

ISSN 1023-9855



胸腔醫學

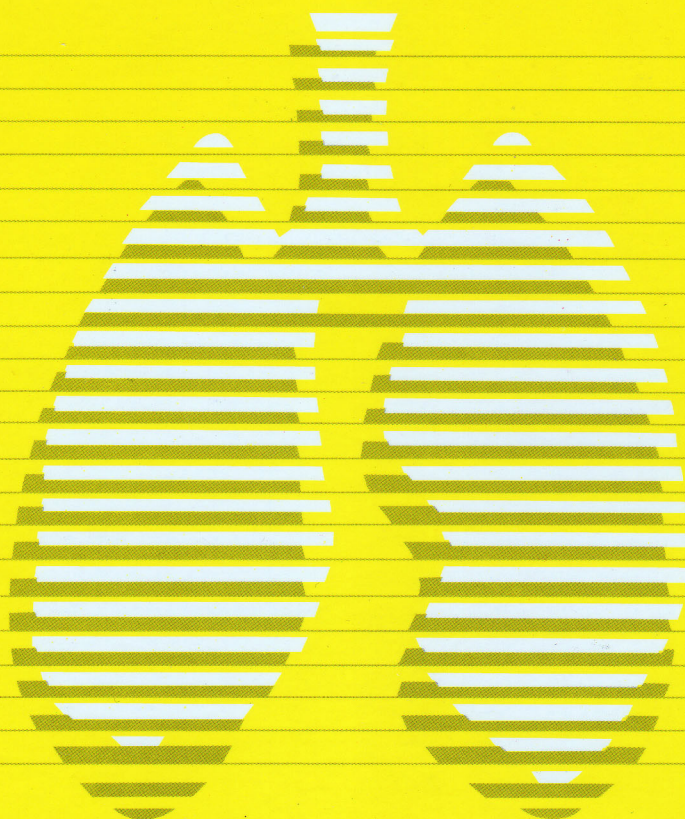
Thoracic Medicine

The Official Journal of Taiwan Society of
Pulmonary and Critical Care Medicine

Vol.34 No.6 December 2019

第三十四卷 第六期

中華民國一〇八年十二月



台灣胸腔暨重症加護醫學會

83301 高雄市鳥松區大埤路 123 號

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ISSN 1023-9855



Vol.34 No.6 December 2019

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Survival Predictors in Patients with Acute Respiratory Distress Syndrome and Underlying Chronic Respiratory Diseases

Chi-Hsien Huang*, Ko-Wei Chang*, Li-Chung Chiu*, Chih-Hao Chang*,
Chung-Shu Lee*, Han-Chung Hu*, **, Chung-Chi Huang*, **, Kuo-Chin Kao*, **

Introduction: Acute respiratory distress syndrome (ARDS) is a syndrome of severe hypoxemia with various risk factors. Chronic respiratory diseases are chronic diseases of the airways and lungs. In most of the large trials of ARDS, patients with chronic respiratory diseases were excluded. The aim of this study was to investigate the outcomes of patients with both ARDS and chronic respiratory diseases.

Material and Methods: We retrospectively collected patients documented with ARDS and chronic respiratory diseases at a tertiary care center from October 2012 to May 2015. Baseline clinical features, severity and causes of ARDS, parameters of mechanical ventilator use and the survival outcome were recorded.

Results: We enrolled 73 patients with ARDS and chronic respiratory diseases; 47.9% had COPD. The overall hospital mortality rate was 67.1% (49/73). In patients with mild, moderate and severe ARDS, the hospital mortality rates were 76.4% (13/17), 58.1% (18/31), and 72% (18/25), respectively ($p=0.23$). There was no significant difference in positive end-expiratory pressure, peak airway pressure and dynamic driving pressure between non-survivors and survivors. Tidal volume was significantly higher in non-survivors than in survivors (8.0 ± 1.7 ml/kgw vs. 7.2 ± 1.6 ml/kgw, $p=0.03$). In multivariate logistic regression, tidal volume was identified as the significant and independent predictive factor for survival (odds ratio 0.65, 95% confidence interval 0.44-0.95, $p=0.03$).

Conclusions: In this study on patients with ARDS and underlying chronic respiratory diseases, the hospital mortality rate was relatively high. Lower tidal volume was identified as the significant and independent predictive factor for hospital survival. (*Thorac Med* 2019; 34: 230-239)

Key words: chronic respiratory disease, acute respiratory distress syndrome, outcome, low tidal volume

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急性呼吸窘迫症候群併有慢性肺疾病患之存活預測因子

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黃崇旂*,** 高國晉*,**

背景：急性呼吸窘迫症候群的嚴重缺氧由許多因子造成。慢性肺疾乃呼吸道或肺部之慢性疾病。急性呼吸窘迫症候群的部分大型研究中慢性肺疾病患是被排除的。本篇研究中，我們針對罹患急性呼吸窘迫症候群的慢性肺疾病患，研究其存活預測因子。

方法：我們回溯性蒐集2012年10月至2015年5月所有入住一醫學中心有急性呼吸窘迫症候群的慢性肺疾病患。我們記錄了臨床資訊、急性呼吸窘迫症候群嚴重度及成因、呼吸器參數和存活預後等資料。

結果：本在73位有急性呼吸窘迫症候群及慢性肺疾的病患中，COPD 佔 47.9%。院內死亡率為67.1% (49/73)。在輕度、中度、重度急性呼吸窘迫症候群中，死亡率各為76.4% (13/17), 58.1% (18/31), 72% (18/25) ($p=0.23$)。吐氣末正壓、尖峰氣道壓力及動態驅動壓力在未存活與存活病患中並無差異，但未存活者有較高的潮氣容積(8.0 ± 1.7 ml/kgw vs. 7.2 ± 1.6 ml/kgw, $p=0.03$)。多因子羅吉氏迴歸分析中，只有潮氣容積為有意義且獨立的院內存活預測因子(勝算比0.65, 95%信賴區間0.44-0.95, $p=0.03$)。

結論：本研究中，罹患急性呼吸窘迫症候群的慢性肺疾病患有高的院內死亡率，而較低的潮氣容積是有意義且獨立的存活預測因子。(胸腔醫學 2019; 34: 230-239)

關鍵詞：慢性肺疾，急性呼吸窘迫症候群，預後，低潮氣容積

Extracorporeal Membrane Oxygenation for Life-Threatening Status Asthmaticus Refractory to Conventional Mechanical Ventilation – A Case Report and Literature Review

You-Yi Chen, Zong-Han Yao

Despite continuous improvements in asthma treatment, severe asthma exacerbation requiring hospitalization or/and critical care remains a crucial healthcare issue. Status asthmaticus is a life-threatening condition caused by acute respiratory failure and is the most severe clinical presentation of asthma. It is generally characterized by cardiovascular dysfunction and hypercapnia with severe acidemia that requires invasive medication treatment and mechanical ventilation. Nonconventional interventions such as general anesthesia, heliox, bronchoscopic retrieval of mucous plugs and extracorporeal life support also have been advocated for patients with fulminant asthma. Immediate mortality rate of those patients who are mechanically ventilated for acute severe asthma is very low; however, mortality is often associated with out-of-hospital cardiac arrest before intubation. Patients who have been intubated for severe asthma are at an increased risk of death if conventional management fails to relieve dynamic hyperinflation and progressive hypercapnia. We report the case of a female suffering from life-threatening asthma. She presented with severe hypercapnia and life-threatening acidemia, and failed to respond to conventional therapy and mechanical ventilation. Under the circumstances, early and emergency administration of extracorporeal membrane oxygenation (ECMO) led to a dramatic improvement in lung mechanics and gas exchange. As an effective rescue therapy, ECMO plays a crucial role in the management of life-threatening asthma when conventional therapy fails. (*Thorac Med* 2019; 34: 240-245)

Key words: extracorporeal membrane oxygenation (ECMO), asthma

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體外膜氧合 (ECMO) 使用於傳統呼吸器治療失敗之 嚴重氣喘惡化：病例報告與文獻回顧

陳祐易 姚宗漢

氣喘目前已具有效的治療方式，但氣喘急性發作可能發生在接受治療中的病人且可能為嚴重甚至致命的疾病。本文提出的案例報告是一位沒有規律使用氣喘控制藥物之70歲女性，主訴為急性發作之呼吸困難與意識狀態變化30分鐘，經急性氣喘惡化之藥物處置與機械式呼吸器輔助治療下仍持續惡化至致命性心律不整，藉由體外膜氧合 (ECMO) 的治療成功避免嚴重併發症，且於一周的加護病房治療後成功脫離呼吸器與ECMO。目前在急性氣喘惡化使用體外心肺支持系統 (ECLS) 治療尚無明確的治療指引，但藉此個案報告與文獻回顧，在嚴重氣喘惡化病人及早使用體外心肺支持系統確實能提供此類病人更好的治療預後。*(胸腔醫學 2019; 34: 240-245)*

關鍵詞：體外膜氧合 (ECMO)，氣喘

Pulmonary Leukemic Infiltration: A Case Report

Hsiang-Shi Shen*, Jia-Yi Feng**,***, Wei-Juin Su**,***

Pulmonary leukemic infiltration is usually asymptomatic, although it may present with critical clinical conditions. It is difficult to diagnose because of its non-specific radiographic patterns and laboratory findings. Therefore, invasive diagnostic procedures are usually required to reach the diagnosis. Leukostasis with leukemic alveoli migration is considered to be its characteristic pathologic finding. Here, we report a case of pulmonary leukemic infiltration requiring mechanical ventilation and extracorporeal membrane oxygenation support that was diagnosed using bronchoalveolar lavage and postmortem sono-guided lung biopsy. (*Thorac Med* 2019; 34: 246-254)

Key words: pulmonary leukemic infiltration, leukostasis, necropsy

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白血病肺部浸潤：案例報告

沈祥熙 * 馮嘉毅 **, *** 蘇維鈞 **, ***

白血症肺部浸潤的病人大部分症狀不明顯，然而仍有可能會導致嚴重的症狀甚至死亡。因為缺乏特別的影像學及實驗室檢驗特徵，白血症肺部浸潤在診斷上常十分困難，因此也常需要藉由一些侵入性的檢查才能更加確立診斷。病理上常會看到白血球滯留以及白血球的肺泡移行。在此分享一個因為白血症肺部浸潤而導致呼吸衰竭，需要呼吸器以及葉克膜支持的病人，而我們藉由肺泡沖洗術及超音波導引切片確立診斷。*(胸腔醫學 2019; 34: 246-254)*

關鍵詞：白血症肺部浸潤，白血球滯留症，屍體剖檢

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Bronchoscopic Cryotherapy and Dilatation by Endotracheal Tube Cuff in a Patient with Central Airway Obstruction-Related Respiratory Failure

Allen Chung-Cheng Huang*, Chun-Liang Chou**,
Meng-Cheng Ko*, Chi-Hsien Huang*, Shu-Min Lin*, ***

Granulation tissue formation is a common complication after implantation of metallic stents in patients with central airway obstruction. A combination of balloon dilatation and cryotherapy is a treatment option. Herein, we report the case of a 53-year-old female patient who underwent tracheal metallic stent implantation due to lung adenocarcinoma with treatment-related tracheo-esophageal fistula. One year after the procedure, acute respiratory failure developed due to extensive granulation formation with central airway obstruction at both ends of the stent. We performed bronchoscopic cryotherapy with cryogen applied to 4 granulation sites followed by the use of an endotracheal tube cuff as a balloon dilator. The airway obstruction was relieved by this procedure and the patient was extubated immediately thereafter. The presented case provides evidence that the combination of cryotherapy and endotracheal tube cuff as a balloon dilator is feasible and safe for the management of granulation tissue-induced central airway obstruction and respiratory failure. (*Thorac Med* 2019; 34: 255-260)

Key words: cryotherapy, central airway obstruction, granulation tissue, adenocarcinoma; lung cancer, bronchoscopy

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支氣管鏡冷凍治療與氣管內管氣囊擴張於一位中央氣道阻塞引起呼吸衰竭之病患

黃宗楨* 周俊良** 柯孟呈* 黃繼賢* 林恕民*,***

患有中央氣道阻塞的患者在植入金屬支架後，肉芽組織形成是常見的併發症之一。球囊擴張與冷凍療法的組合是一個治療選擇。我們報告一名53歲的女性患者，由於肺腺癌治療後產生了氣管-食道瘻管，而植入了氣管金屬支架。一年後，由於廣泛的肉芽組織形成，支架兩端出現中央氣道阻塞，造成了急性呼吸衰竭。我們進行支氣管鏡冷凍治療，將冷凍劑應用於病灶的四個部位，再使用氣管內管氣囊作為球囊擴張器，緩解氣道阻塞，並在術後立即拔管。本案例提供了在加護病房裡使用內視鏡冷凍治療加上氣管內管氣囊作為擴張器的範例，證實該治療對於控制肉芽組織引起的中央氣道阻塞以及呼吸衰竭是安全且可行的。(胸腔醫學 2019; 34: 256-261)

關鍵詞：冷凍治療，中央氣道阻塞，肉芽組織，腺癌，肺癌，支氣管鏡

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Atypical Carcinoid of the Thymus with Initial Presentation of Diffuse Bone Marrow Infiltration

Wan-Hsin Lin, Tzu-Hsiu Tsai, Jin-Yuan Shih

Thymic neuroendocrine tumors (NET) are rare primary thymic neoplasms with neuroendocrine differentiation. They are characterized by relatively aggressive behavior with a high propensity for local invasion and distant metastasis. However, thymic carcinoids metastasizing to the bone marrow have been very rarely reported in past decades. We present a case of atypical carcinoid of the thymus who had an initial presentation of non-specific low back pain, with magnetic resonance imaging (MRI) unexpectedly showed heterogenous signal intensities of the lumbar spine. An anterior mediastinal mass was later found by chest imaging; histopathology of the mediastinal mass and bone marrow both revealed atypical carcinoid tumors. The patient underwent mediastinal tumor excision, followed by cytotoxic chemotherapy. However, the follow-up bone marrow biopsy showed more extensive marrow replacement by NET cells. Systemic therapy was then shifted to everolimus with resultant disease control. This case emphasizes that a thymic carcinoid could spread to the bone marrow, and that MRI may play an important role in the investigation of marrow involvement in patients with non-specific musculoskeletal pain. Although the efficacy of systemic treatment for patients with metastatic diseases is unclear, there are systemic therapy options that may be effective in treating this rare thoracic malignancy. (*Thorac Med* 2019; 34: 261-269)

Key words: thymic tumors, neuroendocrine tumors (NETs), atypical carcinoids, bone marrow metastasis, magnetic resonance imaging (MRI)

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罕見胸腺非典型類癌合併瀰漫性骨髓轉移

林莞欣 蔡子修 施金元

胸腺神經內分泌腫瘤為非常罕見的前縱膈腔腫瘤，且在診斷時常已出現淋巴侵犯或遠端轉移。在此，我們報告一位53歲男性因下背痛四個月求診，在做脊椎核磁共振成像時意外發現瀰漫性骨髓病變，經進一步檢查後發現前縱膈腔的胸腺非典型類癌合併軟組織與骨髓轉移。病人接受手術切除前縱膈腔的主腫瘤，術後也銜接化學治療，但影像和骨髓病理切片都顯示骨髓轉移的程度在惡化。後來病人改接受everolimus治療，並用嗎啡類止痛藥控制疼痛。此案例提醒我們即使是下背痛如此常見的症狀，仍需要仔細評估病因，而核磁共振造影在偵測骨髓病變時具有優異的敏感性，是重要的評估工具。臨床上，目前仍欠缺針對已遠端轉移之胸腺神經內分泌腫瘤的有效治療，但可以參考其他部位之神經內分泌腫瘤的研究，提供患者治療的選擇。(胸腔醫學 2019; 34: 261-269)

關鍵詞：胸腺腫瘤，神經內分泌腫瘤，非典型類癌，骨髓轉移，核磁共振

Pulmonary Metastasis from Glioblastoma Multiforme – A Rare Case Report

Chien-Hui He*, **, Yuh-Min Chen*, Jen-Fu Shih*, Yi-Chen Yeh***, Yi-Han Hsiao*

Glioblastoma multiforme (GBM) is the most common, aggressive brain tumor, and has a poor prognosis. Extracranial GBM metastases are rare because of the protection of the blood-brain barrier and the lack of a lymphatic drainage system in the central nervous system (CNS). We reported a 51-year-old female who was diagnosed as having GBM, and who underwent a craniotomy for tumor removal. CNS recurrence was noted 14 months later with the incidental finding of a soft-tissue mass in the right lower lobe of the lung. The cytopathological examination from the lung mass biopsy revealed large, pleomorphic, spindle- to bizarre-shaped cells with dense cytoplasm, immunoreactive for glial fibrillary acidic protein and non-reactive for cytokeratin, which could very well be compatible with a metastatic glioblastoma. Although less than 2% of GBM patients have been reported to have extra-CNS metastases, including to the lungs, pleura, lymph nodes, bones, and liver, this occurrence indicates there are other potential pathways such as vascular invasion that allow GBM to escape the CNS. With the progress there has been in optimal therapy and the probability of longer survival, physicians should be aware of this rare clinical entity, especially when approaching extra-CNS lesions in GBM patients. (*Thorac Med* 2019; 34: 270-277)

Key words: glioblastoma multiforme (GBM), pulmonary metastasis

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罕見病例報告：膠質母細胞瘤合併肺轉移

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膠質母細胞瘤（GBM）是最常見和侵襲性且預後不良的腦腫瘤。由於中樞神經系統（CNS）中血腦屏障的保護和淋巴引流系統的分布，顱外膠質母細胞瘤轉移是罕見的。我們報導了一名51歲的女性被診斷為膠質母細胞瘤，接受了開顱手術切除腫瘤，14個月後發現腦部復發，偶然發現肺右下葉有軟組織腫塊。來自肺部組織檢查的細胞病理學檢查顯示：許多大且多形性梭形（spindle），怪異形狀（bizarre-shaped）的細胞，並具有緻密的細胞質，對GFAP具有免疫反應性，但對CK具沒有反應性，這符合轉移性膠質母細胞瘤的診斷。據報導，只有不到2%的膠質母細胞瘤患者有中樞神經外轉移，其中包括肺，胸膜，淋巴結，骨骼和肝臟。其中表示其他可能的轉移途徑如血管侵犯，使膠質母細胞瘤離開中樞神經系統。隨著治療的進展和病人有更長的生存概率，醫生應該意識到這種罕見的膠質母細胞瘤合併中樞神經外轉移的病例。（*胸腔醫學* 2019; 34: 270-277）

關鍵詞：膠質母細胞瘤，肺轉移

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