotracheal intubation.

Results: A total of 12,515 surgically ill adult patients were admitted to the ICU from 2011/1/1 to 2017/12/31, and 1199 (9.6%) of them subsequently died in the ICU. Of them, 104 (8.7%) did not receive endotracheal intubation when they died. Overall, the annual rate of patient dying without endotracheal intubation increased gradually (4.2% in 2011, 3.8% in 2012, 5.3% in 2013, 8.7% in 2014, 7.1% in 2015, 14.2% in 2016, and 15.1% in 2017). Among these patients, 53 patients were admitted to ICU without endotracheal intubation and decided “do-not-intubate” (DNI), 19 patients decided DNI after successful extubation, 29 patients received terminal withdrawal of endotracheal tube, and 3 patients decided DNI after self-extubation. The number of terminal withdrawal of endotracheal tube increased from zero in 2011-2014 to 29 in 2015-2017.

Conclusions: We identified a trend of increasing rates of patients died in the ICU without endotracheal intubation from 2011 to 2017. The number of terminal withdrawal of endotracheal tube increased dramatically in recent years.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PC22

組合式照顧對呼吸器使用病人的影響

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Care bundle can influence the outcome of patients with mechanical ventilator

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Purpose: Acute respiratory failure (ARF) followed by the use of mechanical ventilation (MV) may increase mobility and mortality in intensive care unit (ICU). This study was to find the impact of ABCDE (daily Awakening, Breathing trial, drug Coordination, Delirium survey and treatment, and Early mobilization) bundle on the outcome of MV patients with ARF in the ICU.

Materials and Methods: The study was conducted in a 19-bed medical ICU of a medical center in Southern Taiwan. An Interdisciplinary Team initiated the protocol within 72 hours of mechanical ventilation when patients become hemodynamically stable (no vasopressor and a fraction of oxygenation<60%). We performed daily sedation interruption, coordination and avoidance of benzodiazepine as possible, and kept patients awake and ventilator weaning trail as tolerable condition. We used the Confusion Assessment Method for the ICU (CAM-ICU) for delirium survey. We also performed a four-step mobilization program to improve cardio-pulmonary function. The study periods were divided to phase 1 (before improvement, from Dec 1, 2015 to Mar 31, 2016), education (from Jul 1 to Sep 30, 2016) and phase 2 (after improvement, from Oct 1 to Dec 31, 2016). All demographic and clinical variables, comorbidity and laboratory data were collected. The endpoint was the impact of ABCDE bundle on the outcome of ARF patients with MV, and the factors to influence ICU stays.

Results: Compared between phase 1 and phase 2, there were some differences, including disease severity, blood urea nitrogen (BUN) and Creatinine level. The patients in phase 2 had a significantly lower mean ICU stay (8.0 vs.12.0 days), medical costs (22.1 vs. 31.7 X104 New Taiwan Dollars) and mortality (8.3 vs. 36.6 %). The associated factors of shorter ICU stays by using Hierarchical regression model included: higher body mass index and hemoglobin, lower BUN and ABCDE bundle.

Conclusions: The performance of ABCDE bundle can improve the outcome of ARF patients with MV, especially on the ICU stays, as evidenced in the literatures. We will apply the successful experiences to the other ICUs in our hospital, and may serve as a benchmarking for other hospitals in Taiwan.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PC23

重症病人使用呼吸器 21 天內死亡因子分析

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Factors associated with 21-day mortality in critical patients receiving mechanical ventilation

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Purpose: The patients with mechanical ventilation may suffer from extreme discomfort. The dilemma of the patient whether to receive mechanical ventilation is pivotal in the critical care. The purpose of the study aims to identify factors associated with 21-day mortality in critical patients receiving mechanical ventilation.

Materials and Methods: All patients aged 18 years and older received mechanical ventilation at the intensive care units (ICU) in a regional hospital from July 1, 2016 to Dec 31, 2017. We excluded those who had a prior tracheostomy, stayed at less than 2-day ICU, requested discharge against medical advice after admission to ICU (N = 38). We conducted univariate analysis to evaluate the relationship between individual variable and mortality by using Chi-square or independent t tests. Furthermore, we used multivariate logistic regression model to evaluate the factors associated with 21-day mortality in patients receiving mechanical ventilation at the ICUs by adjusted odds ratios (aOR) and 95% confidence interval (CI) for significant variables with P value < 0.05.

Results: A total of 354 patients (215 men and 139 women) were included. The mean age of the study patients were 74.78 ± 15.60 years. The 21-day mortality rate was 29.5%. Univariate analysis showed that profound shock needing catecholamines, lower consciousness levels, and lower albumin levels were associated with mortality. After adjustment for potential covariates, shock needing catecholamines showed an independent risk for 21-day mortality in critical patients receiving mechanical ventilation (aOR = 4.528, 95% CI = 2.668-7.685).

Conclusion: Our findings indicate that shock needing catecholamines is a risk factor of mortality in critical patients receiving mechanical ventilation.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC24

長期使用呼吸器病人脫離與預後評估

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Weaning assessment and outcomes in patients with prolonged mechanical ventilation: a 5-year cohort study

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Purpose: Patients requiring prolonged mechanical ventilation (PMV) consume a disproportionate amount of healthcare resources and clinician time. Weaning assessment and knowledge of ventilator dependency were unclear in long-term respiratory care ward (RCW).

Materials and Methods: We retrospectively enrolled 201 patients requiring PMV who were admitted to RCW, a specialized respiratory care facility, from January 2014 through December 2018. Data were reviewed including patients' demographics, causes leading acute respiratory failure, causes of dependency on mechanical ventilator and complication during hospitalization. Rapid shallow breathing index was measured every month. Patients with non-invasive ventilation, readmission to RCW, less than 18 years of age, or died within 30 days of admission to RCW were excluded.

Results: Overall 138 patients were enrolled for study, and 64.5% used tracheostomy. Mean (SD) age was 75.8 (14.1), 62.3% was male and mortality rate was 35% in this cohort. Forty patients were successfully weaned, and approximately two-third of those were weaned within 6 months after admission to RCW, with 5% added in each following two 6-month periods, and reached a plateau at 1.5 years after admission. Serial RSBI measurements started to showed a statistically significant difference between successful weaning group and ventilator dependent group at third month after admission. In multivariable analysis, underlying chronic kidney disease/uremia (HR 5.41; 95% CI 1.18-24.79) and pneumonia/empyema thoracis (HR 2.41; 95% CI 1.11-5.22) were associated with the inability to successful weaning off ventilator.

Conclusions: The long-term outcomes of patients requiring prolonged mechanical ventilation are poor for the majority of patients. Weaning assessment and knowledge of their long-term outcomes will guide efforts to improve respiratory care.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC25

甲狀腺毒症危象合併糖尿病酮酸血症：一案例報告

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Concurrent Presentation of Thyroid crisis and Diabetic Ketoacidosis: A case report

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A thyrotoxic crisis is rare, but prompt diagnosis and treatment are required. Thyroid crisis may be mistaken for sepsis, heat stroke or acute gastrointestinal infection especially in untreated hyperthyroidism. Diabetic ketoacidosis (DKA) is a potentially acute life-threatening complication in patients with diabetes mellitus (DM). The most common triggering factors of DKA are infection and poor DM control. Diabetic Ketoacidosis (DKA) is one of the precipitating factors of thyroid crisis, and many patients are normothermic or hypothermic even when the condition is associated with infection. DKA also can be triggered by thyroid crisis caused by the excessive release of thyroid hormone. The clinical presentations of thyroid crisis and DKA share several similar features. Thus, it could be easy to overlook the dual diagnosis.

We report a case of 26-year-old female with underlying disease of hyperthyroidism and DM for two years, but without control over half one year. She suffered from dyspnea and palpitation for three days. She also had fever, cough, diarrhea, vomiting and poor intake in recent three days. So she was brought to our hospital. At our emergency room, there were no cold sweating, no chest pain, and no dysuria noted. Chest x-ray revealed infiltration over bilateral lungs. Laboratory data showed elevated free T4 (> 5 ng/dL), elevated T3 (196.2 ng/dl), low TSH (0.03 uIU/ml), high HbA1c (12.1%) level, high blood sugar (410 mg/dl), leukocytosis and high C-reactive protein (99.5 mg/L). Arterial blood gas showed metabolic acidosis and elevated blood ketone body (4.5 mmol/L). Liver and renal functions were normal. Electrocardiogram showed sinus tachycardia (heart rate :167 bpm). Under the impression of thyroid crisis, DKA and sepsis (pneumonia, and sputum culture: Klebsiella pneumoniae), he was admitted to our medical intensive unit for further evaluation and management. At intensive care unit (ICU), propylthiouracil (50 mg) 4 TB Q6H by oral, solucortef i.v. injection 100 mg Q8H and lugol's solution 10 drop Q8H, propranolol, anti-biotics and intensive sliding scale of insulin for blood sugar control were used. During admission at ICU (five days) well controlled infection, blood sugar, ketoacidosis and thyroid crisis, then she was transfer to general ward for further treatment.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC26

交替使用高流量鼻導管和非侵襲性正壓通氣來治療慢性高碳酸血症患者因重度肺炎和低血氧導致之急性呼吸衰竭-2 例病例報告

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Alternating use of high flow nasal cannula and noninvasive positive-pressure ventilation in chronic hypercapnic patients with severe pneumonia and acute hypoxemic respiratory failure – two case reports

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Hypercapnic acute respiratory failure in patients with pre-existing chronic respiratory disorders responds to noninvasive positive-pressure ventilation (NPPV) and improves the clinical outcome. However, a drawback for the successful use of NPPV in certain condition may occur in patients who are unable to spontaneously remove respiratory secretions and improve the blood oxygenation in severe hypoxemic condition.

To overcome this obstacle in clinical setting, we apply an integrated strategy by alternating use of high flow nasal cannula (HFNC) and NPPV in chronic hypercapnia cpatients who suffered from severe pneumonia and acute hypoxemic respiratory failure. Here we reported two cases in our general respiratory ward.

The first case is a 94 year-old man presented to our ward with acute hypercapnic respiratory failure (pH 7.028, PCO₂ 103.8 mmHg, HCO₃ 26.7 mmol/L, PO₂ 77.6 mmHg) under aerosol mask with full oxygen treatment. He had acute hypoxemic respiratory failure secondary to severe pneumonia. He had an altered level of consciousness and depressed cough. His family members refuse endotracheal intubation and intensive care unit (ICU) admission. We therefore initiated NPPV support and applied intermittent tracheal suctioning. After we achieve subnormal PCO₂ and pH levels, we switched to high flow nasal cannula (HFNC) for respiratory support, initiated acetylcysteine inhalation, applied high frequency chest wall oscillation and aggressive tracheal suctioning. NPPV support were re-initiated after better secretion clearance or respiratory acidosis re-occurring. His clinical outcome was satisfied and improved. The second case is an 80 year-old woman with chronic hypercapnic respiratory failure secondary to decompensated heart failure. She needed daily night mask BiPAP support in past one year. She presented to our respiratory ward because of severe pneumonia with acute hypoxemic respiratory failure and increase respiratory secretions. Patient refused endotracheal intubation and ICU admission. HFNC support with FiO₂ 100% and flow 40 L/min was initiated and aggressive removal respiratory secretions were applied. However, hypercapnia developed (pH 7.153, PCO₂ 117.8 mmHg, HCO₃ 40.4 mmol/L, PO₂ 97.1 mmHg). Alternating use of mask BiPAP and HFNC was supported based on the blood gases and clinical status. His clinical improved after two weeks of ward admission.

In summary, we presented two critical cases with acute hypercapnic and hypoxemic respiratory failure that needed aggressive clearance of airway secretions. An integrated and personalized treatment strategy by alternating use of high flow nasal cannula (HFNC) and NPPV may improve patients' clinical outcome in the general respiratory ward.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC27

放置豬尾巴導管所致之醫源性脾臟破裂 – 病例報告

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Iatrogenic Spleen Rupture as a Complication of Pigtail Catheter Insertion – A Case Report

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Purpose: Splenic rupture is one of the most critical complications of chest tube insertion and often requires invasive emergency management. Here we report a complication of pigtail catheter insertion induced iatrogenic spleen rupture.

Case Report: A 71-y/o home care female was brought to our emergent department (ED) due to intermittent cough and fever for several days. Vital signs revealed no fever (37.3°C), no tachycardia (84/min), no tachypnea (18/min) and hypertension (157/71 mmHg). Physical examination revealed crackles breathing sound in bilateral basal lung fields. She had past history of liver abscess, diabetes mellitus/hypertension/polycythemia with medication, non-obstructive hypertrophic cardiomyopathy, mitral regurgitation with left side transudate pleural effusion and dementia. She removed NG tube by herself and had east choking during oral intake. Lab data revealed leukocytosis and elevated CRP level. Chest X-ray revealed cardiomegaly, increased infiltration over right lower lung field and blunted left side costophrenic angle which was compatible with aspiration pneumonia and pleural effusion, respectively. Empirical antibiotics and diuretics were prescribed after admission. NG feeding was suggested due to high risk of respiratory failure after repeated aspiration but family refused. Her condition deteriorated that night and she received intubation with ventilator support after transferring to intensive care unit (ICU). Repeated thoracentesis bilaterally due to pleural effusion was performed. Pigtail catheters were inserted bilaterally after discussion with family for drainage of effusion and weaning ventilator. Unfortunately, her vital signs worsened gradually after bloody effusion was drained from left side pigtail catheter. Emergent CT study revealed massive ascites and uneven surface of spleen which suggested spleen rupture with internal bleeding. Her condition stabilized after emergent surgical removal of spleen with ligation of blood vessels. She suffered from acute kidney injury with hemodialysis and repeated hospital acquired infection after weaning off ventilator. She died due to septic shock and bacteremia after 2 months stay at ICU.

Discussions: Although the insertion of left side pigtail catheter was smooth but bloody effusion should raise the diagnosis of splenic rupture. Surgical removal of spleen and ligation of blood vessels is essential when patient is unstable. Immune compromised condition should also be awared after removal of spleen.

Conclusions: Internal organ perforation or rupture should be considered after pigtail catheter insertion if the drainage is bloody effusion.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC28

急性腎衰竭的糖尿病病人，Dapagliflozin 引發正常血糖酮酸血症及 Metformin 引發乳酸中毒-病例報告

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Euglycemic Ketoacidosis Secondary to Dapagliflozin and lactic acidosis induced by Metformin in Diabetes Patient with Acute Kidney Injury –A Case Report

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Introduction

Dapagliflozin, an SGLT2 inhibitor, is a novel anti-hyperglycemic agent in patients with type 2 diabetes. Metformin, a biguanide, is traditional oral glucose lowering agent. The few side effects of these medications are important to be aware of in the emergency events. Here, we present a diabetes case concomitant with euglycemic ketoacidosis and lactic acidosis caused by the medications.

Case presentation

A 56-year-old male patient lived at home, with diabetes mellitus, hypertension and rectal sigmoid adenocarcinoma. He presented to emergent room with decreased urine amount, bilateral lower legs edema, poor appetite and dizziness for several days. He complained diarrhea and weakness for 2 weeks. His medications included metformin, dapagliflozin, esomeprazole and diclofenac. The recent creatinine was 0.99 mg/dl six months ago. At ER, BUN/Cr was 59.8/10.17 mg/dl. The blood gas showed pH: 7.275, pCO₂: 26.1mmHg, HCO₃: 11.9 mmol/L and lactate was 4.4 mmol/L. The blood ketone was elevated at 5.8 mmol/L and blood sugar was 102 mg/dl. NSAID induced acute kidney injury was diagnosed. Then he was admitted to ICU and treated for DKA through hydration and insulin infusion. Hemodialysis was also done for AKI and metabolic acidosis. Serial analyses after treatment showed gradual resolution of her ketoacidosis. The patient was discharged from the ICU on day 5.

Discussion

Dapagliflozin blocks transporter mechanism and causes blood glucose to be eliminated through the urine. DAK may occur in the patients with SGLT2 inhibitors despite having normal blood glucose levels. Precipitating factors included medical noncompliance, infection, recent major surgeries, and underlying autoimmune diabetes diagnosed in patients previously thought to have type II diabetes mellitus. Treatment of SGLT2-inhibitor-associated DKA is the same as regular treatment, including fluids, insulin infusion and electrolyte monitoring. Metformin-associated lactic acidosis is rare but serious. It usually occurs when a precipitating disease induces an acute renal failure and an incidental overdose. Thus, it is important to be aware of these side effects in all SGLT2-inhibitor or biguanides users, as a delay in the diagnosis of DKA or lactic acidosis can be life threatening.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC29

以評分系統及免疫狀況應用於預測因嚴重肺炎入住加護病房病人之 90 天存活率

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Application of scoring indices and immune status for predicting 90-day survival in patients with severe pneumonia admitted to intensive care unit

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Purpose: We aimed to determine whether severity scoring indices and immune status can be applied to predict long term survival (90-day) in patients with severe pneumonia admitted to intensive care unit (ICU).

Materials and Methods: This post hoc analysis enrolled consecutive adult patients with severe pneumonia admitted to ICU. Baseline characteristics and possible factors as well as immune status and severity scoring indices (SIRS, sequential organ failure assessment (SOFA) score, qSOFA, pneumonia severity index (PSI) score, Charlsoncomorbidity index, CURB-65 score, APACHE II score) were analyzed.

Results: A total of 523 patients with severe pneumonia were admitted to medical ICU, with 309(59.1%) survived on day 90. There were significant differences between groups regarding underlying comorbidity including cancer (survival: 15.6% vs. non-survival 37.4%), liver cirrhosis (3.9% vs.9.4%), and occurrence of acute kidney injury (16.8% vs. 33.2%). We found difference regarding initial severity scoring indices such as Charlson comorbidity index (2.1±1.8 vs. 3.2±2.2, p<0.01), PSI (128.1±34.8 vs.146.3±34.2, p<0.01), APACH II (23.3±8.1 vs. 25.1±8.3, p=0.01), SIRS (2.3±1.1 vs. 2.5±0.9, p=0.01), SOFA score (7.8±3.3 vs. 9.5±3.9, p<0.01), serum lactate level (24.5±19.9 vs. 33.6±26.4mg/dL, p<0.01), and oxygen index (9.0±8.6 vs. 11.4±10.8, p<0.01) on day 1. There were no differences in CURB65 (2.6±1.0 vs. 2.7±1.0, p=0.18), day 1 qSOFA (1.6±0.7 vs.1.7±0.7, p=0.12). However, there were significant differences on day 3 SIRS(1.9±1.1 vs. 2.2±1.0, p<0.01), and day 3 qSOFA (1.4±0.6 vs. 1.7±0.7, p<0.01). We also found immune-paralysis pattern in patients who did not survive (serum IL10; survival 48.4±106.5pg/mLvs. non-survival 275.9±637.4, p<0.01)(HLA-DR expression%: 88.3±14.2 vs. 81.0±18.2, p=0.03).

Conclusions: Serial scoring indices and immune status can be applied for predicting 90-day survival in patients with severe pneumonia.

Funding

The work is supported in part by grants from the Chang Gung Memorial Hospital Grant (CMRPG8B1063, CMRPG8H1171, and CMRPG8J0421) to W-F Fang

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC30

急性呼吸窘迫症候群病人於麻痺及自發性呼吸下之呼吸力學

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Respiratory mechanics under paralysis and spontaneous breathing in mechanically ventilated ARDS patients

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INTRODUCTION:

Accurate measurement of respiratory mechanics is important because end-inspiratory plateau pressure (Ppla), positive end-expiratory pressure (PEEP) and tidal volume (Vt) remained the core parameters to be monitored in mechanically ventilated ARDS patients. It is easy to have reliable measurement of respiratory mechanics during paralysis but may be problematic when respiratory efforts are present. A clean Ppla was proposed to be trustable. This proposal was not validated in mechanically ventilated ARDS patients under pressure control ventilation (PCV).

OBJECTIVES:

A crossover study for comparison of respiratory mechanics measured during paralysis and spontaneous breathing in mechanically ventilated patients under PCV

METHODS:

Thirty patients with ARDS were included in this study over a two-year period. Esophageal pressure monitoring was placed in all cases. Tidal volume (Vt), total PEEP (PEEPt), airway driving pressure (ΔP), transpulmonary driving pressure (ΔP_L), respiratory system compliance (C_{rs}), lung compliance (C_L), chest wall compliance (C_{cw}) were calculated with performance of end-inspiratory occlusion. A clean Ppla was defined as no steadily increasing or decreasing Ppla. Data are presented as mean \pm SD. Mann Whitney test and Spearman's rank correlation test were used for statistical analysis.

RESULTS:

Seventeen patients have reliably measured respiratory mechanics during both paralysis and spontaneous breathing under PCV. Respiratory mechanics measured under paralysis and spontaneous breathing were: Vt: 455.6 ± 75.5 vs. 516.3 ± 93.7 ml, $p = 0.11$; PEEPt: 11.2 ± 3.1 vs. 10.2 ± 2.2 cmH₂O, $p = 0.42$; ΔP : 12.0 ± 2.5 vs. 12.6 ± 2.6 cmH₂O, $p = 0.60$; ΔP_L : 8.4 ± 2.4 vs. 9.1 ± 2.9 cmH₂O, $p = 0.28$; C_{rs} : 39.7 ± 9.6 vs. 42.4 ± 10.2 ml/cmH₂O, $p = 0.70$; C_L : 58.3 ± 19.3 vs. 60.8 ± 20.5 ml/cmH₂O, $p = 0.87$; C_{cw} : 147.9 ± 55.2 vs. 205.0 ± 162.7 ml/cmH₂O, $p = 0.12$. Spearman's rank correlation test revealed high correlation in measured C_{rs} ($r = 0.88$, $p < 0.0001$) and C_L ($r = 0.91$, $p < 0.0001$) between paralysis and spontaneous breathing in individual patient, but poor correlation for C_{cw} ($r = 0.33$, $p = 0.2$).

CONCLUSION:

Our findings suggest a clean Ppla during PCV is reliable for measurement of C_{rs} and C_L , but not for C_{cw} in spontaneously breathing patients.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC31

血清前蛋白是預測呼吸器依賴病人成功脫離的獨立決定因子

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Prealbumin is an independent predictor of weaning success in prolonged mechanical ventilation

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Introduction: Malnutrition is common in critically ill patients. Early recognition of malnutrition and initiation of nutritional therapy can improve patient outcomes. Prealbumin, which is sensitive to changes in protein-energy status than albumin, is regarded as an indicator of nutritional status. The objective of this study was to determine the impact of Prealbumin on the weaning outcome for patients with prolonged mechanical ventilation (PMV).

Method: This retrospective cohort study was conducted in a Respiratory Care Center (RCC) in Taichung Veterans General Hospital, Taiwan. Patients with PMV following critical illness, who admitted for weaning, from November 2017 to December 2018 were included for analysis.

Result: A total of 233 patients (mean age: 70.1 \pm 16.6 years; 64.8% men) were enrolled for analysis and were divided into weaning failure group (36.1%, 84/233) and weaning success group (63.9%, 149/298). Patients with weaning success had younger age (67.9 \pm 16.8 vs. 74.0 \pm 15.7, $p < 0.01$), higher Albumin, Hemoglobin and Prealbumin level (3.1 \pm 0.5 vs. 2.9 \pm 0.5 mg/dL, 10.1 \pm 1.5 vs. 9.5 \pm 1.3 g/dL, 18.8 \pm 8.6 vs. 14.7 \pm 0.08 mg/dl, respectively; all $p < 0.01$), lower APACHE II score (16.7 \pm 5.1 vs. 19.4 \pm 5.3, $p < 0.01$), and more likely to have Congestive heart failure (96.0% vs. 89.3%, $p = 0.046$) and come from the Department of Surgery (68.5% vs. 39.2%, $p < 0.01$) compared to those with weaning failure. Multivariate logistical regression model identified that a high Prealbumin level (Odds ratio (OR) 1.052, 95% confidence interval (CI) 1.008-1.098) and a low APACHE II score (OR 0.918, 95%CI 0.861-0.980) were independently associated with the weaning outcome for prolonged mechanical ventilation.

Conclusion: We found that approximately 64% of patients had weaning success in our study and Prealbumin was independently associated with the weaning outcome from prolonged mechanical ventilation. These findings suggested that we should attach great importance to monitoring the Prealbumin level in patients on prolonged mechanical ventilation.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC32

初始 qSOFA 分數與加護病房內嚴重肺炎病人預後之關聯性

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Association of initial Quick sequential organ failure assessment (qSOFA) and outcomes of patients with severe pneumonia admitted to intensive care unit

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Purpose: We aimed to determine whether qSOFA, an easy survey tool for sepsis, can be applied for risk stratification in patients with severe pneumonia in intensive care unit (ICU).
Methods: This post hoc analysis evaluated consecutive adult patients with severe pneumonia admitted to ICU. We divided the patients into 2 groups according to the day-1 qSOFA score (low: 0 to 1 point, high: 2 to 3 point). Baseline characteristics, clinical factors and outcomes were analyzed.
Results: A total of 523 patients were enrolled (patients' number: qSOFA score: low 217; high 306). There was no difference regarding pneumonia type (community acquired pneumonia or hospital acquired pneumonia). There were differences between groups regarding ICU mortality (low 18.9% vs. high 30.1%, $p<0.01$), and the 7-day mortality (6.9% vs. 14.7%, $p<0.01$). However, there were not statistically differences regarding the 28-day (22.1% vs. 29.7%, $p=0.05$) and the 90-day (36.9% vs. 43.5%, $p=0.13$) mortality. The easy qSOFA grouping represent different pneumonia severity such as pneumonia severity index (PSI) (qSOFA high group vs. qSOFA low group: PSI score 127.8 ± 33.4 vs. 141.0 ± 36.3 , $p<0.01$) and CURB65 (2.4 ± 0.9 vs. 2.9 ± 1.0 , $p<0.01$). In addition, they also correlated with SOFA score (7.8 ± 3.6 vs. 9.0 ± 3.6 , $p<0.01$) and APACHE II score (22.6 ± 8.2 vs. 25.0 ± 8.1 , $p<0.01$) and oxygenation index (OI) (8.1 ± 7.2 vs. 11.3 ± 10.8 , $p<0.01$). We found trend regarding total mechanical ventilator days between the low and high groups although it's not statistically significant (19.2 ± 27.1 vs. 23.2 ± 49.2 , $p=0.28$).
Conclusion: There were association of initial qSOFA and clinical presentations in patients with severe pneumonia admitted to ICU. We can use it as a quick tool for risk stratification.

Funding:
The work is supported in part by grants from the Chang Gung Memorial Hospital Grant (CMRPG8B1063, CMRPG8H1171, and CMRPG8J0421) to W-F Fang

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC33

泌尿道敗血症在內科加護病房死亡相關風險因子

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高雄長庚呼吸胸腔內科

Urinary tract infection (UTI) associated sepsis and risk factors for mortality in medical intensive care unit (ICU)

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Purpose: We hypothesized that septic UTI had different mortality compared to non-UTI associated sepsis. The aim of this study was to identify risk factors associated with mortality in patients with septic UTI in medical ICU.
Materials and methods: This post hoc analysis enrolled consecutive adult sepsis patients admitted to ICU. Baseline characteristics and possible factors including human leukocyte antigen DR (HLA-DR) expression were analyzed.
Results: Although patients with septic UTI ($n=169$) were older and with significant more comorbidities in hypertension, cancer, and diabetes mellitus, those patients had better survival rate (7d mortality 5.9% vs. 14.6%, $p=0.003$; 28d mortality 17.2% vs. 31.4%, $p=0$) compared to other sepsis patients ($n=630$). In septic UTI, there were significant difference in APACHE II (survival group (survived on day 28, $n=140$) 24.0 vs. non-survival group ($n=29$) 27.8 , $p=0.03$), do-not-resuscitation order (32.1% vs. 49.4%, $p=0.002$), day 1 platelet count (183.9 vs. 136.7 $\times 1000/uL$, $p=0.035$), day 1 lactate level (27.9 vs. 43.8 mg/dL , $p=0.018$), day 3 coma scale (9.4 vs. 8.1 , $p=0.034$), day 3 sequential organ failure assessment (SOFA) score (9.2 vs. 10.6 , $p=0.031$), and day 3 oxygenation index (OI) (4.4 vs. 6.7 , $p=0.012$). There was no significant difference regarding Charlson comorbidity index, ventilator dependency, urinary catheter usage, occurrence of acute kidney injury, or hemodialysis performed. There was significant difference regarding day 4 accumulative intravenous fluid administration volume (survival 4225 vs. non-survival 6095 ml , $p=0.01$), and oral intake volume (survival 4121 vs. non survival 3196 ml , $p=0.02$). In subgroup with immune profile data, we found higher HLADR expression trend in survival group (day 1: 86% vs. 81%, day 3: 94% vs. 83%). If we divide patients into high intravenous fluid accumulation group (>5000 ml for 4 days) and low accumulation group, there were significant difference regarding 7d (hi: 11% vs low: 2%), 28d mortality (26% vs. 11%) as well as day 1 qSOFA (1.8 vs 1.4) and SOFA score (10.4 vs. 8.7).
Conclusions: Many factors were associated with mortality in patients with septic UTI, including accumulative intravenous fluid administration volume and immune suppression.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PC34

不同感染源在加護病房臨床表現之差異性

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Different source of infection affects clinical presentation and outcomes in patients with sepsis in intensive care unit

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Purpose: We aimed to determine whether different source of infection affects clinical presentations and outcomes in patients with sepsis in intensive care unit (ICU).

Method: This study retrospectively evaluated consecutive adult medical ICU patients (≥ 18 y/o) with sepsis. We divided the patients into four groups according to the source of infection: Lung, urinary tract infection (UTI), Blood and Other. Baseline characteristics, possible clinical factors and outcomes were analyzed.

Result: A total of 799 patients were enrolled (n: Lung 515, UTI 169, Blood 61, Other 159; a minority of patients can present with more than 1 source of infection on admission). There were differences in short term mortality (7-day and 28-day) among groups (d7 mortality: Lung 11.3% vs. UTI 5.9% vs. Blood 21.3% vs. Other 19.5%, $p<0.01$; d28 mortality: Lung 24.6% vs. UTI 17.2% vs. Blood 34.4% vs. Other 37.7%, $p<0.01$). However, 90-day mortality were comparable (40.4%, 37.9%, 47.5%, 49.7%). There were differences in APACH II (24.0 vs. 24.7 vs. 27.2 vs. 26.0, $p<0.05$), age (68.3 vs. 70.5 vs. 64.5 vs. 64.2, $p<0.01$), body mass index (BMI)(22.0 vs. 23.0 vs. 24.1 vs. 24.2, $p,0.01$), Charlson comorbidity index (2.6 vs. 2.3 vs. 3.2 vs. 2.8, $p<0.01$), and sequential organ failure assessment (SOFA) score (8.5 vs. 9.4 vs. 10.8 vs. 9.9, $p<0.01$). Underlying comorbidities were also different among groups, such as chronic obstructive pulmonary disease (COPD)(18.6% vs. 10.7% vs. 8.2% vs. 8.2%, $p<0.01$) and liver cirrhosis (6.2% vs. 5.3% vs. 11.5% vs. 17%, $p<0.01$). Among different groups, we found different clinical presentation regarding oxygenation index (10.2 vs. 7.8 vs. 10.1 vs. 7.5, $p<0.05$) and ventilator dependency (on mechanical ventilator over 21 days)(31.2% vs. 29.9% vs. 11.5% vs. 20.8%, $p<0.01$).

Conclusion: Different source of infection affects clinical presentation and outcomes in patients with sepsis in intensive care unit. We should be aware and treat them accordingly.

- A. ☐ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☒ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PC35

隆乳手術後隨即出現肺出血之個案報告

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Pulmonary hemorrhage shortly after Breast Augmentation Surgery: A Case Report

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Background: Pulmonary hemorrhage may rarely occur after general anesthesia. We report a case of pulmonary hemorrhage shortly after breast augmentation surgery.

Case Presentation: A 27 years old, previous healthy, woman was referred to our hospital because of dyspnea and hemoptysis with acute hypoxemic respiratory failure shortly after breast augmentation surgery (with anesthesia by propofol infusion) in the recovery room of a cosmetic surgery clinic. There was no laryngospasm or upper airway obstruction. Copious bloody secretion from the endotracheal tube was noticed. Arterial blood gas showed metabolic acidosis with severe hypoxemia (P/F ratio 74). Chest radiography and computed tomography scans showed bilateral diffuse consolidations with areas of ground glass opacity. Serum levels of procalcitonin and brain natriuretic peptide were normal. Heart function was also normal. Hemoglobin level dropped from 9.6 on admission to 6.6 gm/dL within two days. She received empirical antibiotics, corticosteroid, vasopressor, and mechanical ventilation. Pulmonary hemorrhage decreased and lung consolidations resolved gradually. She was successfully weaned from ventilator on day 5. Cultures for potential pathogens and markers of autoimmunity and vasculitis were all negative.

Conclusions: Bland pulmonary hemorrhage (i.e., without capillaritis or vasculitis) with acute hypoxemic respiratory failure may rarely occur after recovery from general anesthesia for breast augmentation surgery.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC36

葉克膜成功搶救危及生命重積性氣喘 – 病例報告

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Successfully rescue life threatening status asthmaticus by Extra-Corporeal Membrane Oxygenation(ECMO) - A case report

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Introduction :

Status asthmaticus is a life-threatening clinical condition in which was unresponsive to pharmacological therapy with bronchodilators and systemic corticosteroids. The patient may progress to acute respiratory failure and need to emergent intubation with ventilator support. However, there will be persistent severe respiratory acidosis and hypoxemia even under fully ventilator support. Here we reported a young adult case who presented as status asthmaticus and was refractory to all medications for asthma, as well as mechanical ventilation. Finally, he was successfully rescued by Extra-Corporeal Membrane Oxygenation(ECMO).

Case Report :

This 23-year-old man with chronic hypertrophic rhinitis was sent to our emergent department due to cough, shortness of breathing, and altered consciousness. His initial vital signs presented with BT: 35.4°C, HR:124/min, RR: 26/min, and BP: 153/100mmHg. Glasgow Coma Scale: E2V1M3. Physical examination revealed diffuse wheeze sound over both lung fields. CXR showed emphysematous change. Venous blood gas reported pH: 6.99, PaO₂: 43.6mmHg, HCO₃⁻: 34.1mEq/L, PCO₂: 144.7mmHg, and SatO₂: 51%. Emergent intubation was performed for acute mixed type respiratory failure with severe CO₂ retention and he was admitted to intensive care unit.

Bronchodilators inhalation and systemic corticosteroid were administrated immediately with full ventilator support. However, severe bronchospasm persisted and serial arterial blood gases showed refractory CO₂ retention, which indicated status asthmaticus. We also have tried sedative agent plus muscle relaxant infusion to paralyze this patient, but it still failed to recover this critical condition. Then we started up ECMO support. Oxygenation improved rapidly and later the CO₂ retention was gradually resolved. ECMO was removed after 4 days usage and the patient underwent extubation while stable clinical condition. Finally, the patient was discharged and under regular clinics following up.

Conclusion :

Status asthmaticus can lead to life-threatening condition which was refractory to pharmacological therapy and full ventilator support. ECMO may be an option of salvage therapy for patients with severe and refractory respiration failure.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC37

比較振盪和非振盪正壓肺擴張治療對接受心臟手術後患者的預後及肺部併發症之影響

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Comparison of complications and clinical outcomes in post-cardiac surgery patients received oscillatory and non-oscillatory positive pressure lung expansion therapy

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Abstract

Background: Postoperative positive pressure lung expansion is associated with decreased pulmonary complications and improved clinical outcomes.

Aims: The study aimed to compare the difference of pulmonary complication and clinical outcomes in post-cardiac surgery patients received oscillatory (OS) versus non-oscillatory (NOS) positive pressure physiology therapy.

Methods: The study retrospectively recruited 48 consecutive patients received cardiac surgery in an intensive care unit of a tertiary hospital. After liberation from mechanical ventilator, patients received lung expansion therapy by oscillatory (n=20) or non-oscillatory (n=28) positive pressure devices. The pulmonary complications, lung function, and clinical outcomes were compared between both groups.

Results: The baseline characteristics and surgical types were similar between both groups. Patient received oscillatory positive pressure therapy had higher post-operative force vital capacity (58.9±4.96 vs. 45.21±3.60, p=0.026), forced expiratory volume in one second (63.35±5.4 vs. 45.48±3.63, p=0.007), and peak flow rate (68.5±5.53 vs. 54.75±4.11, p=0.047) than those received non-oscillatory therapy. However, OS group (n=13, 65%) had increased incidence of chest pain compared with NOS group (n=4, 14.3%; odds ratio, 11.14, 95% confidence interval, 2.74-45.26; p=0.001). The length of hospital and ICU stay, development of atelectasis, pneumonia, and pleural effusion were similar between both groups.

Conclusion: In post-cardiac surgery patients, oscillatory positive pressure therapy was associated with improved pulmonary function and higher incidence of chest pain compared with those received non-oscillatory therapy.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC38

臺灣晚期癌症患者在住院中發生心跳停止且接受心肺復甦術後之預後探討

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Clinical outcome and prognostic factors of advanced cancer patients receiving in-hospital cardiopulmonary resuscitation due to cardiac arrest in Taiwan

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Purpose: Almost all intensivists would have experiences in caring for advanced cancer patients receiving in-hospital cardiopulmonary resuscitation due to cardiac arrest. Performing cardiopulmonary resuscitation (CPR) on patients with advanced cancer is always a clinical dilemma for clinicians, patients, and their caregivers. The effects of cardiopulmonary resuscitation (CPR) on patients with advanced cancer, however, remain to be elucidated.

Materials and Methods: We identified a cohort of patients with stage-IV cancer who received in-hospital CPR from the Taiwan Cancer Registry and National Health Insurance claims database. We first identified patients with incident stage-IV cancer from the Taiwan Cancer Registry. Patients with initial diagnoses between 2009 and June 2014 were considered. Patients were included if they received in-hospital CPR after their cancer diagnosis.

Results: For the study period, 3,446 stage-IV cancer patients receiving in-hospital CPR were included. Among the 3,446 patients, the majority were male (n = 2,545, 73.9%). The most common specific cancer type was lung cancer (n = 1,102, 32.0%), followed by oral cancer (n = 325, 9.4%) and colon cancer (n = 238, 6.9%). A vast majority of the patients did not survive until discharge (n = 2,854, 82.8%). The median postdischarge survival was 22 days; 10.1% (n = 60; 1.7% of all patients) of the hospital survivors received anticancer therapy after discharge. Multivariable logistic regression revealed that stomach cancer (adjusted odds ratio [aOR] = 2.61, 95% confidence interval [CI] = 1.44–4.75), liver cancer (aOR = 1.79, 95% CI = 1.09–2.95), and longer CPR duration (aOR = 1.33, 95% CI = 1.24–1.43 per 10-min increment) were associated with higher in-hospital mortality rate. The risk factors associated with shorter postdischarge survival were stomach cancer (adjusted hazard ratio [aHR] = 3.21, 95% CI = 1.72–5.98), liver cancer (aHR = 2.34, 95% CI = 1.46–3.76), lung cancer (aHR = 1.78, 95% CI = 1.30–2.46), receipt of chemotherapy prior to CPR (aHR = 1.33, 95% CI = 1.09–1.63), CPR in 2014 (compared with that in 2009, aHR = 2.03, 95% CI = 1.41–2.91), and longer CPR duration (aHR = 1.15, 95% CI = 1.08–1.23 per 10-min increment).

Conclusions: Given the high in-hospital mortality rate and short survival time among the hospital survivors, strong indications of a high likelihood of survival (e.g. using the most highly effective and tolerable anticancer treatment available) are required to justify the decision to perform CPR on patients with advanced cancer.

- A. ☐ 原著論文 (Original Paper) ☒ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC39

急性肺栓塞起因於子宮內血管內平滑肌瘤延伸到右側心臟

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Acute Pulmonary Embolism caused by Intravenous Leiomyomatosis extending to the Right Heart

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Purpose: Intravenous leiomyomatosis (IVL) is a rare, histologically benign smooth-muscle tumor, which arise usually from the uterus. Although benign, IVL may extend into the inferior vena cava (IVC) and then into the right heart chamber to cause life threatening symptoms, especially pulmonary embolism (PE). Incomplete surgical resection may cause high recurrence rate, so complete surgical resection is the only ways of curative treatment.

Case report: (#2502915)

A 28-year-old unmarried woman complained of intermittent palpitations and shortness of breath for 3 months. Echocardiography revealed a big mass in the right atrium (RA). Under the impression of RA myxoma, the patient underwent minimally invasive cardiac surgery (MICS) to excise the RA tumor (3.5×2.8×2.3cm) with the aid of cardiopulmonary bypass (CPB). She was discharged with the pathology report of smooth muscle tumor of uncertain malignant potential.

5 months later, she was admitted to the hospital suffering from sudden onset of syncope in bathroom in the morning. Cardiac echo revealed dilated right atrium and right ventricle with D-shaped. Brain and chest CT revealed no intracranial hemorrhage but a huge elongated tumor mass extending from IVC to pulmonary artery that induced PE. Due to sudden shock, she had CPR and ECMO support. When the hemodynamic condition was stable, the patient underwent emergency cardiectomy with CPB to remove the cord-like tumor mass (25×2.5×1.5cm) from the right atrium. The pathology was smooth muscle tumor of uncertain malignant potential. After weaning from ECMO and CVVHD, she was discharge with uneventful postoperative course.

Two months later, the patient received uterine myomectomy for her pelvic tumor to complete the resection of the treatment. The pathology was the same as the heart tumor. The final diagnosis was intravenous leiomyomatosis, recurrent invasion to IVC, RA, RV, and PA complicated with obstructive shock.

Conclusion: IVL may be misdiagnosed as thrombus-in-transit and treated with anticoagulation which couldn't resolve the condition. Curative treatment of IVL is complete surgical resection of IVL and myomectomy or total abdominal hysterectomy with bilateral salpingo-oophorectomy.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PC40

支氣管肺泡灌洗術後引起縱膈腔氣腫並進展為張力性腹腔積氣

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Pneumomediastinum with Progression to Tension Pneumoperitoneum after
Bronchioloalveolar Lavage

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Background: Pneumomediastinum is defined as an abnormal accumulation of air within the mediastinum. It can result from trauma or other situations that lead to air escaping from the lungs or airways into the mediastinum. Pneumomediastinum is usually self-limited and non-fatal. However, in mechanically ventilated patients, without timely alertness and early intervention, it may lead to respiratory and cardiovascular compromise and even the catastrophic result of patient’s mortality. We reported a rare case with the initial development of pneumomediastinum and extensive subcutaneous emphysema after bronchoscopic bronchioloalveolar lavage (BAL) and progressed into abdominal compartment syndrome leading to death.

Case Presentation: An 80 years old man, who was admitted to our intensive care unit with acute respiratory failure caused by severe pneumonia and septic shock. Because no microorganism was isolated in sputum culture, a bronchoscopic BAL was performed for microbiological specimen collection. However, subcutaneous emphysema developed after bronchoscopy and pneumomediastinum was identified on subsequent chest X-ray. The patient was managed with supportive care first. Unfortunately, persistent hypotension occurred later and which was not responded to vigorous fluid replacement and high dose vasopressor treatment. Physical examination demonstrated distended, tense abdomen with diffuse tympanic percussion. Computer tomography showed extensive subcutaneous emphysema, massive air accumulation in the peritoneal cavity, nearly total collapse of inferior vena cava and left-shifted intra-abdominal organs. Tension pneumoperitoneum with abdominal compartment syndrome were impressed. Unfortunately, the patient eventually died of refractory hypotension.

Conclusions: Like tension pneumothorax, tension pneumoperitoneum is a rare, life-threatening but potentially reversible condition. A high level of suspicion is required for the early recognition of tension pneumoperitoneum. We reported a rare case with initial development of pneumomediastinum and extensive subcutaneous emphysema after bronchoscopic BAL and progressed into abdominal compartment syndrome leading to mortality. Early detection and immediate decompression should be done in order to prevent mortality.

- A. ■ 原著論文 (Original Paper)

☐ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PC41

台灣地區潛伏結核感染預防性治療副作用分析-前瞻性多中心研究

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Analysis of adverse drug reactions in LTBI patients in Taiwan- a prospective multi-center study

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Purpose: This prospective multi-center study aims to clarify the treatment adherence and adverse drug reactions (ADRs) associated with 3-month rifapentin/isoniazid (3HP) and 9-month isoniazid (9H) regimens in latent TB infection (LTBI) cases in Taiwan.

Materials and Methods: Subjects who had LTBI and received the preventive treatment were prospectively recruited from 8 medical centers. The ADRs during LTBI treatment and rate of treatment interruption were recorded. The prevalence of ADRs and clinical factors associated with ADRs were analyzed. The cause of treatment interruption between 3HP and non-3HP regimens were investigated as well.

Results: During the 18 months study period, a total of 280 LTBI cases were prospectively enrolled, including 172 cases with 3HP regimen and 108 cases with non-3HP regimen. Among these patients, 141 (50.4%) had ≥ Grade 1 ADRs and 51 (18.2%) had ≥ Grade 2 ADRs during the treatment period. The occurrence of ≥ Grade 1 and ≥ Grade 2 ADRs were significantly higher in patients taking 3HP regimens than those taking non-3HP regimens. (≥ Grade 1 ADR s : 60.5% vs. 34.3%, p=0.003; ≥ Grade 2 ADRs: 23.2% vs. 10.2%, p=0.006). The most common ≥ Grade 2 ADRs were fatigue (10.5%), followed by dizziness (7.6%). The occurrence of ≥ Grade 2 liver toxicity in 3HP and non-3HP groups were 1.7% and 3.7%, respectively. In multivariate analysis, clinical factors associated with the occurrence of ≥ Grade 2 ADRs were female (HR 2.08, 95% CI 1.05-4.12) 、BMI <23 (HR 2.38, 95% CI 1.18-4.79), renal insufficiency (HR 3.61, 95% CI 1.49-8.76) and 3HP regimen user (HR 2.99, 95% CI 1.13-7.89). Regarding treatment interruption, 197 (70.4%) completed LTBI treatment, 50 (17.9%) had treatment interruption, and 33 (11.8%) remained under treatment. The treatment interruption rate were 14.5% in 3HP regimen and 23.1% in non-3HP regimen. The main cause of treatment interruption was the occurrence of ADRs in 3HP group and patient refusal in non-3HP regimens.

Conclusion: In Taiwan, LTBI cases taking 3HP regimens had lower treatment interruption rate but were more likely to have ≥ Grade 2 ADRs as compared to patients taking non-3HP regimens.

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC42

發炎體基因的多型性與肺結核的關聯性研究

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Association study for genetic variants of inflammasome genes and tuberculosis

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Introduction: Pulmonary tuberculosis (TB), caused by *Mycobacterium tuberculosis* (*Mtb*), is a global public health concern, as it has resurged as a leading infectious cause of death in many parts of the world. According to many previous studies indicated inflammasome and its related genes has play an important role in host defense against *Mtb*. We proposed the genetic variants of inflammasome genes should contribute to the individual response to *Mtb* infection and development of active TB.

Materials and Methods: A total of 443 subjects were enrolled in the study, 230 in the active TB group and 213 in the non-TB group (subjects without TB history). The genomic DNA was extracted from oral swabs collected from the 443 subjects using a QIAamp DNA Mini Kit. The SNPs are genotyped by using TaqMan SNP genotyping assays.

Results: We investigated nine selected polymorphisms in AIM2 (rs2276405), NLRP3 (rs34298354, rs3806268, rs7525979, rs6689545), TLR2 (rs3804099, rs3804100, rs5743705), and IFI16 (rs1772408) in association with TB risk. Our result indicated significant difference in genotype frequencies of rs2276405 between non-TB and TB groups. When the patients were stratified by sex, the significant differences in genotype frequencies of rs34298354 in men with or without TB groups and rs1772408 in women with or without TB groups was found. However, the odds ratio analysis after adjusting for gender and age showed no significant association of rs2276405 genotypes with TB risk. Interestingly, the OR analysis after adjusting for age showed that the TC genotype of rs34298354 in NLRP3 gene was associated with reduced risk of TB (aOR=0.536; 95% CI=0.294-0.979, *p*=0.043). In addition, our result indicated no significant association of nine selected polymorphisms with TB risk in men. In women, the association of AG genotype of rs1772408 with reduced TB risk was found (aOR=0.397; 95% CI=0.173-0.911, *p*=0.029). Haplotype analysis showed that in comparison with the most common haplotype (T-T) of rs3804099-rs3804100 in TLR2 gene, the C-T haplotype was associated with an increased risk (OR=3.251; 95% CI=1.519-6.957, *p*=0.002) for TB risk.

Conclusions: Our study indicate that rs34298354 of NLRP3 gene and rs1772408 of IFI16 gene showed protection from developing TB and the haplotypes (rs3804099-rs3804100) of TLR2 gene was associated with an increased risk for tuberculosis.

Key words : Inflammasome gene, single-nucleotide polymorphism, tuberculosis

- A. ☒ 原著論文 (Original Paper) ☐ 病例報告論文 (Case Report)
B. ☐ 口頭報告 (Oral Presentation) ☒ 海報競賽 (Post)

PC43

一開始沒有治療的鳥型分枝桿菌肺部疾病之 4 年內死亡相關危險因子

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Risk factors of 4-year mortality in *Mycobacterium avium* complex (MAC) lung disease without initial treatment

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Purpose: The incidence of *Mycobacterium avium* complex related lung disease (MAC-LD) increased, not only limited to immunocompromised patients, such as AIDS and receipts of immunosuppressant. It played more impact on chronic airway disease and structural lung diseases. It could be colonized harmlessly on airway, but also gradually progressed and caused significant morbidities and mortalities. We conducted this retrospective study to investigate the nature course of MAC and to identify the risk factors of mortality.

Materials and Methods: Between Jan 01 2008 to Dec 31 2017, MAC-LD patients whose sputum isolated 3 sets of MAC within 1 year at two medical centers in Northern Taiwan were screened. Human immunodeficiency virus infection was excluded. Demographic data, radiologic findings, clinical course and outcome were recorded. The group of no initial anti-MAC therapy was defined as patients without no treatment within one month of first identifying MAC in sputum specimen. The radiographic scoring for lung lesion was interpreted according to the principle that the lung fields were divided into three parts (upper, middle and lower lung fields) by superior and inferior branches of pulmonary trunks and each scores 1 to 3.

Results: A total of 146 patients were investigated. 123 patients didn't receive anti-MAC therapy initially. 22 (17.9%) patients were death within four years as reference of the first sputum MAC culture. They are older than those survivors with marginal significance (70.6 ± 17.8 vs. 65.8 ± 13.2 , *p*: 0.071). The radiographic scores were significantly higher in non-survivors within 4-year than the survivors (6.6 ± 4.7 vs. 3.9 ± 2.4 , *p*=0.002). The presence of consolidation patterns was associated with 4-year mortality (hazard ratio (HR): 12.8, 95% CI: 2.6~62.5). The relative risk of radiographic scores ≤ 6 in 4-year mortality was 0.16 (95% CI 0.038~0.686, *p*=0.014), compared to the scores >6 . The area under ROC curve for predicting 4-year mortality by presence of consolidation and CXR score >6 was 0.72 (95% CI: 0.58~0.86, *p*=0.002). The following parameters influencing 4-year survival were anti-MAC treatment (HR: 4, 95% CI: 1.5-11.1, *p*=0.007), and radiographic progression within 2 years (HR: 6.4, 95% CI: 1.4-29.8, *p*=0.018).

Conclusions: Presence of consolidation pattern and radiographic scores >6 were risk factors of 4-year mortality in MAC-LD without initial treatment. Follow-up of chest image for at least 2 years and subsequently treatment if feasible might improve clinical outcomes.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PC44

Rifampicin 導致之困難梭菌感染在一位肺結核與粟粒性結核病患

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Rifampicin induced Clostridium difficile Infection in a Patient with pulmonary and miliary Tuberculosis

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Purpose: Pseudomembranous colitis (PMC) is usually associated with clostridium difficile infection after antibiotic treatment, but it rarely developed with antituberculosis (anti-TB) agents. Rifampicin induced Clostridium difficile infection with pseudomembranous colitis had been reported with very rare cases.

Materials and Methods: We report an 85-year-old woman with underlying dementia, who was diagnosed with pulmonary and miliary tuberculosis. She received standard anti-TB agents with isoniazid (INH), ethambutol (EMB), rifampicin (RMP), and pyrazinamide (PZA) initially, but PZA was discontinued due to hyperuricemia. Progressive diarrhea and lower abdominal pain developed after 103 days of anti-TB treatment. Severe diarrhea persisted despite discontinuing the anti-TB agents, even combing treatment with metronidazole. Clostridium difficile toxin A was detected by stool. Colonoscopic examination showed elevated yellow-white plaques and debris on the colonic mucosa from rectum to cecum, especially over ascending and transverse colon. The colonoscopic result was compatible with typical picture of PMC. Biopsy specimens were taken for a pathology study. The pathology report disclosed ulcer with mucopurulent exudate and intense inflammatory cells infiltrate. Her diarrhea improved with the treatment with vancomycin. Anti-TB agents were tried subsequently with INH, EMB, and RMP. Severe diarrhea and lower abdominal pain recurred after re-challenging with RMP. Diarrhea and abdominal pain improved after replacement of rifampin with levofloxacin. She continued anti-TB treatment with INH, EMB, and levofloxacin. No more severe diarrhea was noted with these anti-TB agents.

Conclusions: Our report reminds the clinicians that when severe and refractory diarrhea develops in patients treated with anti-TB agents containing RMP, RMP-induced PMC should be considered and managed properly.

- A. ☐ 原著論文 (Original Paper)

■ 病例報告論文 (Case Report)
- B. ☐ 口頭報告 (Oral Presentation)

■ 海報競賽 (Post)

PC45

粟粒性肺結核快速引爆呼吸衰竭

李瑞源 1 台中醫院 1

Rapid progression of miliary TB resulting acute Respiratory failure

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Introduction:

TB remain a major public health issue. Elderly nursing home residents are at greater risk for TB than those in community. Some decades ago , respiratory failure resulting from tuberculosis was reported mainly in cases of miliary TB .Clinical manifestations are nonspecific, typical chest X-ray findings may not be evident till late in the disease.

CASE PRESTATION:

Our case was a 79 year-old diabetic man admitted to ER referred from nursing home. According informed history, he became general weakness and poor intake cough with sputum found at NH. There was no SOB, no chest pain, no abdomen pain, no nausea vomiting, no diarrhea, no dysuria. At ER, vital Signs: BT:37.3, HR:106,RR:18,BP:102/52 mmHg GCS: E4V5M6, PE: coarse breath sound, no rhonchi, no wheezing, abdomen soft, not tenderness, normoactive bowel sound. Lab data: WBC:6.7, Hb:8.6, PLT:152, BUN:66,Cr:2.1,Na:143, K:3.3, CRP:19.3,,After admission.Comparing the chest X ray one month ago, the diffuse lung lesions progressed rapidly. For his miliary lesion over both lung field. We arranged him in negative pressure isolation room and HRCT, Sputum AFS and TB-PCR were positive results .Unfortunately , hypoxemia ,repeated hypoglycemia and diarrhea were occurred. His family strongly requested for DNR . Finally his condition seemed to be more stable with 99%SPO2 on 100% o2 mask after anti-TB medication starting. Unfortunately sudden onset of desaturation occurred on 7 days after hospitalization and he expired . Discussion:Miliary tuberculosis (TB) is a potentially lethal disease if not diagnosed and treated early

In some study conducted in Brazil investigating the pulmonary histopathological changes found in 3030 autopsies of patients who died of acute respiratory failure, tuberculosis was diagnosed as an underlying disease abut 3%. Acute miliary TB may be fulminant, present with relatively acute onset and rapid clinical course.

Conclusion:

Physician should consider TB to be a cause of severe CAP or HCAP and early commence anti-TB treatment promptly, Global increased HIV infected persons and increasing use of immunosuppressive medicine have altered the possibility of miliary TB. Reminding physician should have alertness for suspecting miliary TB .Diabetes mellitus was the most frequent underlying disease

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PC46

利用類鐸受體及基質金屬蛋白酶基因單核苷酸多態性組成之基因危險分數可幫助預測結核狀態之進展

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Genetic risk score constituted by Toll-like receptor and matrix metalloproteinase single nucleotide polymorphisms helps predict TB status progression

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Purpose: TB remains an important global infectious disease. TB was now considered a disease of continual process, rather than separate stages. Finding genetics factors and risk scores which could help predict the clinical progression of TB status, therefore, was important.

Materials and Methods: We recruited cohort of uninfected contact, LTBI contact and active TB. We analyzed 29 single nucleotide polymorphisms (SNP), including SNPs from Toll-like receptor (TLR)-1, TLR-2, Mannose receptor C-type 1 (MRC1), matrix metalloproteinase (MMP)-1, MMP-8, MMP-9 and tissue inhibitor of metalloproteinase (TIMP)-2.

Results: A total of 660 participants were recruited during the study period. Among them, 57 were uninfected contacts, 203 were LTBI contacts and 400 were active tuberculosis (TB). In ordinal logistic regression model, TLR-1 rs13785312 C allele was associated with TB status progression (OR: 1.96, 95% CI: 1.06-3.62) in additive model. TLR-1 rs5743580 was associated with TB status progression in recessive model (OR: 0.59, 95% CI: 0.36-0.97). TLR-1 rs5743551 GA genotype was associated with TB status progression (Odds ratio: 1.51, 95% CI: 1.02-2.25). In analyzing the association between SNP and TB status (active TB vs LTBI), TLR-1 AA rs5743580 genotype was associated with higher risk of active TB (genotypic model, OR: 2.13, 95% CI: 1.11-4.11). TLR-1 rs5743551 genotype was also associated with lower risk of active TB (OR:0.621, 95% CI:0.239-0.968) in recessive model. Also, TLR-2 rs3804100 genotype was associated with higher risk for active TB (TC vs TT, genotypic model, OR:1.85, 95% CI:1.18-2.90; dominant model, OR:1.84, 95% CI:1.19-2.83; additive model, OR:1.58, 95% CI:1.11-2.25). Also MMP8 rs2508383 genotype was associated with lower risk of active TB (genotypic model, CT vs CC(ref), OR:0.62, 95% CI:0.40-0.96; dominant model, OR:0.63, 95% CI:0.42-0.96). Three SNPs including TLR1 rs5743580, TLR2 rs3804100 and MMP8 rs2508383 were used to create one polygenic risk score (PRS). In multivariate logistic regression model, PRS was associated with higher risk for progression to active TB (OR: 2.52, 95% CI: 1.49-4.24).

Conclusions: In conclusion, we have found several immune and tissue destruction enzyme SNPs associated with TB status. We also created a genetic risk score including TLR-1, TLR-2, MMP-8 SNPs, which could help identify and stratify risk of progression of TB status in Taiwanese population.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

☒ 海報競賽 (Post)

PC47

台灣研究發現它汀類藥物與較佳的結核病預後有關

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Impact of statin exposure and other clinical factors in treatment outcomes of patients with active Tuberculosis in Taiwan

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Purpose: Statins are widely used in patients with cardiovascular diseases and dyslipidemia. Recent studies reported relationships between lower incidence of active tuberculosis (TB) and statin use. The association between treatment outcome of TB and statin use remained unexplored.

Materials and Methods: By collecting data retrieved from the Taiwan National Health Insurance Research Database from 2000 to 2016, the nationwide longitudinal cohort study included 3459 patients of active TB with statins use and the 63053 controls without statins use. Propensity score matching (1:10) was performed and included 1716 statins users and 17160 statins non-users. The primary endpoint was TB recurrence within 2 years with a 6 months gap after completed TB treatment.

Results: In the original cohort, 21 (0.61%) patients had TB recurrence in statin cohort and 671 patients (1.06%) in control cohort. In the propensity score matched cohort, TB recurrence was documented in 10 patients (0.58%) in statin cohort and 186 patients (1.08%) in matched cohort. In multivariate analysis, statin use was independent predictor of lower TB recurrence (HR 0.5, 95% CI 0.32-0.78, p=0.002). Male, diabetes mellitus, COPD, pneumoconiosis, use of biologics were independent risks of TB recurrence.

Conclusions: Statin use was associated with a lower TB recurrence rate within 2-year interval.

Table 2. Hazard ratio of TB recurrence within 2-year

Characteristic	Multivariate analysis	
	HR (95% CI)	p-value
Statin use	0.50 (0.32-0.78)	0.0022
Age ≥65 years	0.95 (0.80-1.15)	0.6193
Comorbidities		
Diabetes mellitus	1.48 (1.23-1.77)	<.0001
COPD	1.30 (1.07-1.58)	0.0086

Abbreviations: HR, hazard ratio; CI, confidence interval; COPD, chronic obstructive pulmonary disease; DMARD, disease-modifying antirheumatic drug; OPD, outpatient department. All factors were included in the Cox multivariate analysis.

- A. ☐ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- 病例報告論文 (Case Report)

■ 海報競賽 (Post)

PC48

胸腔影像類似肺癌表現的縱膈結核病

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Mediastinal Tuberculosis Mimicking Lung Cancer on Chest Images: A Case Report

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BACKGROUND

Tuberculosis, which is known as the great imitator, can reveal various clinical presentation. The atypical chest image may deceive us that be misdiagnosed as lung cancer.

CASE PRESENTATION

We present a case in which a 53-year-old woman had chronic productive cough and exertional dyspnea. The chest radiography showed a consolidative lesion in left retrocardiac area with enlarged left hilar shadow. The chest computed tomography revealed a left lower lobe lung mass, extending to left upper lobe and mediastinum, with left hilar and mediastinal lymphadenopathy, that initially diagnosed as advanced lung cancer. However the bronchoscope showed an endobronchial tumor with cheese-like materials over left main bronchus. Bronchoscopic biopsy revealed many clustered acid fast bacilli in the necrotic tissue, and culture from bronchoalveolar lavage yielded Mycobacterium tuberculosis complex finally. After 6-month anti- tuberculosis therapy, follow-up chest computed tomography scan revealed markedly shrinkage of the left lower lobe lesion and mediastinal lymphadenopathy.

CONCLUSIONS

Tuberculosis should alway be suspected under chest image with chronic lung lesion, especially in the areas of high prevalence such as Taiwan. Histologic and microbiologic evidences are important for the definitive diagnosis of tuberculosis.

- A. ☒ 原著論文 (Original Paper)

B. ☐ 口頭報告 (Oral Presentation)
- ☐ 病例報告論文 (Case Report)

■ 海報競賽 (Post)

PC49

TREM-1 作為預測服用 3HP 發生二級副作用的預測因子

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TREM-1 as a predict factor for grade 2 side effect of 3HP regimen

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Abstract

Background: 3HP is one of the popular regimens for latent TB treatment. However, there was no reliable predict factor for grade 2 side effect.

Aims: The study aimed to evaluate TREM-1 as a predict factor for grade 2 side effect of 3HP regimen.

Methods: The study prospectively recruited 191 consecutive subjects received 3HP in multiple tertiary hospitals at Taiwan. We excluded subjects with diabetes mellitus, obesity and renal insufficiency due the interference of concentration of TREM-1. 13 subjects without grade 2 side effect and 8 subjects with grade 2 side effects completed this study. The concentration of TREM-1 was compared between both groups.

Results: The baseline characteristics were similar between both groups. Subjects with grade 2 side effect had higher concentration of TREM-1 at baseline (222.9±30.3 vs. 124.3±14.3, p=0.012) than those without grade 2 side effect. Moreover, the concentration of TREM-1 at exacerbation was significant higher than baseline and 2 weeks (295.3±45.1 vs. 146.5±15.8 vs. 174.7±22.4, p=0.015). The area under the receiver operating characteristic curve showed that TREM-1 at baseline had good discriminative power in predicting grade 2 side effect (0.837).

Conclusion: TREM-1 may be a useful factor in predicting grade 2 side effect of 3HP regimen.

- PC50

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Pericardial empyema caused by pre XDR TB – Case presentation

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Background:

Tuberculosis-associated pericardial disorders are an excessively rare manifestation of extrapulmonary tuberculosis. The patients may present with constrictive pericarditis or pericardial fluid accumulation leading to cardiac tamponade. We are presenting here a case of pericardial tuberculosis caused by pre-XDR tuberculosis.

Case presentation:

This is a 46-year-old woman, with history of HCV related end stage liver disease s/p liver transplant on February 2019. She had received tacrolimus after transplantation. Frequent admission for antibiotics treatment due to fever after transplant was noted, the liver abscess was impressed. This time, she presented with high fever up to 38°C and liver abscess was noted. Antibiotics were initiated immediately. Progressive enlargement of cardiac silhouette was noted under serial CXR and further chest CT revealed pericardial fluids accumulation. Transthoracic echo-guided pericardial fluid aspiration was done and purulent fluids were obtained, where reveal presence of acid-fast bacilli, then geneXpert test was positive for MTB and also presence of mutation for rifampicin. LPA report from TW CDC showed resistance to INH, RIF and FQ. Second lines anti tuberculosis drugs were initiated.

Discussion:

MDR-TB care and prevention are difficult to achieve, and therefore represent a major public health concern for TB control. Our patient had TB contact investigation 3 months prior this hospitalization, with IGRA positive. CXR presented with no lung parenchymal lesions neither cardiomegaly, sputum examinations for 3 sets were negative for both acid-fast bacilli and TB culture. Due to her immunocompromised status after liver transplantation, reactivation of TB was presented clinically by fever, dyspnea and pericardial effusion.

Conclusion:

To our knowledge, this is a first reported case of pericardial empyema caused by Pre XDR TB presented in Taiwan. Immunocompromised patient with pericardial effusion and fever, with MDR-TB contact history need always be followed very closely.

