



MALAYSIAN THORACIC SOCIETY

# 8<sup>th</sup> ANNUAL CONGRESS

15 – 17 July 2005

theme: **PRACTICAL RESPIRATORY MEDICINE**



*Hilton Kuala Lumpur • Sentral Stesen, Kuala Lumpur*



*souvenir programme & abstract book*



# Contents

Malaysian Thoracic Society – Office Bearers 2003 – 2005	
8 <sup>th</sup> MTS Annual Congress – Organising Committee	1
Message from the President of the Malaysian Thoracic Society	2
Message from the Organising Chairperson	3
Programme Summary	4
Daily Programme	5 – 8
Floor Plan & Trade Display	9
Acknowledgements	10
Abstracts	11 – 59
* Scientific Programme .....	13 – 32
* Free Papers .....	33 – 37
* Poster Presentations .....	38 – 59



## MALAYSIAN THORACIC SOCIETY

### *Office Bearers 2003 – 2005*

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<b>PRESIDENT</b>	Prof Liam Chong Kin
<b>DEPUTY PRESIDENT</b>	Dr Norzila Mohamed Zainudin
<b>HON SECRETARY</b>	Assoc Prof Roslina Abdul Manap
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<b>HON TREASURER</b>	Assoc Prof Jessie De Bruyne
<b>HON DEPUTY TREASURER</b>	Dr Patrick Chan Wai Kiong
<b>COMMITTEE MEMBERS</b>	Dr Zainudin Md Zin Dr Pang Yong Kek Dr Hamidah Shaban Dr Lim Kim Hatt

## 8<sup>TH</sup> MTS ANNUAL CONGRESS

### *Organising Committee*

<b>CHAIRPERSON</b>	Dr Hamidah Shaban
<b>SECRETARY</b>	Assoc Prof Roslina Abdul Manap
<b>TREASURER</b>	Assoc Prof Jessie De Bruyne
<b>SCIENTIFIC PROGRAMME</b>	Assoc Prof Roslina Abdul Manap (Adult) Dr Patrick Chan Wai Kiong (Paediatrics)
<b>BUSINESS MANAGER</b>	Dr Zainudin Md Zin
<b>PUBLICITY AND PUBLICATIONS</b>	Assoc Prof Richard Loh Li Cher
<b>SOCIAL EVENTS</b>	Dr Norzila Mohamed Zainudin
<b>AUDIO-VISUAL</b>	Dr Pang Yong Kek

<b>ADVISER</b>	Prof Liam Chong Kin
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## *Message from the President of the Malaysian Thoracic Society*

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It gives me great pleasure to welcome all of you to this 8<sup>th</sup> Annual Congress of the Malaysian Thoracic Society which is held to coincide with the General Annual Meeting of the Society.

Dr Hamidah Shaban, the Chairperson of the Organizing Committee of this meeting, together with her team, has prepared an interesting and exciting scientific programme which covers a wide range of common respiratory disorders relevant to our clinical practice especially in Malaysia. In line with the theme of the Congress, "Practical Respiratory Medicine", we have invited a distinguished faculty of local, regional and international speakers to discuss issues such as asthma and COPD, respiratory infections, lung cancer, respiratory radiology, respiratory emergencies and chronic cough. Diagnostic/interventional respiratory procedures and respiratory physiotherapy shall be covered in depth in the Pre-Congress workshops.

I hope you will gain invaluable knowledge and skills at this Congress and together work towards our common goal of elevating the standard of care for our patients with respiratory problems. I also hope that this Congress will provide you the opportunity to meet up with old friends and to make new ones. Last but not least, I would like to express my sincere thanks to all who has lent their support to make this Congress a success.

A handwritten signature in black ink, reading "Liam Chong Kin". The signature is written in a cursive style with a horizontal line underneath.

**Prof Liam Chong Kin**



## Message from the Organising Chairperson

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On behalf of the Organising Committee, I warmly welcome you to the 8<sup>th</sup> Annual Congress of the Malaysian Thoracic Society.

For this year's Congress, we have chosen "Practical Respiratory Medicine" as the theme. It is aimed to meet the needs of the General and Respiratory Physicians in managing respiratory diseases in the country. There are two Pre-Congress Workshops, eight Scientific Symposia, two Plenary Lectures, Grand Rounds and Free Paper Presentations.

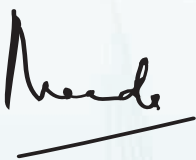
The Pre-Congress Workshops will be on 'Diagnostic and Interventional Respiratory Procedures' and "Respiratory Physiotherapy". The "Respiratory Physiotherapy" workshop which is included for the first time in MTS Congress, will give the clinicians some knowledge on the role of physiotherapy in the management of respiratory diseases and how to set up Pulmonary Rehabilitation Programme, which is available in very few hospitals in Malaysia.

The Congress will also cover common respiratory diseases such as Respiratory Infections, Allergy, Asthma, Lung Cancer and Respiratory Emergencies. The "Respiratory Radiology" symposium was added because radioimaging is an integral part of the practice of respiratory medicine.

With the support from various parties, we are able to put together a faculty of eminent speakers, both from local and abroad, who are the experts in their own field.

Lastly, we hope you will find the Congress informative and stimulating.

Thank you.



**Dr Hamidah Shaban**



# Programme Summary

Time	Date	Friday, 15 July 2005	Saturday, 16 July 2005	Sunday, 17 July 2005
0815 – 0830	REGISTRATION	Welcome Address	BALLROOM B Plenary Lecture 1	
0830 – 0900		BALLROOM B		BALLROOM B Plenary Lecture 2
0900 – 0930		PRE-CONGRESS WORKSHOP 1 Diagnostic and Interventional Respiratory Procedures	BALLROOM B Symposium 1A Respiratory Infections	BALLROOM B Symposium 1B Interstitial Lung Disease (ILD) in Children
0930 – 1000			TEA	
1000 – 1030			BALLROOM B Symposium 2A Lung Cancer	BALLROOM B Symposium 2B Airway Disorders in Children
1030 – 1100			TEA	
1100 – 1130			TEA	
1130 – 1200			TEA	
1200 – 1230			TEA	
1230 – 1300			TEA	
1300 – 1330			TEA	
1330 – 1400			TEA	
1400 – 1430			TEA	
1430 – 1500			TEA	
1500 – 1530			TEA	
1530 – 1600			TEA	
1600 – 1630			TEA	
1630 – 1700			TEA	
1700 – 1730			TEA	
1730 – 1800		Community Acquired Pneumonia: Review of Malaysian Guidelines	BALLROOM C TEA / 15 <sup>TH</sup> MTS Annual General Meeting	
1800 – 1830			BALLROOM B Evening Symposium (Boehringer-Ingelheim & Pfizer)	
1930 – 2000		BALLROOM C Evening Symposium (AstraZeneca)	BALLROOM C CONGRESS DINNER	
2000 – 2030				
2030 – 2200				



# Daily Programme

**FRIDAY, 15 JULY 2005**

0700 – 1730      REGISTRATION  
0825 – 0830      Welcome Address

## PRE-CONGRESS WORKSHOP 1

**BALLROOM B**

### Diagnostic and Interventional Respiratory Procedures

**CHAIRPERSONS: PROF LIAM CHONG KIN / DATO' DR ABDUL RAZAK MUTTALIF**

0830 – 0900      BAL: How to Maximize Yield *[page 13]*  
*Assoc Prof Roslan Harun*

0900 – 0930      Bronchoscopic Biopsy Techniques (EBB, TBLB, TBNA): Which Technique for  
which Patient *[page 13]*  
*Assoc Prof Roslan Harun*

0930 – 1000      Interventional Bronchoscopy 2005: Who, What, When and How *[page 14]*  
*Prof Philip Eng*

1000 – 1030      TEA

1030 – 1100      Argon Plasma Coagulation, Laser, Electrocautery: When and How  
*Dr Alan Ng*

1100 – 1130      Airway Stenting *[page 14]*  
*Prof Philip Eng*

1130 – 1200      Bronchoscopic Foreign Body Removal in Adults *[page 14]*  
*Prof Philip Eng*

1200 – 1230      Medical Thoracoscopy  
*Dr Alan Ng*

1230 – 1430      **Lunch Symposium** (Bristol-Myers Squibb)  
**CHAIRPERSON: PROF LIAM CHONG KIN**

**BALLROOM C**

CAP Guidelines and Recommendations – Applicability in the Asian Population  
*Dr Aileen Wang*

FRIDAY PRAYERS



**PRE-CONGRESS WORKSHOP 2****BALLROOM B****Respiratory Physiotherapy****CHAIRPERSONS: ASSOC PROF ROSLINA MANAP / DR NORRASHIDAH WAHAB**

1430 – 1500	Physiotherapy in Respiratory Diseases <i>[page 15]</i> <i>Ms Ayiesah Hj Ramli</i>
1500 – 1530	Excess Bronchial Secretions – How can a Physiotherapist Help? <i>[page 15]</i> <i>Assoc Prof Sue Jenkins</i>
1530 – 1600	Physiotherapy for Children with Respiratory Diseases: When and What? <i>[page 16 – 18]</i> <i>Ms Katijjahbe Mohd Ali</i>
1600 – 1630	Practical Aspects of Setting up a Pulmonary Rehabilitation Program <i>[page 19]</i> <i>Assoc Prof Sue Jenkins</i>
1630 – 1700	Pulmonary Rehabilitation: The HUKM Experience <i>[page 19 – 20]</i> <i>Ms Katijjahbe Mohd Ali</i>
1700 – 1730	TEA

1730 – 1830	<b>Community Acquired Pneumonia: Review of Malaysian Guidelines</b> <i>Datin Dr Aziah Ahmad Mahayiddin</i>
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1930 – 2200	<b>Evening Symposium (AstraZeneca)</b> <b>CHAIRPERSONS: PROF LIAM CHONG KIN / DR ZAINUDIN MD ZIN</b>	<b>BALLROOM C</b>
1930	Introduction by Chairperson <i>Prof Liam Chong Kin</i>	
1945	Burden of Asthma in Malaysia <i>Dr Zainudin Md Zin</i>	
2000	Asthma Management – The New Frontier <i>Prof Roland Buhl</i>	
2045	Q & A	
2100	DINNER	

**SATURDAY, 16 JULY 2005**

0815 – 0900	<b>Plenary Lecture 1</b> <b>CHAIRPERSON: DR HAMIDAH SHABAN</b>	<b>BALLROOM B</b>
	Asthma and COPD – Update 2005 <i>[page 20]</i> <i>Prof Roland Buhl</i>	
0900 – 1030	<b>Symposium 1A : Respiratory Infections</b> <b>CHAIRPERSONS: ASSOC PROF RICHARD LOH / DR NORHAYA RAZALI</b>	<b>BALLROOM B</b>
	Pneumonia in Immunocompromised Patients <i>[page 21]</i> <i>Dr Mahiran Mustafa</i>	
	Hospital Acquired Pneumonia: Prevention and Management <i>[page 21]</i> <i>Prof Liam Chong Kin</i>	
	Bronchiectasis vs Diffuse Panbronchiolitis – Is the Treatment Different? <i>[page 22]</i> <i>Dr Zainudin Md Zin</i>	



## Symposium 1B : Interstitial Lung Disease (ILD) In Children

[SENTRAL LINK](#)

CHAIRPERSONS: ASSOC PROF JESSIE DE BRUYNE / DR PATRICK CHAN

Diffuse Parenchymal Lung Disease in Children [\[page 22\]](#)

[Dr Rus Anida Awang](#)

Interstitial Lung Disease in Children – The European Experience [\[page 23\]](#)

[Dr Petr Pohunek](#)

Interstitial Lung Disease in Children – Recommendations for the Management [\[page 23\]](#)

[Dr Petr Pohunek](#)

1030 – 1100

TEA

1100 – 1230

## Symposium 2A: Lung Cancer

[BALLROOM B](#)

CHAIRPERSONS: DR GEORGE KUTTY SIMON / DR PANG YONG KEK

Staging of Lung Cancer: An Update [\[page 24\]](#)

[Prof Liam Chong Kin](#)

Non-surgical management of locally advanced and metastatic non-small cell lung cancer: An update [\[page 25\]](#)

[Assoc Prof Fuad Ismail](#)

Surgical Management of Lung Cancer and An Update [\[page 25\]](#)

[Dr Mohd Ezani Mohd Taib](#)

## Symposium 2B: Airway Disorders In Children

[SENTRAL LINK](#)

CHAIRPERSONS: DR NORZILA ZAINUDIN / DR MAZIDAH RASID

Tracheomalacia and Bronchomalacia [\[page 26\]](#)

[Dr Petr Pohunek](#)

Bronchiolitis Obliterans [\[page 26\]](#)

[Dr Patrick Chan](#)

Flexible Bronchoscopy – My Personal Practice [\[page 27\]](#)

[Dr Petr Pohunek](#)

1230 – 1400

## Lunch Symposium (Merck Sharp & Dohme)

[BALLROOM C](#)

CHAIRPERSON: DR GEORGE KUTTY SIMON

Asthma & Allergic Rhinitis – Past, Present & Future

[Prof Ruby Pawankar](#)

1400 – 1530

## Symposium 3A: Respiratory Radiology

[BALLROOM B](#)

CHAIRPERSONS: DATIN DR AZIAH AHMAD MAHAYIDDIN / DR JAMALUL AZIZI

Unusual Chest Xrays [\[page 27\]](#)

[Prof Philip Eng](#)

HRCT of Interstitial Lung Diseases [\[page 28\]](#)

[Assoc Prof Gnana Kumar](#)

Role of PET Scan in Respiratory Diseases [\[page 28\]](#)

[Dr Low Su Ying](#)

## Symposium 3B: Year in Review

[SENTRAL LINK](#)

CHAIRPERSONS: DR NORRASHIDAH WAHAB / DR RUS ANIDA AWANG

Childhood Asthma [\[page 29\]](#)

[Assoc Prof Jessie De Bruyne](#)

Respiratory Infections [\[page 30\]](#)

[Dr Petr Pohunek](#)



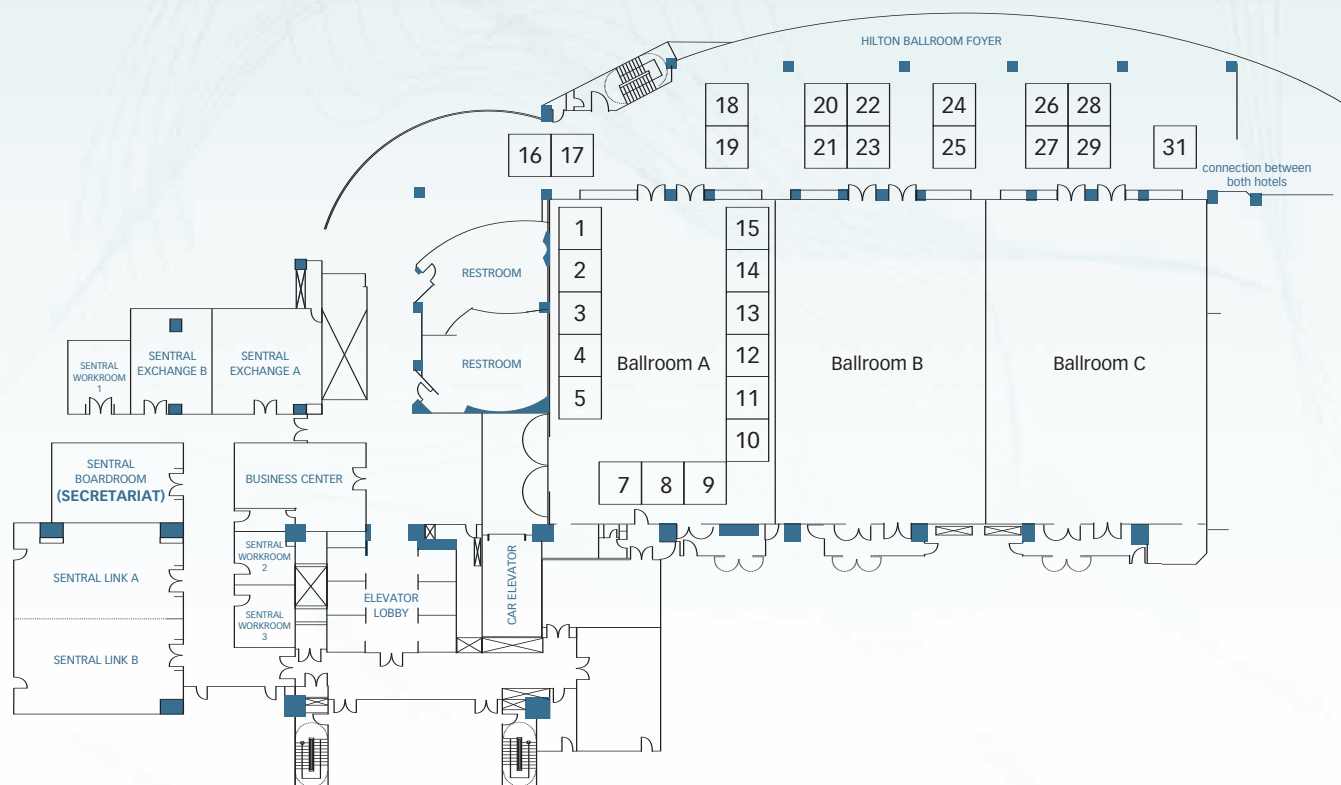
1530 – 1630	<b>Free Papers</b> <i>[page 33 – 37]</i> <b>CHAIRPERSON: ASSOC PROF ROSLINA MANAP</b>	<b>BALLROOM B</b>
1630 – 1730	<b>Adult Grand Round</b> <b>CHAIRPERSONS: DR ZAINUDIN MD ZIN / DR I KUPPUSAMY</b> <b>Paediatric Grand Round</b> <b>CHAIRPERSON: DR PATRICK CHAN</b>	<b>BALLROOM B</b> <b>SENTRAL LINK</b>
1730 – 1830	<b>TEA / 15<sup>th</sup> MTS Annual General Meeting</b>	<b>BALLROOM C</b>
1930 – 2200	<b>Evening Symposium</b> (Boehringer-Ingelheim & Pfizer) <b>CHAIRPERSON: PROF LIAM CHONG KIN</b>  Air Trapping – A Paradigm Shift in the Management of COPD <i>Prof Donald A Mahler</i>	<b>BALLROOM B</b>
2030 – 2200	<b>Congress Dinner</b>	<b>BALLROOM C</b>

## SUNDAY, 17 JULY 2005

0830 – 0915	<b>Plenary Lecture 2</b> <b>CHAIRPERSON: DR LIM KIM HATT</b>  The Many Faces of GERD – “Acid Asthma” <i>[page 30]</i> <i>Prof Dato’ Goh Khean Lee</i>	<b>BALLROOM B</b>
0915 – 1045	<b>Symposium 4: Respiratory Emergencies</b> <b>CHAIRPERSONS: DR YAP BOON HUNG / DR CATHERINE WONG</b>  Respiratory Failure: Update on Management <i>Assoc Prof Kamarudin Jaalam</i>  Management of Massive Hemoptysis <i>[page 31]</i> <i>Prof Philip Eng</i>  Recurrent Pneumothorax: Tips on Management <i>Dr Alan Ng</i>	<b>BALLROOM B</b>
1045 – 1115	TEA	
1115 – 1245	<b>Symposium 5: Miscellaneous</b> <b>CHAIRPERSONS: DR JEFFREY ABU HASSAN / DR FAUZI MD ANSHAR</b>  Chronic Cough: How to Investigate and Treat <i>[page 31]</i> <i>Assoc Prof Roslina Manap</i>  Primary Pulmonary Hypertension: Treatment Update <i>[page 31 – 32]</i> <i>Dato’ Dr David Chew</i>  Sarcoidosis: Issues in Diagnosis and Treatment <i>[page 32]</i> <i>Assoc Prof Richard Loh</i>	<b>BALLROOM B</b>
1245 – 1430	<b>Lunch Symposium</b> (GlaxoSmithKline)	<b>BALLROOM C</b>
1245	Welcome Address by Dr Zainudin Md Zin, Chairman of the Asthma Council Meeting (ACM)	
1255	Opening Address by Prof Liam Chong Kin, President of the Malaysian Thoracic Society	
1305	Official Launch of ACM	
1325	LUNCH	



## Floor Plan & Trade Display



Booth No	Company
1	Dynamed Sdn Bhd
2	Sanofi Aventis
5	Insan Bakti
14	Utama Associates Sdn Bhd
15	Bristol-Myers Squibb
16 & 17	GlaxoSmithKline Pharmaceutical Sdn Bhd
18 & 19	AstraZeneca Sdn Bhd
21 & 23	Boehringer-Ingelheim
22	Dataran Mantin Sdn Bhd
24	Sandoz
25	Kyowa Hakko
27	Endodynamics
28	Altana Pharma
29	Bayer Healthcare
31	Merck Sharp & Dohme



## *Acknowledgements*

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*The Organising Committee of the 8<sup>th</sup> Annual Congress of the Malaysian Thoracic Society records its gratitude to the following for their support and contributions:*

### **Ministry of Health Malaysia**

**Pfizer (Malaysia) Sdn Bhd / Boehringer-Ingelheim**

**AstraZeneca Sdn Bhd**

**Bristol-Myers Squibb (M) Sdn Bhd**

**GlaxoSmithKline Pharmaceuticals Sdn Bhd**

**Merck Sharp & Dohme (I.A.) Corp**

**Altana Pharma**

**Bayer Healthcare**

**Dataran Mantin Sdn Bhd**

**Dynamed Sdn Bhd**

**Endodynamics (M) Sdn Bhd**

**Insan Bakti Sdn Bhd**

**Kyowa Hakko (M) Sdn Bhd**

**Sandoz**

**Sanofi Aventis (M) Sdn Bhd**





*abstracts*

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### **BAL: HOW TO MAXIMIZE YIELD**

ROSLAN HARUN

*Respiratory Unit, Department of Medicine, Faculty of Medicine UKM, Kuala Lumpur, Malaysia*

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Bronchoalveolar lavage (BAL) is performed as part of routine bronchoscopy to sample the contents of the lower respiratory tracts. BAL can provide information on the cellular and molecular components of the alveolar epithelial fluids. This technique is particularly useful in the diagnosis of opportunistic infections. In certain noninfectious lung diseases, the BAL findings are diagnostic and in others, it may contribute to the diagnosis and management of the diseases. BAL is performed after the general inspection of the bronchial tree and before biopsy or brushing. The optimal fluid recovery occurs when the bronchoscope completely occludes the bronchial lumen without “overwedging”, which may result in less fluid recovery. Uncontrolled wall suction may cause airway collapse which will reduce the recovery of instilled fluid. In addition, the excessive suction may cause trauma to the bronchial wall, and produce contamination of the lavage fluid with blood. The BAL fluid recovery increases with increasing volume instilled in the lungs. The routine processing of the BAL specimens will also be discussed.

### **BRONCHOSCOPIC BIOPSY TECHNIQUES (EBB, TBLB, TBNA): WHICH TECHNIQUE FOR WHICH PATIENT**

ROSLAN HARUN

*Respiratory Unit, Department of Medicine, Faculty of Medicine UKM, Kuala Lumpur, Malaysia*

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The choice of biopsy techniques used in diagnostic bronchoscopy depends on the appearance, site and type of the lesions or lung diseases. In patients with suspected lung cancer, the diagnostic yield of bronchoscopic biopsy is related to the site and appearance of the tumour during the bronchoscopy. For a proximal and visible endobronchial tumour, up to 82% positive rate for malignancy can be achieved with endobronchial biopsies (EBB). A combination of bronchial biopsies, brushings and washings has been shown to increase the diagnostic yield in not only visible tumours, but also in tumours with normal or non-specific appearances. Transbronchial needle aspiration (TBNA) has recently been used more widely. For visible tumours, there is no different in the yield from TBNA and forceps biopsy. However, TBNA has been shown to be more sensitive in detecting submucosal malignancies compared to forceps biopsy. In the staging of the lung cancer, TBNA is also increasingly being used to sample the enlarged hilar or mediastinal lymph nodes. For peripheral pulmonary lesions, the diagnostic yield of transbronchial lung biopsy varies according to the underlying disease, distribution of the disease and the number of biopsy specimens taken. Diagnostic yields are usually high in patients with sarcoidosis and lymphangitis carcinomatosa but low in interstitial pulmonary fibrosis. Fluoroscopy is helpful for localized lesions however it is not necessary for diffuse lung diseases.



**INTERVENTIONAL BRONCHOSCOPY 2005: WHO, WHAT, WHEN, AND HOW**

PHILIP ENG

*Department of Respiratory & Critical Care Medicine, Singapore General Hospital, Singapore*

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There is no doubt that Jean Francois Dumon is the father of Interventional Bronchoscopy. The development of the Dumon-Harell rigid ventilating bronchoscope in 1990 was a major landmark. He should also be credited for training a whole generation of interventional bronchoscopists. In this presentation, I will trace the humble origins of this field to the state of the art today. I will also highlight some recent developments including recently published guidelines.

**AIRWAY STENTING**

PHILIP ENG

*Department of Respiratory & Critical Care Medicine, Singapore General Hospital, Singapore*

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Since the introduction of the Dumon stent and rigid ventilating bronchoscope by Dumon in 1990, rapid advances have been made in this area. Today, airway stenting is the standard of care for patients with severe extrinsic benign and malignant major airway disease that cannot be cured by surgical resection. Yet, the ideal stent has yet to come by and is the subject of intense research all over the world. I will attempt to present the current state of the art in airway stenting and hope to clarify some very common myths.

**BRONCHOSCOPIC FOREIGN BODY REMOVAL IN ADULTS**

PHILIP ENG

*Department of Respiratory & Critical Care Medicine, Singapore General Hospital, Singapore*

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Airway foreign bodies are uncommon in adults and the diagnosis is often missed for some time. In this presentation, I will discuss both modalities of bronchoscopic removal ie flexible and rigid and their advantages and disadvantages in dealing with this clinical problem.



## **PHYSIOTHERAPY IN RESPIRATORY DISEASES**

AYIESAH HJ RAMLI

*Faculty of Allied Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

Chest physiotherapy is widely employed in the treatment of pulmonary disease to increase mucociliary transport. There are many modalities used by physiotherapists to facilitate secretion clearance. The multimodalities approaches are mobilization (Clarke, 1989), breathing exercises (Andersen et al, 1979), postural drainage (Woodhead and Tattersfield, 1987), manual techniques (Vander Schance et al, 1986; Rivington- Law, 1981), autogenic drainage (David, 1991), mechanical aids which includes positive expiratory pressure (PEP) (Falk et al, 1984), mechanical precursors and vibrators, oral high frequency oscillators (George et al, 1985b) and flutters (Liardet, 1990). This airway clearance is also facilitated by mucociliary action, coughing and the forced expiratory maneuver. Mucociliary clearance depends on normal active beating cilia coupled to a mucous layer, the physical properties of which permit efficient cephalic movement. Coughing is essentially a reserve mechanism which is most efficient in the central airways. It relies on a high linear airflow velocity which is generated by ample flow, and airway narrowing may be curtailed because of inadequate flow in patients with COAD. Research evidence have also demonstrated that clearance may be further assisted by drugs such as B2 agonists, theophylline, corticosteroids and mucolytics agent with the incorporation of humidification, broncho-dilators and nebulisation which further enhances facilitation of secretion clearance. All modalities have been proven to facilitate secretion clearance and the selection of each modalities basically depends on patient compliance with each modalities used. Thus the usage of one or two other modalities mention above can be used at the same time to facilitate secretion clearance. The goals of physiotherapists in management of cardiorespiratory patients are to facilitate removal of secretions, to reexpand the airways, to prevent lung collapse, to reduce the work of breathing, to facilitate increase exercise endurance and improve physical and physiological functioning.

## **EXCESS BRONCHIAL SECRETIONS – HOW CAN A PHYSIOTHERAPIST HELP?**

SUE JENKINS

*Curtin University of Technology, Sir Charles Gairdner Hospital,  
Asthma and Allergy Research Institute Inc, Australia*

The problem of excess bronchial secretions is commonly encountered by physiotherapists and occurs in a number of different lung conditions and in other clinical situations. This presentation is confined to the management of excess bronchial secretions in adults who are not intubated.

The problem of excess bronchial secretions is managed using airway clearance techniques (ACTs) that aim to improve mucus transport via the external application of forces and expiratory manoeuvres. This may involve the use of devices such as the PEP mask or the Acapella. There is good evidence in people with hypersecretory lung disease that ACTs increase the amount and/or rate of sputum expectorated and improve mucociliary clearance. In the long term, regular adherence with ACTs has been shown to slow the decline in lung function.

There is a wide range of ACTs available and it is unknown which technique is the most effective. Further, forced expirations are a part of the ACTs currently used and it is possible that these are the most important component.

The active cycle of breathing techniques (ACBT) is a commonly used ACT. It has the advantage of being simple to teach, requires no equipment and is suitable for most patients. The ACBT has three components - breathing control (or quiet breathing), thoracic expansion exercises (or deep breaths) and the forced expiration technique. The cycle is very flexible and is adapted for the individual. The ACBT can be performed in sitting or in a gravity assisted drainage position. Percussion can be added into the cycle and is most beneficial if the patient produces large amounts of sputum or very sticky sputum.

This presentation will provide the rationale and scientific evidence for ACT and will focus on the practical application of the ACBT for the management of excess bronchial secretions.



## **PHYSIOTHERAPY FOR CHILDREN WITH RESPIRATORY DISEASES: WHEN AND WHAT?**

KATIJJAHBE MOHD ALI

*Unit Fisioterapi, Jabatan Perkhidmatan Pemulihan Perubatan, Hospital Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*

The primary objective of chest physiotherapy in paediatric pulmonary diseases is to assist in the removal of tracheobronchial secretions. Additional physiotherapy goals are to remove airway obstruction, reduce airway resistance, enhance gas exchange and reduce the work of breathing. Breathing retraining and physical reconditioning are also incorporated whenever applicable<sup>3</sup>.

Points to consider before administering physiotherapy interventions<sup>2, 4, 5</sup>

- i. The possible deleterious effect of chest physiotherapy and suctioning in unstable patients
- ii. Treatment must be carried out at least 1 hour following feeds to avoid aspiration
- iii. The age of the child and his or her level of ability to cooperate (patient's needs)
- iv. The disease process
- v. The participation of carers (family members, siblings etc.) in treatment
- vi. The therapist's skills/expertise and their personal evidence based choices regarding the effectiveness of these techniques

Neonates and infants will be treated exclusively with traditional bronchial hygiene procedures<sup>2, 4, 6</sup>

Breathing games and activities can be incorporated in the regime when the child becomes a toddler<sup>2, 4, 6</sup>

As the children grow older, exercises for breathing retraining, physical reconditioning and postural exercises will be included<sup>2, 6, 8</sup>

Measures for airway clearance that depend on breathing control such as autogenic drainage and positive expiratory pressure masks become more applicable to older children as they will be able to coordinate the necessary breathing maneuvers<sup>1, 2, 4, 6</sup>

### **Common physiotherapy interventions**

#### **A. Removal of secretions using bronchia hygiene technique**

- Extensively studied and reviewed
- Despite clinical observation that retained secretions give detrimental effect to respiratory function and anecdote associations between secretion clearance and improvements in respiratory function, there is a dearth of high level of evidence and wide accepted to support the secretion clearing technique<sup>1, 3, 8</sup>. Methods include the following:
  - i. Traditional methods (positioning for gravity assisted drainage of the airways, manual techniques for loosening secretions and removals of secretions by directed coughing, and suctioning of the airway.
  - ii. Contemporary method involving huffing, forced expiratory techniques, positive expiratory pressure, flutter valve, autogenic drainage high frequency chest compression

#### ***Traditional approach***

Positioning / "ketchup bottle theory"

- Specific positioning for segmental drainage using tilt table/treatment tables. In infant and young children, therapist lap and shoulder serve as treatment table
- Baby held and comforted in 10 different drainage positions
- Modification of technique required reducing angle for head down position due to adverse pathophysiology associated with various disease process



## Manual techniques

### a. Percussion

- Same as adult technique for percussion. The difference lies in the force used especially for premature baby. The amount of force increased with age of baby
- Techniques differ due to the size of thorax

### b. Vibration

- Difficult to apply for infants with respiratory diseases who has a respiratory rate of 40 breath per minute or more

### Coughing and suctioning

- Infant and children seldom cough on request. Toddlers and school aged children have language skills to understand request but usually choose not to cough
- Imaginative means usually used include story telling, games to elicit cough
- Sometimes prompting children either to laugh or cry (preferable the former) useful to produce productive cough.
- For children undergone surgery, splinting incision with hands or dolls pressed close child's chest will promote effective cough
- Airway suctioning is needed in neonate to remove secretions. Done carefully because significant risks even when performed under the best circumstances

## **Contemporary approach**

- Develop specifically for children and young adult with CF and for patient to participate actively in the treatment
- Widely used now for all individuals with chronic lung disease who produce copious sputum

### Autogenic drainage / ACBT

- From practical experiences, it is a difficult technique and young children find difficult to learn. Need intense training to use effectively
- Used commonly for patients who are highly motivated and old enough to control breathing (post op and obstructive lung disease)
- Permit self treatment with active participation from patient
- Finding of effectiveness from few studies mix with some claim improvement in pulmonary function test and sputum clearance<sup>8,9</sup>

### Positive Expiratory Pressure (PEP)

- Assist in secretion removal and reduce airway trapping by enhancing collateral ventilation
- PEP device offer various resistances and the child attempt to maintain level of pressure throughout exp phase breaths followed by huff coughing to clear secretions<sup>10-15</sup>
- Recommended during bronchial drainage position
- Studies done show clear benefit in comparison with flutter and bronchial drainage<sup>8,9</sup>

### Flutter

- Clinical efficacy in children is shown in well-designed, controlled studies among hospitalized subjects<sup>10</sup>

## **B. Breathing exercises & retraining**

- Requires voluntary participation from children. Where appropriate, use manual contact to teach breathing
- DeCesare suggest using physiologic tech e.g apply quick stretch to thorax to facilitate diaphragm and intercostal muscle contraction to induce inspiration in baby or young children<sup>6</sup>
- Encourage participation in games that require deep breathing & control breathing
- Techniques commonly used are diaphragmatic breathing (protract abdomen during inhalation and active contract the abdominal muscles during exhalation) and segmental breathing
- Pursed lip breathing is also useful for reliving dyspnea and control breathing in children. Current technique use passive expiration rather than forced expiration<sup>3</sup>
- Other useful adjunct such as incentive spirometer for post op pulmonary care



### C. Physical training

- Children with respiratory diseases secondary to neuromuscular or musculoskeletal problems represent 2 distinct groups important for physical training as they often experience dyspnea on exertion leading to abstention from any activity<sup>3</sup>.
- Program should include exercises to improve strength and range of motion, body mechanic and postural stabilization and endurance
- Exercises must be administered with close monitoring of signs of early fatigue, cyanosis and dangerously high vital signs due to reduction in oxygen consumption<sup>3</sup>

### Definitions of common physiotherapy techniques<sup>1</sup>

**Directed cough** – a technique that mimics the attributes of an effective spontaneous cough; the cough can be manually assisted by application of external pressure to the epigastric region or thoracic cage during the expiratory phase (as in the patient with neuromuscular disease); sometimes called quad coughing

**Forced Expiratory technique (FET)** – sometimes called huff coughing, this technique consists of one or 2 huffs from mid-to-low lung volumes with the glottis open, followed by relaxed diaphragmatic breathing.

**Chest physiotherapy (CPT)** – this technique has included postural drainage, percussion and vibration. PD is a technique in which the patient is positioned to facilitate gravity drainage of secretions from the airways. Percussion is a technique of clapping the chest wall. Vibration applies fine shaking of the chest wall, usually during the expiratory phase. Percussion and vibration can be applied using either manual or mechanical techniques

**Positive Expiratory Pressure (PEP)** – with this technique the patient exhales against a pressure of 10-20cm H<sub>2</sub>O.

**Flutter** – this technique uses a device that produces PEP with oscillation in the airway during the expiratory phase

**Active cycle of breathing technique (ACBT)** – this technique includes breathing control, FET, Thoracic expansion tech and may include CPT

**Autogenic Drainage** – This is a 3 level breathing sequence beginning at low lung volumes, followed by breathing at mid lung volumes, followed by deep breathing and huff coughing.

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## **PRACTICAL ASPECTS OF SETTING UP A PULMONARY REHABILITATION PROGRAM**

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A comprehensive pulmonary rehabilitation program comprises exercise training, patient education and outcome assessment. The aims are to decrease breathlessness and fatigue, improve exercise tolerance and quality of life, increase participation in physical and social activities, increase the patient's knowledge about their condition and improve self management and survival. In addition, an important aim of pulmonary rehabilitation is to decrease healthcare costs.

There is strong evidence from randomised controlled trials that pulmonary rehabilitation is beneficial for people with chronic obstructive pulmonary disease however in clinical practice patients with other lung conditions are also offered pulmonary rehabilitation and have been shown to benefit.

The strongest evidence exists for the exercise training component and in particular for lower limb endurance training. Some patients with lung disease are breathless when using their arms for everyday activities and for this reason the inclusion of unsupported upper limb exercise training is also important.

An out-patient program offered either in a hospital or in the community is the most common type of program. In this setting, groups of patients attend supervised exercise classes and participate in education sessions. A minimum of two supervised exercise classes a week is recommended and this should be supplemented by a home exercise program on two of three additional days. Programs generally last for between six and twelve weeks however regular exercise beyond this is vital to maintain the benefits of pulmonary rehabilitation.

To evaluate benefit from a program it is important to measure functional exercise capacity and health-related quality of life. This is usually achieved with a field walking test and a validated questionnaire respectively which are completed prior to and immediately following the program.

This presentation will briefly review the evidence for pulmonary rehabilitation and provide practical information for starting up a program.

## **PULMONARY REHABILITATION: THE HUKM EXPERIENCE**

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Statistics for year 2001 – 2003 reported that out of the total new physiotherapy referrals, 70% was for cardiorespiratory physiotherapy i.e. about 4200 cases per year. Following this increasing demand, one physiotherapist was sent to Singapore to attend the Exercise Specialist Course and Certification by the American College of Sport Medicine (ACSM) in December 2003. Subsequently, a clinical placement was done at Tan Tock Seng Hospital, Singapore in June 2005 for a duration of 2 weeks. Operational policy for pulmonary rehabilitation was developed in January 2004.

A two-way discussion was held with between Assoc. Prof. Dr. Roslina Manap (Consultant Respiratory Physician, HUKM) and the Head of Physiotherapy Unit in February 2004 to gather constructive input for the programme from both disciplines.



Objectives for pulmonary rehabilitation are as follows:

1. To decrease respiratory symptoms such as dyspnoea and fatigue
2. Increase exercise tolerance & performance
3. Decrease psychological symptoms such as anxiety and depressions
4. Improve ability to perform ADL
5. Decrease hospitalisation and usage of medical resources
6. To enable patient to return to workplace
7. Improve patients' knowledge on pulmonary diseases
8. Increase survival rate

The programme is divided into five phases;

Phase 1 – 2 weeks : pulmonary adaptation

Phase 2 – 3 weeks : increase adaptation

Phase 3 – 2 weeks : individual session

Phase 4 – 1 week : maintenance period

Phase 5 – 1 week : multidisciplinary education with manual booklet as part of daily diary to keep tab on their performance

- A graduation ceremony will be held once patients complete the 8 weeks programme successfully and a certificate will be awarded.
- Programme has to be continued life long, at home or at day care centres
- Patients will be reviewed by physiotherapists once in every 3 months or half yearly

## PLENARY LECTURE 1

### ASTHMA AND COPD – UPDATE 2005

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Asthma treatment should be tailored to the needs of the individual patient and easily adjusted in response to changes in asthma symptoms and control. Recent large, long-term clinical trials have demonstrated that these standards can be met even with fixed combinations of inhaled corticosteroids and long-acting  $\beta_2$ -agonists in a single inhaler. The GOAL study used an innovative endpoint of asthma control based on the GINA criteria to increase the dose until control was achieved. The fixed combination containing formoterol, a rapid-acting  $\beta_2$ -agonist with a long bronchodilator effect, even has the potential for symptom-driven dosing. Future treatment options are  $\beta_2$ -agonists with a duration of action of up to 24 h, phosphodiesterase 4 inhibitors, and omalizumab (rhuMAB-E25), a recombinant humanized monoclonal anti-IgE antibody that stops the allergic cascade by binding to free IgE.

A recent advance in COPD treatment is the demonstration that treatment with a fixed dose of an inhaled corticosteroid and a long-acting  $\beta_2$ -agonist improves lung function and quality of life, and reduces exacerbation more effectively than either drug alone. Other improvements include tiotropium, a once-daily anticholinergic. In advanced clinical development are other once-daily bronchodilators and combinations of anticholinergic drugs and  $\beta_2$ -agonists. Increased understanding of the pathogenesis of COPD has led to novel drugs aimed at inhibiting targets including phosphodiesterase-4, and various inflammatory mediators. Furthermore, COPD is increasingly seen as a systemic disorder or, indeed may be a pulmonary manifestation of a complex pathophysiological response to chronic inhalation of toxic irritants. Future therapy may involve the development of new drugs that target systemic and metabolic manifestations that either result from or coexist with chronic lung inflammation, hypoxia and cardiovascular disease in COPD.



**PNEUMONIA IN IMMUNOCOMPROMISED PATIENT**

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In this era, all of us are seeing more immunocompromised patients especially those with HIV, cancer and patients who received chemotherapy. Immunocompromised patients are at much higher risk of developing either community acquired pneumonia or nosocomial pneumonia.

Pneumonia in this group of patients is more severe with higher mortality compared to the general. Besides common organisms, they are at higher risk of developing opportunistic infection such as mycobacterium, viruses and fungi. However, in many instances, the aetiology of the pneumonia is uncertain. Clinical judgement and rapid diagnostic are both important in making the diagnosis. Prompt treatment is essential to improve the survival.

In many instances, the infection in immunocompromised can be prevented by treating underlying disease, use of prophylaxis when indicated and ensuring cross infection does not happen. These measures are probably more effective than treating the disease itself.

## SYMPOSIUM 1A

**HOSPITAL ACQUIRED PNEUMONIA: PREVENTION AND MANAGEMENT**

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Hospital acquired pneumonia (HAP), defined as pneumonia that occurs 48 hours or more after hospital admission, is the second most frequent nosocomial infection, accounting for 15 to 20% of these infections. Usually occurring in patients with underlying diseases, it increases nosocomial morbidity and mortality, prolongs hospital stay, and raises health care cost. The incidence of HAP is highest in the ICU, especially among patients who are mechanically ventilated. Most epidemiological and aetiological studies on nosocomial pneumonia have been focused on ventilator-associated pneumonia (VAP), i.e., pneumonia that arises more than 48 – 72 hours after endotracheal intubation.

The bacteriology of HAP varies from one hospital to another, specific sites within the same hospital, and from one time period to another. Local microbiological data and the specific clinical setting should be taken into account when selecting the initial empirical antibiotic therapy. Each hospital and each ICU should ideally have their own antibiogram, which should be updated as often as possible. While early-onset HAP and VAP, defined as occurring within the first 4 days of hospitalization, are more likely to be caused by antibiotic-sensitive bacteria and usually carry a better prognosis, late-onset HAP and VAP (5 days or more) are more likely to be caused by multidrug-resistant (MDR) pathogens, and are associated with increased patient mortality and morbidity. Patients with early-onset HAP who have received antibiotics or who have been hospitalised within the past 90 days or who are residents of healthcare-related facilities are at greater risk for colonisation with MDR pathogens and infection by these organisms should be treated similar to patients with late-onset HAP or VAP.

Lower respiratory tract specimens should be collected for culture from all patients before the commencement (or change) of antibiotic therapy, but collection of cultures should not delay the initiation of therapy in critically ill patients. Quantitative or semi-quantitative cultures of lower respiratory tract specimens (endotracheal aspirate or bronchoalveolar lavage sample) are recommended.

Prompt, appropriate antibiotic therapy in adequate doses improves the outcome of HAP with a lower attributable mortality. Excessive antibiotic usage should be avoided by de-escalation or narrowing of initial therapy to the most focused regimen possible, based on microbiological cultures and the clinical response of the patient. Shortening the duration of therapy to the minimum effective period, as short as 7 to 8 days, is recommended for patients with uncomplicated HAP not caused by *Pseudomonas aeruginosa*, who have received an initially appropriate antibiotic regimen and have had a good clinical response.



**BRONCHIECTASIS VS DIFFUSE PANBRONCHIOLITIS – IS THE TREATMENT DIFFERENT?**

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Bronchiectasis is a chronic respiratory disease of varied etiologies involving repeated infection and inflammation of large and small airways causing permanent dilatation of the airways. The etiologies include an infectious insult, airway obstruction, or a defect in host defence. Diffuse panbronchiolitis (DPB) is a distinct bronchiolar disease of unknown etiology that mainly affects people in Japan, but sporadic cases have also been reported in China, Korea and in many other parts of the world. Although the etiology is not understood, it appears to be inflammatory rather than an infectious disease.

Clinical presentation of an advanced DPB may not be distinguishable from that of bronchiectasis with chronic cough, copious sputum production, exertional dyspnoea, wheezing and hypoxemia. Features of cor pulmonale and respiratory failure may also be present. However, at the early stage of the illness the symptoms would be predominantly related to bronchoconstriction where dyspnoea and wheezing are common. Clinical course of the disease is different from bronchiectasis as it may often show rapid progression with fatal outcome especially if not appropriately treated. Pathological and CT scan findings of DPB are highly characteristics and will be discussed. The recognition of these features is important in order to make correct diagnosis and hence proper treatment. Prolonged treatment with low dose macrolides have been reported to improve symptoms, lung functions, radiological changes and survival although most studies were non randomized and not properly controlled. Other treatment modalities will be discussed.

## SYMPOSIUM 1B

**DIFFUSE PARENCHYMAL LUNG DISEASE IN CHILDREN**

RUS ANIDA AWANG

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Diffuse parenchymal lung disease in children represents a heterogeneous group of rare lung disorders that includes interstitial lung disease, malignancy, lymphoproliferative disorder, chronic infection and vascular disorder. Interstitial lung diseases in children are associated with considerable morbidity and mortality.

The clinical presentations are non-specific and variable. Respiratory signs and symptoms include tachypnoea, rapid shallow breathing, retractions, crackles and cyanosis. Prolong illness will lead to failure to thrive and dyspnoea on exertion.

The diagnostic evaluation of a child with diffuse parenchymal lung disease is a step-by-step process, which includes comprehensive history, physical examination, oxygen saturation (at rest, during exercise or during feeding), a plain chest x-ray and a high resolution thin cut tomography scan of the chest. Pulmonary function studies in older children typically show a restrictive pattern.

Invasive procedures are considered only when other techniques are inconclusive and tissue or alveolar fluid is deemed necessary for a definitive diagnosis or for therapeutic decision. Open lung biopsy has long been considered the gold standard for the diagnosis of diffuse parenchymal lung disease. Video-assisted thoracoscopic (VAT) lung biopsy is a less invasive alternative approach in obtaining biopsies of parenchymal lung disease.



## INTERSTITIAL LUNG DISEASE IN CHILDREN – THE EUROPEAN EXPERIENCE

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Interstitial lung diseases (ILD) are rare heterogeneous conditions of both known and unknown origin. In children these conditions have been studied mostly on small groups of patients and most of the approaches are derived from the adult experience. The growing experience suggests more and more that the pediatric ILD is in many aspects different to the adult conditions, mainly with regard to the pathogenesis, response to the treatment and prognosis.

The ERS Task Force on pediatric ILD organized a study that reviewed current practice in diagnosis and treatment of pediatric ILD across Europe.

Data were collected across Europe on 185 children managed between 1997 and 2002. The mean duration of symptoms before diagnosis was 6 months. Most children presented with cough and tachypnea, in two thirds of children younger than 2 years there was noted a significant failure to thrive. Specific diagnosis could be made in 52%. These included hypersensitivity pneumonitis, pulmonary hemosiderosis, sarcoidosis, Langerhans cell histiocytosis and others. In 48% the condition was labeled as "idiopathic". In 78 children the diagnosis was based on non-invasive tests only (including BAL), among those verified by lung biopsy, the open-lung biopsy was the mostly used method. In treatment, most of the children were treated with steroids, second most frequently used drug was hydroxychloroquine. Other treatments included azathioprine, cyclosporine, methotrexate, cyclophosphamide and some others. The outcome was better than reported in adults. Improvement was registered in 74% of children, in 17% there was at least stabilization of the condition, 2% deteriorated and only 6% died.

Based on this cross-sectional study the Task Force recommended further multicentric prospective collaboration that would include also gathering evidence for more precise genetic and pathological studies.

## SYMPOSIUM 1B

## INTERSTITIAL LUNG DISEASE IN CHILDREN – RECOMMENDATIONS FOR THE MANAGEMENT

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### DIAGNOSIS

Major attention must be paid to the early clinical presentation. Early symptoms are cough, exercise intolerance, inspiratory crackles and tachypnea. Laboratory tests are mainly supportive but may help to exclude active infection, systemic autoimmune disease or hypersensitivity reaction. Key imaging technique in this diagnostic process is the HRCT.

Bronchoscopy has been widely used for performing BAL. BAL may be diagnostic in cases when specific pathologic material would be retrieved (hemosiderin-laden macrophages, CD1a positive cells etc.)

Pulmonary function tests are essential for the assessment of functional impairment and also for monitoring response to the treatment. Main accent should be put on proper measurement of lung volumes including besides VC also TLC, FRC and RV. Monitoring of oxygen saturation at rest and during exercise is very important as is also the assessment of diffusion capacity (DLCO).

Histological evaluation of lung tissue is the final step in a series of diagnostic methods in non-conclusive situations. It is recommended to perform targeted biopsy based on the HRCT. Open lung biopsy or video assisted thoracoscopy are the most reliable methods.

### TREATMENT

Most children profit from steroids, but also hydroxychloroquine has been shown as effective, mostly in cases with expressed fibrotic activity. Alternatively, azathioprine, cyclosporine, methotrexate and cyclophosphamide have been used. Lung transplant remains the last resort in refractory progressive cases as it is the case in adults. In all cases the treatment effect should be actively and carefully objectively monitored and any reduction or even stopping of the treatment should be done in slow steps and in well documented full remission of the disease.



**STAGING OF LUNG CANCER: AN UPDATE**

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In many patients, a presumptive diagnosis of lung cancer can be made with a high degree of confidence based on the patient's age, risk factors, and the radiographic appearance of the tumour. It is often possible to predict whether the tumour is more likely to be small cell lung cancer (SCLC) or non-small cell lung cancer (NSCLC) (eg, rapid growth and marked mediastinal lymphadenopathy without a peripheral lung lesion is typical of SCLC). Tissue confirmation of malignancy and of the cell type must be obtained. The next issue is the extent of disease (staging), i.e., whether the hilar and mediastinal lymph nodes are involved or not and whether intrathoracic or distant metastases are present or not. For staging, all patients should undergo computed tomography (CT) of the thorax and upper abdomen to include the liver and adrenals. Patients with signs and symptoms of systemic metastases (eg, fatigue, weight loss, poor appetite, neurological signs and symptoms, bone pain) must be verified by imaging tests such as a brain CT or MRI and a bone scan. An exception to this approach is patients with fairly obvious metastases in whom this can be confirmed by a biopsy of a metastatic site or by a skeletal plain radiograph alone. MRI should be performed for tumours of the superior sulcus to define the relationship of the tumour to adjacent neurovascular structures.

PET imaging, if available, is most useful for confirmation of the presumed extrathoracic stage in patients with intermediate stages of lung cancer. PET imaging is particularly useful in patients with an atypical presentation, a solitary site of metastasis, or with lesions that are indeterminate on other scans. For example, patients may present with an enlarged adrenal gland, an indeterminate liver lesion, or a second pulmonary nodule. PET scan is an excellent study to either rule out or rule in malignant involvement in these sites provided the lesion is > 1 cm in diameter. The role of PET imaging is limited in patients with strong clinical signs of metastatic disease, or in patients with a clinical stage I lung cancer. With regard to intrathoracic staging, PET imaging has a definite role in institutions where mediastinoscopy is not available, whereas the impact is limited when invasive mediastinal staging is available. A positive PET result in the mediastinum should be confirmed by biopsy because the false positive rate is 15 to 20%. It is unclear and controversial whether a mediastinal biopsy is needed in patients with clinical stage II lung cancer who have no PET uptake in the mediastinum. In patients with a peripheral clinical stage I lung cancer, it is reasonable not to order a PET scan for staging because the chances of finding either distant metastases or mediastinal involvement on PET imaging are quite low.

Proof of the diagnosis of SCLC is generally obtained from whatever site and method is easiest. This may involve sputum analysis, bronchoscopy, needle aspiration of a supraclavicular node or a pleural effusion, or transthoracic needle aspiration of a mediastinal tumour.

NSCLC of stage IA/B and stage IIA/B are surgically resectable, provided that the patient has adequate pulmonary reserve and is also medically fit for surgery. Resection offers the best chance for a cure of early-stage NSCLC. The 5-year survival rates for pathologic stage IA disease (T1N0M0) and stage IB disease (T2N0M0) are 67% and 57%, respectively. Unfortunately, few patients have their lung cancer detected while it is in an early stage. Although screening offers the hope that lung cancer can be diagnosed at an earlier stage, with a greater chance of a cure, to date, no screening tool or test has been shown to decrease lung cancer mortality. Spiral CT scan screening is the most promising tool currently available that offers a substantial chance of detecting lung cancer at a smaller size. However, its impact on lung cancer mortality is yet to be seen.



## NON-SURGICAL MANAGEMENT OF LOCALLY ADVANCED AND METASTATIC NON-SMALL CELL LUNG CANCER: AN UPDATE

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Lung cancer is the commonest cancer world-wide and is the commonest malignancy among Malaysian men. Despite advances in imaging and tumour biology, late presentation is seen in three-quarters of patients, Cure is a remote possibility for patients with stage III disease and is not possible in Stage IV disease. For the majority of patients, prolongation of life with good symptom palliation and quality of life are key issues. For a highly selective group of fit patients with locally advanced, curative radiotherapy with or without chemotherapy may be attempted. Patients with metastatic disease often derive benefit from short duration palliative chemotherapy with cisplatin combinations still being considered as standard of care. Older and less fit patients can be treated with single agent chemotherapy with reasonable extension of life despite a lower response rate. Radiotherapy is very useful for palliation of chest symptoms and bone metastases with minimal inconvenience to patients as only short fractionation schedules are required. Several new "targeted" therapies are in development with the promise of efficacy with minimal side-effects. Despite their promise, early results have been disappointing and in the absence of definite proof, the use of these new drugs must be with caution. Rapid development in this field promises a larger and more effective armamentarium in the future for lung cancer.

## SYMPOSIUM 2A

## SURGICAL MANAGEMENT OF LUNG CANCER AND AN UPDATE

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Lung cancer is the most common cancer in males in Malaysia and the 6<sup>th</sup> commonest cancer in females according to the cancer registry, Malaysia 2002. Survival from lung cancer depends on cell type and stage of disease at presentation. Preoperative assessment and investigation is crucial in providing the surgeon with adequate information about the suitability of the candidate for curative surgery. Adhering to the guidelines of oncological surgery is imperative and important in securing good outcomes and results for patients with lung cancer.

The survival of patients undergoing surgical resection of lung cancer is generally good for patients with stage I NSCLC (80 – 85% T1 and 67 – 68% T2 at 5 years), Adjuvant therapy in this group is only useful for patients with positive resection margins. For stage II NSCLC, the survival is about 40 – 50% at 5 years. Local recurrence rate is lower for patients given adjuvant therapy however there is no difference in survival. In stage IIIA, the survival of patients depends on the N2 disease and also proximity of the tumour to the carina. The overall survival rates are approximately between 20 – 50% at 5 years. Adjuvant radiotherapy appears to reduce local recurrence but not survival, however adjuvant chemotherapy seems to have a modest survival benefit. Only in carefully selected patients with stage IIIB disease will be offered surgery and survival in this group is only between 15 – 20% at 5 years.

Surgical treatment for non-resectable NSCLC tumours are mainly for symptomatic relieve such as in recurrent malignant pleural effusion. There have been attempts to downgrade tumour staging by giving preoperative chemotherapy although the evidence is still not very encouraging.

For small cell carcinoma (SCLC), surgery is not the primary modality of treatment and is only indicated in a small group of patients.

In summary, the surgical management for lung cancer has not evolved much in the last 3 decades and survival for patients with lung cancer is still dismal. It is hope that with better screening method, newer chemotherapy and radiotherapy lung cancer can have a better outcome in the future.



## TRACHEOMALACIA AND BRONCHOMALACIA

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Instability of the airways may be a significant cause of obstructive ventilatory impairment. In children this is frequently caused by primary immaturity of the airways. However, often tracheomalacia is associated with other problems, such as tracheo-esophageal fistula, vascular compression or abnormal bronchial branching. Often tracheo/bronchomalacia can be found as sequelae of bronchopulmonary dysplasia or even uncomplicated prematurity. Secondary dynamic airway obstruction is mostly associated with chronic inflammation and may significantly contribute to clinical symptoms in patients with cystic fibrosis, chronic bronchitis, primary ciliary dyskinesia and others.

In small children the obstructive symptoms caused by malatic airways may be difficult to differentiate from obstructive symptoms in early bronchial asthma. Appropriate clinical differential diagnosis may provide a clue, in many cases direct endoscopic assessment leads to final diagnosis. In such cases bronchoscopy must be performed with preserved spontaneous breathing to allow for evaluation of dynamic airway obstruction. In cooperative children it is of major advantage to perform bronchoscopy in mild sedation only and assess the airways under various regimens of breathing and breathing maneuvers.

The majority of small children with dynamic airway obstruction gradually recover with active conservative approach. In cases associated with vascular compression surgical management may be considered. In most severe cases stenting may be an option but there are still many difficulties associated with using tracheal or bronchial stents in children.

Surgical tracheoplasty may provide a permanent solution in cases where there is no chance of improvement.

## SYMPOSIUM 2B

## BRONCHIOLITIS OBLITERANS

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Bronchiolitis Obliterans (BO) is a chronic respiratory inflammatory disorder that results in the obstruction and/or obliteration of small airways. The development of BO follows an acute injury process such as infection ie adenovirus, Mycoplasma pneumoniae, collagen vascular disease, drug hypersensitivity and toxic inhalation injuries. Post-infectious BO remains the most common entity of this disorder seen in children in Malaysia. However, BO is of exceptional importance in paediatric recipients of allogeneic bone marrow and lung transplant.

Children with BO have varying degrees of breathlessness, wheezing, cough and exertional intolerance. The hallmark of BO is the persistence of respiratory symptoms after the initial acute respiratory event. Clinical findings are non-specific and variable, largely dependent on the degree of airway obstruction. Although lung biopsy remains the most accurate method to diagnose BO, less invasive investigations to assist in the diagnosis include high resolution computed tomography (HRCT) of the chest, broncho-alveolar lavage cyto-chemistry and lung function studies. HRCT of the chest findings of hypo-attenuation mosaic patterns, bronchial pruning, "tree in bud" appearance and differential segmental hyperinflation are common in BO and may be considered diagnostic when present in combination with the clinical picture of BO. BO in lung transplant recipients is indicative of graft dysfunction and early recognition is largely dependent on changes in lung function namely a decline in FEF25 – 75.

There is no current definitive treatment for BO. Failure of treatment is due in part to the relatively late diagnosis of BO at which time there is significant irreversible fibrosis and airway obliteration. Immunosuppressive treatment using methylprednisolone, hydroxychloroquine and cyclosporine for BO yielded variable results.

The prognosis of BO in the non-transplant population is difficult ascertain. The majority of children continue to have both persistent respiratory symptoms and signs and abnormal lung function.



**FLEXIBLE BRONCHOSCOPY – MY PERSONAL PRACTICE**

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Flexible bronchoscopy has developed into major instrumental diagnostic method in respiratory medicine. For more than 20 years the flexible bronchoscopy has replaced rigid technique in children and has been used in most diagnostic and even in some therapeutic indications. The main advantage of flexible bronchoscopy is in the possibility to perform bronchoscopy with full cooperation of the patient or at least under anesthesia with preserved spontaneous breathing. Also the reach of the flexible bronchoscope into the peripheral airways is better than with the rigid instrument.

In the Czech Republic the pediatric flexible bronchoscopy has been introduced into practice by our service in 1989. Since then several centers have been established and now there are 8 centers in the country where diagnostic flexible bronchoscopy is routinely performed.

In the center for pediatric pulmonology and bronchology of the University Hospital of the 2<sup>nd</sup> Medical School of Charles University in Prague we yearly perform about 300 diagnostic flexible bronchoscopies in children of all ages. The center is equipped with all sizes of pediatric bronchoscopes and has full availability of complementary methods with a very good laboratory background. The center serves as tertiary consult center for pediatric pulmonology and we therefore see patients with various pathologies from all over the country. Our center also serves several neonatal ICUs in Prague even for emergency bronchoscopies. There is also a large experience in use of flexible bronchoscopy in various pediatric obstructive airway problems. The center serves also as a training center for pediatric flexible bronchoscopy within the postgradual curriculum in pediatric pulmonology in the Czech Republic; however, it is open also to trainees from abroad.

**UNUSUAL CHEST XRAYs**

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Chest Radiology is the cornerstone of Respiratory Medicine. With advances in Chest Radiology, esp with rapidly improving CT techniques, the question remains as to whether the plain film Chest Xray remains relevant in clinical practice today.

It is my opinion that the plain film Chest Xray remains a very important investigation that all Physicians must master. Sadly, many of our trainees today rush into looking at the CT of the patient even before looking at the plain film or comparing with previous films. In this presentation, I will show a few interesting Chest Xrays from my personal collection.



## HRCT OF INTERSTITIAL LUNG DISEASES

GNANA KUMAR

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High Resolution Computed Tomography (HRCT) because of its excellent spatial resolution allows the visualization of the lung parenchyma in thin slices (0.5 mm – 2 mm) at 10 mm intervals. This means that between 8 – 9.5 mm thickness of the lung is not imaged between each slice. These scans do not require the administration of intravenous iodinated contrast media and are typically done in full inspiration. When required prone or expiratory scans should be added.

With the advent of newer Multidetector CT scanners (4 – 64 slice per rotation) which are capable of imaging the entire thorax in a single breath hold (less than 8 seconds) it is possible to acquire volumetric data of the entire lung (VHRCT).

In the evaluation of interstitial lung disease HRCT should be interpreted in conjunction with the clinical information and other relevant tests. HRCT is more sensitive than a chest radiograph in detecting if the lung parenchyma is normal or not.

Among the different appearances seen on HRCT include nodules, linear/reticular abnormalities, ground-glass opacity, consolidation and cystic (honeycomb) areas.

It also shows the extent of disease better and together with the clinical information can suggest the diagnosis and therefore reduce the need of biopsy in some cases. It is useful in assessing the disease activity and response to treatment. It can provide information as to which part of the lung to best biopsy.

## ROLE OF PET SCAN IN RESPIRATORY DISEASES

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Positron emission tomography (PET) has been used as a research tool for many years. The advent of whole-body scanning techniques and improved camera resolution has enabled its use to permeate into clinical practice, particularly oncology imaging. PET scan in oncology is based on the principle that tumour cells have a much higher rate of glycolysis compared to non-neoplastic cells. Based on these differences, PET is able to visualize and locate these malignant lesions. In respiratory diseases, the use of PET is most established in the diagnosis of lung nodules and staging of non-small cell lung cancer (NSCLC).

Studies evaluating PET in the diagnosis of solitary pulmonary nodules (SPN) 1 cm in diameter or more have found an average sensitivity of 96.8% and specificity of 77.8%. When PET and conventional CT thorax have been compared for their accuracy in determining nodal metastases in NSCLC, PET has universally been found to be superior to CT with an average sensitivity of 88% and specificity of 91%. Whilst PET may have revolutionized physicians' practices in this area of respiratory disease, users must be wary of its pitfalls. Benign pulmonary lesions with high metabolic rates, including infectious and non-infectious granulomatous lesions, are well known to cause false-positive PET scans. Similarly, false-negative PET scans are known to occur in lesions with low metabolic activity such as bronchioloalveolar cell carcinoma and carcinoid tumours.

In respiratory oncology, PET scan has proven to be extremely valuable by providing a non-invasive method of selecting patients for aggressive intervention without contributing to increased morbidity. However, limitations of this imaging modality do not obviate the need for histological tissue confirmation. As the field of PET imaging evolves, other potential uses include planning of radiotherapy, determination of prognosis, and development and clinical application of new radiotracers. The future of PET remains promising and exciting.



**CHILDHOOD ASTHMA**

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The hygiene hypothesis and endotoxin exposure continue to be discussed with review of old and evaluation of new data. The debate over the relationship of animals and asthma has been the most prolific. American studies now mirror European studies showing a lower prevalence of asthma in children growing up on a farm. Owning a pet cat or dog and time of exposure also influence the development of atopy and disease and more studies on pet exposure have been reported.

Apart from dose and timing of allergen exposure, sensitization and disease also depend on the genetic susceptibility of the child and these important gene-environment interactions may allow us to develop specific methods of allergy prevention that can be targeted at high-risk children rather than general recommendations for all.

Apart from the aetiology of asthma, genetics also had a showing in its treatment.

Pharmacogenetics opens up an interesting possibility of tailoring an individual's therapy to his genetic make-up. The relationship between specific genetic polymorphisms and response to beta-adrenergic agonists and leukotriene modifiers may mean that more appropriate interventions are used for particular categories of patients depending on their genetics.

One of the best-known and most impactful recent studies has been the GOAL (Gaining Optimal Asthma Control) study showing that 70% of patients with persistent asthma can achieve well-controlled status with combination therapy. Although this was conducted in an adult population, extrapolation of the findings to the paediatric population has resulted in a far greater use of fixed combination (steroid and long-acting bronchodilator) therapy in the management of asthma at a lower level of severity than advocated in the guidelines. There has also been encouraging data on the use of sliding doses of combination therapy.

The link between the upper airways and the lower airways continues to receive attention and it is increasingly accepted that control of both parts of the airway is essential. Single agents can confer benefits to both (leukotriene antagonists, newer anti-histamines) but adequate control of both may require more directed treatment.

The link between obesity and asthma has opened up another area where intervention may be beneficial. In the wake of the modern epidemic of obesity, this has assumed greater importance.

The last year or so has seen on-going discussions and new material. Of one thing we can be sure – the story continues.



**RESPIRATORY INFECTIONS**

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Respiratory infections still represent a major cause of morbidity, but also of mortality in both adults and children. In the year 2004 the published papers concentrated mainly on several main topics that have been discussed already in the past years.

One of the leading topics remains pneumonia and various aspects of its treatment. Epidemiological data have been discussed and several papers have again pointed out the differences between assessing the situation in developing and developed world. Trials with antibacterial vaccines that aim at reducing morbidity are ongoing and should bring not only direct clinical benefit to the patients, but also some general information about epidemiology of pneumonia in the developing world. Also some aspects of influenza vaccination around the world have been widely discussed.

One of the prominent issues is growing resistance of bacteria to the antibiotic therapy. These trends should be always on mind of prescribing physicians and unnecessary overuse of antibiotics should be avoided.

Similarly as in the recent past years, the SARS still remains an important subject of many published papers. Thanks to the scientific vigility of the colleagues who treated the cases during this epidemic and did not neglect the immediate systematic collection of scientific data, we may now see several papers that evaluate many long term aspects of this severe epidemic infection.

**PLENARY LECTURE 2****THE MANY FACES OF GERD – “ACID ASTHMA”**

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Gastroesophageal reflux disease (GERD) has traditionally been thought to be a GI disease. We now understand that it has in fact protean manifestations. Extra oesophageal or atypical manifestations are not uncommon and are important presentations of the disease. GERD induced asthma is well recognized. The underlying mechanisms include macro and more importantly micro aspiration and acid induced oesophago-bronchial reflex, which is neurally mediated by the vagus nerve. The causal association of GERD in asthma is shown by the close association between the two diseases, the timing of asthma episodes with acid reflux on pH monitoring and finally, by the response to treatment of asthma with potent acid suppression therapy with proton-pump inhibitors (PPIs).

In a local study carried out at the University of Malaya Medical Centre, patients with “difficult-to-control” asthma as defined by the GINA guidelines were treated with an 8-week course of standard dose PPIs. Patients with GERD experienced a significant improvement in their asthma symptom score at the end of therapy, whereas the non-GERD patients who received a similar course of PPIs experience no improvement in their asthma symptom score. This and other similar studies underline the critical role of GERD in a subset of patients with “difficult -to-control” asthma.

GERD associated asthma patients often do not present with typical GERD symptoms such as heartburn and acid regurgitation. Treatment with PPIs may need to be longer and with a higher dose of PPIs and response to treatment may not be as dramatic as with classical GERD.



**MANAGEMENT OF MASSIVE HEMOPTYSIS**

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Massive hemoptysis is a common clinical problem which may result in admission of the patient to the Intensive Care Unit. Aggressive and early management up front is of crucial importance. Management by a physician well trained in airway control, ventilator management and bronchoscopy probably results in a favorable outcome. In this presentation, I will highlight some very important pearls in the management of such a patient.

**CHRONIC COUGH: HOW TO INVESTIGATE AND TREAT**

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Chronic cough is a common clinical problem presenting to general practitioners. Approximately 5 – 10% of new patients seen in respiratory clinics are referred with an isolated chronic cough. Evaluation of chronic cough based on the “anatomic, diagnostic” protocol originally is based on the view that most cases of nonasthmatic chronic cough are caused by rhinosinusitis and/or gastro-oesophageal reflux. Others have advocated empirical treatment trials based on a best guess of the underlying cause of the cough. The former approach often leads to an exhaustive and expensive number of investigations, which, in any one patient, could include: spirometry; peak expiratory flow monitoring; a methacholine inhalation test; induced sputum analysis; endoscopic examination of the upper and lower airways and upper gastrointestinal tract; computerised tomography (CT) of the thorax and sinuses; and oesophageal manometry and pH monitoring. Abnormalities of some of these tests are common in patients with airway disease of any kind; other tests, such as bronchoscopy and chest CT scanning, have a very low yield in the absence of suggestive symptoms or chest radiographic changes. Recently, a probability-based algorithm for the investigation and management of chronic cough has been advocated. There is increasing recognition amongst clinicians with an interest in cough that an important minority of patients have no obvious cause for their cough.

Specific treatment is directed at the underlying cause of cough and multiple or rarer causes that may not be immediately evident need to be considered in cases of treatment failure.

**PRIMARY PULMONARY HYPERTENSION: TREATMENT UPDATE**

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Primary pulmonary hypertension (PPH) is often diagnosed at a late stage and tends to progress relentlessly leading to Right Ventricular (RV) failure and death.

Pulmonary hypertension can be due to a variety of causes, and these causes need to be excluded as some of them are potentially treatable. PPH itself has multifactorial pathobiology including vasoconstriction, remodeling of the pulmonary vessel wall, and thrombosis. Understanding of this pathogenesis has evolved over time resulting in improvement of treatment outcomes. The management of PPH has evolved from vasodilators to treat vasoconstriction, to targeting the processes that leads to endothelial proliferation and disease progression. These involve newer agents like prostanooids and endothelin receptor antagonists.

Treatment of PPH can be divided into non pharmacologic and pharmacologic therapies.



### Non-pharmacological therapy

Non-pharmacological measures would include the use of supplemental oxygen, atrial septostomy and ultimately lung or heart-lung transplantation. Transplantation is however limited by shortage of donors.

### Pharmacologic Therapy

These can be divided into conventional or specific therapies. Conventional therapy:

1. Calcium antagonists. These are useful in patients who respond to vasodilators, but they constitute a minority of patients.
2. Anti failure therapy. These include diuretics, aldosterone antagonist and digoxin and are useful for symptom relief in patients who have developed RV failure.
3. Anticoagulation with Warfarin.

Specific therapy:

1. Endothelin receptor antagonist e.g. Bosentan.
2. Prostanoids e.g. prostacycline (or epoprostenol), treprostinil, iloprost
3. Phosphodiesterase inhibitors e.g. Sildenafil

The role of these therapies in patients with PPH will be discussed. One of the problems with specific drug therapy is the cost of these drugs. Further understanding of the pathogenesis of this condition will help to improve the prognosis of this devastating disease. It may be helpful for patients with PPH to be managed at specialized centers.

## **SYMPOSIUM 5**

### **SARCOIDOSIS: ISSUES IN DIAGNOSIS AND TREATMENT**

RICHARD LOH LI-CHER

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Sarcoidosis is a systemic inflammatory disorder of unknown etiology, characterized by the formation of noncaseating granulomas, involving different organs in the body.

Intrathoracic (pulmonary and lymph node) involvement is frequent, up to more than 90% in some reported case series. Despite the current evidence that sarcoidosis is found worldwide, the study of its epidemiology has been challenging. The main reasons for this are the lack of consistency in case definition, variability in disease presentation and a lack of sensitive and specific diagnostic tests, compounded by the scarcity of systematic epidemiologic studies. All these have led to low rate of diagnosis as well as misdiagnosis of the disease. This is especially true in countries like ours where tuberculosis, another granulomatous disease, features dominantly and empirical trial of corticosteroids alone in this setting can have serious clinical consequences.

While corticosteroids remains the most effective treatment for sarcoidosis, decision to initiate and maintain treatment is highly dependant on the severity of symptoms, nature of organ involved and likely course of the disease. Its indication is normally clear if the disease is life-threatening or "sight"-threatening (ocular sarcoidosis). For asymptomatic pulmonary sarcoidosis, a watch and wait approach is probably most appropriate. There have been other valuable alternatives tried in the past few years. Example of such is leflunomide, an inhibitor of nucleotide synthesis, in treating chronic sarcoidosis. Several immunosuppressive agents have also tried but they probably best viewed as 'steroid-sparing' agents.

Recently, International Consensus Statement<sup>1</sup> recommendations regarding diagnosis and therapy reiterated that the diagnosis of sarcoidosis should still be based on a compatible clinical and/or radiological picture, histological evidence of noncaseating granulomas and exclusion of other diseases capable of producing a similar histological or clinical picture. This lecture seeks to highlight some of these recommendations relevant to practicing physicians in Malaysian context and as much as possible, published research work from Malaysia.

### **References:**

- 1 Huninghake GW et al. ATS/ERS/WASOG Statement on Sarcoidosis. *Sarcoidosis Vasc Diffuse Lung Dis* 1999; 16: 149-173



## FREE PAPERS

- FP 01**      **SERUM AND PLEURAL FLUID CANCER ANTIGEN 125 (CA125) LEVELS IN PATIENTS WITH PLEURAL EFFUSIONS**      **34**  
Soon Hin How, Chong Kin Liam\*, A R Jamalludin, Zal Ab Rahim\*  
*International Islamic University Malaysia, Kuantan, Pahang, Malaysia*  
*\*University of Malaya, Kuala Lumpur, Malaysia*
- FP 02**      **CLINICAL CHARACTERISTICS OF FIRST ADMISSIONS AND READMISSIONS FOR ACUTE ASTHMA**      **34 – 35**  
Noor Hafiza N, Norzila M Z, Zulkifli S Z\*  
*Department of Paediatrics, Institut Pediatrik, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia*  
*\*Department of Paediatrics, Hospital Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*
- FP 03**      **PREDICTORS OF POSITIVE BLOOD CULTURES IN PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA**      **35**  
Y K Pang, C K Liam, C H Leow, P Shyamala, Ab Zal  
*Department of Medicine, University Malaya Medical Centre (UMMC), Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia*
- FP 04**      **POST HOC ANALYSIS OF COST BENEFIT OF USING ETHYL CHLORIDE SPRAY VS 2% LIGNOCAINE TO REDUCE PAIN ASSOCIATED WITH RADIAL ARTERY PUNCTURE IN HOSPITAL UNIVERSITI KEBANGSAAN MALAYSIA (HUKM)**      **36**  
Mohd Zamri Abdul Rahman, Roslan Harun, Rizal Abdul Manaf\*, Fauzi Mohd Anshar  
*Department of Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Malaysia*  
*\*Department of Public Health, Faculty of Medicine, Universiti Kebangsaan Malaysia, Malaysia*
- FP 05**      **SURGERY FOR EMPYEMA THORACIS: THE NORTHERN REGION EXPERIENCE**      **36 – 37**  
Ko Chung Sen  
*Consultant Cardiothoracic Surgeon, Ipoh Specialist Hospital, Ipoh, Perak, Malaysia*
- FP 06**      **DRUG INDUCED HEPATITIS (DIH) FROM 1<sup>ST</sup> LINE ANTITUBERCULOSIS DRUGS AMONG PATIENTS TREATED FOR ACTIVE TUBERCULOSIS – RESPIRATORY UNIT, PENANG HOSPITAL 2004**      **37**  
Ong C K, Tan W C\*, Abdul Razak M  
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## SERUM AND PLEURAL FLUID CANCER ANTIGEN 125 (CA125) LEVELS IN PATIENTS WITH PLEURAL EFFUSIONS

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### OBJECTIVES

To determine the frequency of raised serum CA125 levels in patients with pleural effusions and to explore factors affecting its elevation.

### METHODS

All patients with pleural effusions admitted to the University Malaya Medical Centre from May 2001 to January 2002 were included in the study.

### RESULTS

64 patients had benign effusions and 36 patients had malignant effusions (secondary to lung carcinoma in 22 patients and other malignancies in 14 patients). There was no significant difference in age, gender, ethnicity and side of pleural effusion between the benign and malignant groups. However, moderate to large effusions were more common in patients with malignant effusions than in patients with benign effusions (66% vs 39%,  $p = 0.011$ ).

Serum CA125 levels were above the cut-off level of 35U/dL in 78.1% and 83.3% of patients with benign and malignant effusions, respectively ( $p = 0.532$ ). The CA125 level was above 35U/dL in all malignant effusions and in 95.3% of benign effusions ( $p = 0.187$ ). The median CA125 levels were higher in the pleural fluid than in the serum in both the benign and malignant groups. The serum CA125 levels were higher in female patients ( $p = 0.016$ ), patients with moderate to large effusions ( $p = 0.015$ ), and those with malignant effusions ( $p = 0.001$ ). There was a significant correlation between serum CA125 level and pleural fluid CA125 level ( $r = 0.532$ ,  $p < 0.001$ ) but no correlation between serum CA125 level and pleural fluid white blood count ( $r = -0.092$ ,  $p = 0.362$ ), red cell count ( $r = -0.082$ ,  $p = 0.417$ ) and LDH level ( $r = 0.062$ ,  $p = 0.541$ ).

### CONCLUSIONS

Elevated CA125 levels in the serum and pleural fluid are common in patients with both benign and malignant pleural effusions.

## CLINICAL CHARACTERISTICS OF FIRST ADMISSIONS AND READMISSIONS FOR ACUTE ASTHMA

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### INTRODUCTION

In Malaysia, the prevalence of childhood asthma has been reported to be 12% and asthma in children is still under-diagnosed and often not managed optimally.

### OBJECTIVES

To compare the characteristics of children with readmissions to hospital for acute exacerbation of asthma with those having their first admission for asthma and to identify the differences between this two groups in terms of selected factors.

### METHODS

This was a cross sectional study done within a time period of six months in Institut Pediatrik, Hospital Kuala Lumpur. It consisted of all children aged 1 – 12 years with their first ever asthma admission and children with at least one readmission because of asthma exacerbation. Six potential risk factors for asthma admission were identified in the study. Statistical analysis was done using Chi-square and t-test.



## RESULTS

A total of 196 children were enrolled in the study. There were 121 males (61.7%) and 75 females (38.3%) children. When comparing first admission (FA) and readmission (RA) groups, there were significant differences in terms of age of asthma diagnosis ( $p = 0.005$ ), duration of asthma ( $p = 0.001$ ), and pattern of asthma ( $p = 0.005$ ). There were significant differences in the type of treatment ( $p < 0.001$ ), and type of inhalers prescribed ( $p = 0.006$ ) between the two groups. The mean asthma score was low in the two groups ( $p = 0.568$ ). Both groups have the potential risk factors for future asthma admission.

## CONCLUSION

The study has showed that the RA group has better overall asthma management strategy as compared to the FA group.

FP 03

## PREDICTORS OF POSITIVE BLOOD CULTURES IN PATIENTS WITH COMMUNITY ACQUIRED PNEUMONIA

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## OBJECTIVE

To define the clinical features and laboratory findings on admission predicting bacteraemia in patients hospitalised for community acquired pneumonia (CAP).

## METHODS

A prospective study on consecutive non-immunocompromised patients aged 12 years and above admitted to the medical wards of UMMC for CAP.

## RESULTS

During the period of study, a total of 352 patients with a mean ( $\pm$  SD) age of 56 ( $\pm$  20) (range, 13 to 97) years were admitted for CAP. The blood culture of 27 (7.7%) patients was positive. The pathogens isolated from the blood included *Klebsiella pneumoniae* in 10 patients; *Streptococcus pneumoniae* in 8; *Staphylococcus aureus* in 6; and *Haemophilus influenzae*, *Escherichia coli* and *Acinetobacter* species in one patient each. Multivariate analysis showed that the clinical features of CAP that were independently predictive of positive blood culture were an admission heart rate above 100/min (odds ratio, 2.64; 95% confidence interval, 1.04 to 6.74;  $P = 0.042$ ) and admission serum creatinine greater than 130  $\mu\text{mol/L}$  (OR, 3.09; 95% CI, 1.24 to 7.72;  $P = 0.016$ ). Prior antibiotic therapy within 7 days before hospitalization was negatively associated with positive blood culture (OR, 0.24; 95% CI, 0.09 to 0.63,  $P = 0.004$ ).

## CONCLUSIONS

Tachycardia above 100 per minute and raised serum creatinine on admission were predictors of positive blood cultures in patients hospitalized for CAP. Blood cultures were less likely to be positive in patients who had received prior antibiotic therapy within 7 days of hospital admission.



## POST HOC ANALYSIS OF COST BENEFIT OF USING ETHYL CHLORIDE SPRAY VS 2% LIGNOCAINE TO REDUCE PAIN ASSOCIATED WITH RADIAL ARTERY PUNCTURE IN HOSPITAL UNIVERSITI KEBANGSAAN MALAYSIA (HUKM)

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### INTRODUCTION

Radial artery puncture for arterial blood gas sampling produces moderate pain which can be reduced by administering a local anaesthetic agent. We performed a study showing that ethyl chloride spray is as efficacious as subcutaneous infiltration of 2% lignocaine in reducing the pain (submitted for publication). A post hoc analysis was done to compare the cost of using each local anaesthetic agent.

### OBJECTIVES

To compare the cost of radial artery puncture using the two local anaesthetic agents.

### METHODOLOGY

A group of adult patients requiring arterial blood gas sampling in HUKM were randomized into two groups (2% lignocaine infiltration and ethyl chloride spray prior to radial artery puncture). A visual analogue score (VAS) was used to assess pain. The cost for each group was calculated based on HUKM cost of procurement and was compared.

### RESULTS

Sixty six patients entered the study (n = 33 each group). The median VAS for both agents was 1.1 cm but interquartile range for ethyl chloride and 2% lignocaine was 1.7 cm and 1.4 cm respectively. The difference was not significant, p = 0.953. The cost to perform radial artery puncture for ethyl chloride and 2% lignocaine was RM0.24 and RM0.75 respectively (ethyl chloride was 68% cheaper)

### CONCLUSION

Both agents are equally effective in reducing pain but using ethyl chloride spray would produce greater cost saving.

## SURGERY FOR EMPYEMA THORACIS: THE NORTHERN REGION EXPERIENCE

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### BACKGROUND

Empyema thoracis remains a serious thoracic infection, with mortality as high as 20% reported despite modern treatment.

### OBJECTIVE

To review the management and outcome of patients with empyema thoracis treated surgically.

### METHODOLOGY

Hospital records of all patients operated for empyema thoracis between were reviewed retrospectively. A total of 35 patients were evaluated.

### RESULTS

85.7% of patients were males 30/35. The mean age is 33.5 (1.5 – 64 years). Ten patients were from the paediatric age group 10/35 (28.6%). The aetiology of empyema was tuberculosis in 9 patients 9/35 (25.7%) and in another 26 patients recorded to be pyogenic in origin although cultures were positive in only 7 (26.9%) patients. Undiagnosed carcinoma were found in two patients (5.7%) and tuberculosis in 4 (11.4%) patients. Rib resection and open drainage was performed in



5 patients (14.3%) while the rest underwent thoracotomy and decortication. Thoracoplasty was required in 4 patients (11.4%) who had tuberculosis. There was a single mortality (2.8%) in the patient who had unexpected malignancy. The rest of the patients were discharged well.

## **CONCLUSION**

Empyema thoracis can be managed with good outcome as well as low morbidity and mortality, even in cases requiring thoracoplasty. Management of tuberculous empyema remains a formidable challenge necessitating thoracoplasty in some cases. Significant number of patients had unsuspected tuberculosis or malignancy .

**FP 06**

## **DRUG INDUCED HEPATITIS (DIH) FROM 1<sup>ST</sup> LINE ANTITUBERCULOSIS DRUGS AMONG PATIENTS TREATED FOR ACTIVE TUBERCULOSIS – RESPIRATORY UNIT, PENANG HOSPITAL 2004**

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## **INTRODUCTION**

A major adverse reaction to one of the first line antituberculous drugs, which results in discontinuation of that drug, has several implications. There may be considerable morbidity, even mortality, particularly with drug induced hepatitis (DIH). Identification of patients with risk factors will facilitate monitoring for hepatotoxicity.

## **OBJECTIVES**

- To determine drug(s) that commonly cause DIH in patients treated for active TB.
- To identify the common manifestation of DIH in patients treated for active TB
- To determine the role of various risk factors in the development of DIH in patients receiving anti-TB therapy

## **METHODOLOGY**

This retrospective review looked at the cases of adult active TB treated in Respiratory Unit, Penang Hospital from January 2004 to December 2004. DIH is defined as any rise in ALT > pre-treatment level or a rise in total bilirubin > 17 micromol/L irrespective of symptoms. The information were obtained from patient's medical report, TB booklet and in-patient record (if they were admitted before).

## **RESULTS**

381 patients treated for active TB were recruited for this study. 23 patients (7 females; 16 males) developed DIH (6.0%). 11 of 23 patients were Chinese, Malay 9 patients and Indian 3 patients. 73.9% of DIH occurred in the age group of 35 – 59 years. Pyrazinamide remains the commonest offending drug (47.8%), followed by rifampicin (30.5%) and isoniazid (21.7%). No DIH was observed with ethambutol or streptomycin. In our observation, we noted that all the cases with cholestatic hepatitis picture were caused by rifampicin. Pyrazinamide usually caused mixed picture of hepatitis or isolated raise in liver transaminases (ALT). Patients with DIH commonly presented with nausea (69.6%), jaundice (65.2%), vomiting (34.8%), anorexia (26.1%), and abdominal pain (8.7%). 3 patients were asymptomatic. DIH usually occur after 1 week of treatment but is still possible even after 2 months of treatment. Various major risk factors were identified, which include pre-existing liver disease like hepatitis / alcoholic liver disease (30.4%), alcohol consumption (21.7%), polypharmacy (21.7%) and HIV infection (17.4%). 13 (56.5%) patients with DIH had low albumin level at diagnosis. Of 7 patients with pre-existing liver diseases, 6 of them were Hepatitis C positive (All of them were IVDU).

## **CONCLUSION**

The incidence of DIH was higher with pyrazinamide, was associated with male sex, age 35 and above, HIV infection and those with pre-existing liver disease.



## POSTER PRESENTATIONS

### CANCER, SLEEP AND VENTILATION, OTHERS

- |       |  |         |
|-------|--|---------|
| PP 01 | <b>EPIDERMAL GROWTH FACTOR RECEPTOR TARGETED THERAPY WITH GEFITINIB IN LOCALLY ADVANCED AND METASTATIC NON-SMALL CELL LUNG CANCER</b><br><b>Liam Chong Kin</b><br><i>Department of Medicine, University of Malaya Medical Centre, Kuala Lumpur, Malaysia</i>   | 41      |
| PP 02 | <b>DIFFERENCES IN CLINICOPATHOLOGICAL FEATURES OF NON-SMALL CELL LUNG CANCER IN SMOKERS AND NEVER SMOKERS</b><br><b>Liam Chong Kin</b><br><i>Department of Medicine, University Malaya Medical Centre, Kuala Lumpur, Malaysia</i>  | 42      |
| PP 03 | <b>BRONCHOSCOPIC LASER THERAPY FOR ADENOID CYSTIC CARCINOMA OF TRACHEA: A CASE REPORT</b><br><b>Zal Ab Rahim, Liam Chong Kin</b><br><i>Division of Respiratory Medicine, Department of Medicine, University Malaya Medical Centre, Kuala Lumpur, Malaysia</i>  | 43      |
| PP 04 | <b>OFF PUMP TRACHEAL AND CARINAL TUMOUR RESECTION</b><br><b>Ko Chung Sen</b><br><i>Consultant Cardiothoracic Surgeon, Ipoh Specislist Hospital, Ipoh, Perak, Malaysia</i>  | 44      |
| PP 05 | <b>SECOND LINE TREATMENT OF MALIGNANT PLEURAL MESOTHELIOMA WITH PEMETREXED (ALIMTA), A MULTITARGETED ANTIFOLATE AGENT: A REPORT OF TWO CASES</b><br><b>Zal Ab Rahim, Liam Chong Kin, Pang Yong Kek, Leow Chai Hooi</b><br><i>Division of Respiratory Medicine, Department of Medicine, University Malaya Medical Centre, Kuala Lumpur, Malaysia</i>  | 44 – 45 |
| PP 06 | <b>SENDING CHILDREN HOME WITH HOME VENTILATION: THE MALAYSIAN EXPERIENCE</b><br><b>Norzila MZ, Asiah I*, Rusanida A, Hasniah AI, Khoo T B*, Choy Y S**</b><br><i>Respiratory Unit, Paediatric Department, Institute Paediatric, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia</i><br><i>*Neurology Unit, Paediatric Department, Institute Paediatric, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia</i><br><i>**Genetic Unit, Paediatric Department, Institute Paediatric, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia</i> | 45      |
| PP 07 | <b>COMPLIANCE AND SIDE-EFFECTS OF CPAP AFTER AUTOSET TITRATION</b><br><b>M R Norhaya, A K Simonds</b><br><i>Department of Medicine, Hospital Kuala Terengganu, Kuala Terengganu, Terengganu, Malaysia</i>  | 46      |
| PP 08 | <b>OXYGEN THERAPY IN THE ACUTE HOSPITAL SETTING – AN AUDIT</b><br><b>A Faizal, M R Norhaya, A Hasnan, I Nor Ismarudi</b><br><i>Department of Medicine, Hospital Kuala Terengganu, Kuala Terengganu, Terengganu, Malaysia</i>   | 46 – 47 |
| PP 09 | <b>CONGENITAL BILATERAL VOCAL CORD PARALYSIS – A CASE SERIES</b><br><b>AI Hasniah, K Asiah*, D Mariana*, A Rus Anida*, MZ Norzila*, S Sahrir**</b><br><i>Department of Paediatrics, Hospital Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia</i><br><i>*Respiratory Unit, Paediatric Institute, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia</i><br><i>**ENT Department, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia</i>   | 47      |
| PP 10 | <b>USE OF NASAL CPAP IN OBESE CHILDREN WITH OBSTRUCTIVE SLEEP APNEA</b><br><b>AI Hasniah, K Asiah*, A Rus Anida*, MZ Norzila*</b><br><i>Department of Paediatrics, Hospital Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia</i><br><i>*Respiratory Unit, Department of Paediatrics, Paediatric Institute, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia</i>   | 48      |



PP 11	<b>PERCEPTION OF THE ISLAMIC RULING ON SMOKING AMONG MUSLIMS</b> C A Shahrin Tarmizi , S H How, A M Puteri Melor <i>Department of Medicine, Faculty of Medicine, International Islamic University Malaysia (IIUM), Kuantan, Pahang, Malaysia</i>	49
PP 12	<b>CLINICAL OUTCOMES AND PATIENT SATISFACTION WITH A PIONEER OUTPATIENT PULMONARY REHABILITATION PROGRAM IN HOSPITAL UNIVERSITY KEBANGSAAN MALAYSIA (HUKM)</b> Fauzi Mohd Anshar, Roslina Abdul Manap, Riza Sharom A Razak*, Katijjahbe M Ali*, Ayiesah Ramli* <i>Department of Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia</i> <i>*Department of Medical Rehabilitation, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia</i>	49 – 50
PP 13	<b>METABOLIC ALKALOSIS IS A COMMON MANIFESTATION OF CYSTIC FIBROSIS IN THE LOCAL POPULATION</b> Anna Marie Nathan, Jessie A de Bruyne <i>Respiratory Unit, Department of Paediatrics, University Malaya Medical Centre, Kuala Lumpur, Malaysia</i>	50
PP 14	<b>DERMOGRAPHIC DATA OF HIV INFECTED INMATES OF A REHABILITATION CENTRE</b> A Faizal, M R Norhaya, A R Arzana, A A Zahari, Y Rosnah, A Kalsom <i>Department of Medicine, Hospital Kuala Terengganu, Kuala Terengganu, Terengganu, Malaysia</i>	51
PP 15	<b>PULMONARY MELIOIDOSIS: A REVIEW OF 70 CASES FROM PAHANG</b> S H How, Hoi Poh Tee*, A R Jamalludin, A Shah, Y Rathor, Sapari Satwi* <i>Kulliyah of Medicine, International Islamic University Malaysia, Kuantan, Pahang, Malaysia</i> <i>*Department of Internal Medicine, Hospital Tengku Ampuan Afzan, Kuantan, Pahang, Malaysia</i>	52
PP 16	<b>ENDOBRONCHIAL ACTINOMYCOSIS: IS A REPEAT BRONCHOSCOPY AFTER TREATMENT NECESSARY?</b> S H How, Kala*, Azian Abd Aziz <i>Kulliyah of Medicine, International Islamic University Malaysia, Kuantan, Pahang, Malaysia</i> <i>*Department of pathology, Hospital Tengku Ampuan Afzan, Kuantan, Pahang, Malaysia</i>	52
PP 17	<b>FOREIGN WORKERS WITH TUBERCULOSIS IN CHEST CLINIC, PENANG HOSPITAL</b> Abdul Razak M, Abdul Rashid R <i>Respiratory Clinic, Penang Hospital, Penang, Malaysia</i>	53
PP 18	<b>DIAGNOSTIC YIELD OF PERIPHERAL LYMPH NODE BY FINE NEEDLE ASPIRATION</b> Abdul Razak Mutalif, Abdul Rashid Razak* <i>Department of Respiratory Medicine, Penang Hospital, Penang, Malaysia</i> <i>*AIMST College, Sungai Petani, Kedah, Malaysia</i>	54
PP 19	<b>IS THE HEAVY WORKLOAD OF THE LABORATORY TECHNICIANS A CAUSE FOR POOR YIELD OF SPUTUM ACID FAST BACILLI SMEAR MICROSCOPY?</b> Adel Hamood Noman, Abdul Razak M* <i>School of Pharmacy, Universiti Sains Malaysia, Penang, Malaysia</i> <i>*Respiratory Clinic, Penang Hospital, Penang, Malaysia</i>	54 – 55
PP 20	<b>CUTANEOUS ADVERSE DRUG REACTION (CADR) FROM 1<sup>ST</sup> LINE ANTITUBERCULOSIS DRUGS AMONG PATIENTS TREATED FOR ACTIVE TUBERCULOSIS – RESPIRATORY UNIT, PENANG HOSPITAL 2004</b> Ong C K, Tan W C*, Abdul Razak M <i>Respiratory Unit, Penang Hospital, Penang, Malaysia</i> <i>*Department of Dermatology, Penang Hospital, Penang, Malaysia</i>	55



PP 21	<b>A CASE OF <math>\alpha_1</math> – ANTITRYPSIN DEFICIENCY IN AN 81-YEAR OLD LIFE TIME NON SMOKER – ARE OTHER FACTORS INVOLVED?</b>	56
	Jamalul Azizi Abdul Rahman <sup>*/**</sup> , John Woods*, Neil Misso*	
	<sup>*</sup> Asthma and Allergy Research Institute, University of Western Australia, Nedlands, Western Australia, Australia	
	<sup>**</sup> Division of Respiratory Medicine, Queen Elizabeth Hospital, Kota Kinabalu, Sabah, Malaysia	
PP 22	<b>CYSTEINYL LEUKOTRIENES AND PROSTAGLANDIN E<sub>2</sub> IN INDUCED SPUTUM OF PATIENTS WITH EOSINOPHILIC OR NON-EOSINOPHILIC ASTHMA</b>	56 – 57
	Shashi Aggarwal, Neil Misso, Philip Thompson	
	Asthma & Allergy Research Institute and CRC for Asthma, The University of Western Australia, Nedlands, Australia	
PP 23	<b>PERCEPTION TOWARDS ASTHMA CLINICAL PRACTICE GUIDELINES – A COMPARISON BETWEEN GOVERNMENT AND PRIVATE DOCTORS IN MALAYSIA</b>	57
	Li-Cher Loh, Pei-Se Wong	
	IMU Lung Research, International Medical University, Kuala Lumpur, Malaysia	
PP 24	<b>EFFECT ON ASTHMA SEVERITY CLASSIFICATION AND TREATMENT APPROPRIATENESS WHEN SPIROMETRY IS USED FOR ASSESSMENT</b>	58
	Li-Cher Loh	
	IMU Lung Research, International Medical University, Clinical School, Seremban, Negeri Sembilan, Malaysia	
PP 25	<b>ASTHMA AND OBESITY IN THE PAEDIATRIC CLINIC</b>	58
	Arfah Abu Bakar, Kew Yuen Cheng, Mohd Faruqi Uzair Mohamed Sidek, Norbaizatul Akhmal Zulkefly, Siti Halimahtun Sahab, Jessie A de Bruyne, Mohd Yazid Jalaludin	
	Faculty of Medicine, University Malaya, Kuala Lumpur, Malaysia	
PP 26	<b>THE PREVALENCE OF TUBERCULOSIS (TB) AMONG HUMANIMMUNODEFICIENCY VIRUS (HIV) INFECTED DRUG USERS IN A REHABILITATION CENTRE</b>	59
	M R Norhaya, A M Faizal, A A Zahari, A R Arzana, Y Rosnah, A Kelsom	
	Department of Medicine, Hospital Kuala Terengganu, Kuala Terengganu, Terengganu, Malaysia	



## EPIDERMAL GROWTH FACTOR RECEPTOR TARGETED THERAPY WITH GEFITINIB IN LOCALLY ADVANCED AND METASTATIC NON-SMALL CELL LUNG CANCER

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### **OBJECTIVE**

To describe the efficacy of monotherapy with the orally active, selective epidermal growth factor receptor-tyrosine kinase inhibitor, gefitinib in patients with locally advanced and metastatic non-small cell lung cancer (NSCLC).

### **PATIENTS AND METHODS**

Patients with progressive locally advanced or metastatic NSCLC previously treated with systemic cytotoxic chemotherapy and/or radiotherapy or who declined chemotherapy or were medically not suitable for cytotoxic chemotherapy.

### **RESULTS**

24 patients (13 male, 11 female) (16 smokers, 8 never smokers) with a median age of 56 (range, 35 – 79 years); 20 with adenocarcinoma (3 bronchioloalveolar subtype), 3 squamous cell carcinoma and one undifferentiated NSCLC, received monotherapy with gefitinib 250 mg orally once daily until disease progression. At the time of starting gefitinib, one, 3 and 20 patients had stage IIIa, IIIb and IV disease, respectively. Of 18 patients who had failed cytotoxic chemotherapy, one had radiotherapy to the primary tumour and two had radiotherapy to their brain metastases. Two of the 6 chemotherapy-naïve patients received radiotherapy to the primary tumours. The WHO performance status at the time of starting gefitinib was 1, 2, 3 and 4 in 16, 5, 2 and 1 patient, respectively. The median interval from the diagnosis of NSCLC to the commencement of gefitinib was 18.5 (range, 4 – 177) weeks.

The disease was controlled in 15 patients (62.5%). There was a reduction in the size of the primary and/or metastatic tumours in 11 patients (partial response) (45.8%) and 4 patients (16.7%) had stable disease. The response rate was significantly higher in those who never smoked (90.9%) compared to that of smokers (46.2%) [OR (95% CI), 11.67 (1.14 – 119.54)] ( $p = 0.033$ ). All symptomatic patients whose disease was controlled had symptom improvement. The median time to symptom improvement was 2 (range, 0.5 – 6) weeks. The median progression-free survival time was: patients with PR = 60.0 wks (range, 7 – 130; 25 centile, 75 centile, 10, 91) and patients with SD = 36 wks (range, 7 – 52; 25centile, 75centile, 13.8, 48.5). The disease remained under control with gefitinib monotherapy for at least a year (range, 52 to 130 weeks) in 7 patients. Adverse effects were generally mild and consisted of acne, dry skin, pruritic rash and diarrhoea in 7, 8, 3 and 3 patients, respectively.

### **CONCLUSIONS**

When given alone, gefitinib shows significant antitumour activity in selected patients with advanced NSCLC. Adverse effects of the drug are generally mild.



## DIFFERENCES IN CLINICOPATHOLOGICAL FEATURES OF NON-SMALL CELL LUNG CANCER IN SMOKERS AND NEVER SMOKERS

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### **OBJECTIVE**

To determine the differences in the clinicopathological features of non-small cell lung cancer (NSCLC) in smokers and never smokers.

### **PATIENTS AND METHODS**

Consecutive patients with NSCLC confirmed by histology and/or cytology at the University Malaya Medical Centre, Kuala Lumpur, Malaysia.

### **RESULTS**

Of 428 patients with NSCLC, 101 patients (23.6%) were never smokers, 120 (28.2%) were females and 85.5% had locally advanced (stage III) or metastatic (stage IV) disease. 74.3% of the never smokers and 13.8% of the smokers were female (OR, 18.08; 95% CI, 10.47 to 31.20;  $p < 0.001$ ). Never smokers were diagnosed with NSCLC at a younger age [mean age ( $\pm$ SD), 55.6 ( $\pm$ 15.1) years] than the smokers [mean age ( $\pm$ SD), 61.7 ( $\pm$ 10.7) years] (mean age difference, - 6.1 years; 95% CI, - 3.4 to - 8.7;  $p < 0.001$ ). Adenocarcinoma was the most common cell type in both smokers and never smokers. However, the percentage of never smokers with adenocarcinoma (87.1%) was significantly higher than that of smokers with adenocarcinoma (50.2%) (OR, 6.73; 95% CI, 3.61 to 12.52;  $p < 0.001$ ). Although a higher percentage of the smokers had early stage (I or II) disease compared to the never smokers (16.2% versus 8.9%), the difference was not statistically significant (OR, 1.98; 95% CI, 0.94 to 4.17;  $p = 0.069$ ). A higher percentage of never smokers (35.6%) than smokers (24.5%) had poorer WHO performance status of 3 or 4 at the time of diagnosis (OR, 1.71; 95% CI, 1.06 to 2.76;  $p = 0.027$ ).

### **CONCLUSIONS**

Compared to smokers, never smokers who have NSCLC are more likely to be female and younger and to have adenocarcinoma and poorer performance status at the time of diagnosis.



## BRONCHOSCOPIC LASER THERAPY FOR ADENOID CYSTIC CARCINOMA OF TRACHEA: A CASE REPORT

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### **OBJECTIVE**

To describe a patient with adenoid cystic carcinoma of the trachea who underwent Nd-YAG laser therapy through flexible bronchoscopy.

### **CASE REPORT**

The patient is a 40-year-old Chinese woman, a never smoker, who was referred for further management of a dry cough which started in July 2004 and noisy breathing with shortness of breath since October 2004. She was earlier treated for bronchial asthma by the referring medical centre without improvement. There was no haemoptysis or constitutional symptoms. Flexible bronchoscopy in that centre 2 weeks prior to her presentation at our hospital revealed an endotracheal tumour, biopsy of which showed adenoid cystic carcinoma. Computed tomography revealed a circumferential mass in the wall of the trachea which caused narrowing of the lumen. Her flow-volume loop was consistent with a variable intrathoracic upper airway obstruction. Bronchoscopy examination revealed a large broad-based polypoidal tumour on the posterior wall of the trachea with a vertical extent of 3.5 cm starting from 2.5 cm below the vocal cords. In addition, there were multiple nodular lesions on the anterior wall of the trachea at the same level. The obstruction of the lumen was 80% at the narrowest segment. The tumour was deemed too extensive for surgical resection. She had 2 episodes of near fatal respiratory arrest due to retained airway secretions during her hospital stay. Laser therapy was administered to the tracheal wall tumour fortnightly with 3371, 1617, 834, 2100, 620 and 905 joules during the 6 sessions, respectively. Argon plasma coagulation therapy was administered to the anterior tracheal wall nodules. The tracheal obstruction was reduced to less than 10% at the narrowest segment and her cough, dyspnoea and stridor had resolved.

### **CONCLUSION**

Although not curative, Nd-YAG laser therapy via flexible bronchoscopy is very effective in relieving obstruction of the trachea and distressing respiratory symptoms in this patient with unresectable exophytic malignant tracheal wall tumour.



## OFF PUMP TRACHEAL AND CARINAL TUMOUR RESECTION

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Tracheal and carinal tumours were once considered inoperable. Resection can now be performed safely without the need for cardiopulmonary bypass with improved technique. Two cases of lower tracheal and carinal tumours were resected successfully with primary anastomosis.

Right thoracotomy was performed in both cases. Bulky double lumen tube was not feasible with the presence of the obstructing lesion. The left main bronchus was selectively intubated with a long oro-tracheal tube to collapse the right lung. The right chest was then opened via the 4th inter-costal space. The trachea was dissected and tumour confirmed respectable. The oro-tracheal tube was withdrawn proximal to the tumour and the trachea divided. The left lung was then directly intubated trans-thoracically. The tumour segment was then excised with primary anastomosis. Posterior half of the sutures were placed and tied. The trans-thoracic ET tube was removed and the oro-tracheal tube advanced across the anastomosis and the rest of the sutures placed and tied. Drains were inserted and the chest closed.

Immediate extubation on table was achieved in both cases with the use of inhalational anaesthetics and short acting muscle relaxants.

Both cases were discharged home within 10 days without complication.

### CONCLUSIONS

Localized tracheal and carinal tumours are amenable to complete surgical resection and long term survival.

## SECOND LINE TREATMENT OF MALIGNANT PLEURAL MESOTHELIOMA WITH PEMETREXED (ALIMTA), A MULTITARGETED ANTIFOLATE AGENT: A REPORT OF TWO CASES

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### OBJECTIVE

To report our experience with using a new multitargeted antifolate agent, pemetrexed (Alimta) in the treatment of malignant pleural mesothelioma in Malaysian patients.

### CASE REPORT

We report, the first two patients with malignant pleural mesothelioma in Malaysia, we believe, who were treated with the combination of pemetrexed/cisplatin. Both patients had progressive disease following 2 cycles of first-line cytotoxic chemotherapy with gemcitabine/cisplatin. Second-line chemotherapy was commenced with pemetrexed at 500 mg/m<sup>2</sup> administered as an intravenous infusion over 10 minutes followed 30 minutes later by cisplatin intravenous infusion at 75 mg/m<sup>2</sup> over 2 hours on the first day of each 21-day cycle. The premedication regimen consisted of (i) intramuscular vitamin B<sub>12</sub> 1000µg starting one week before the first dose of pemetrexed and repeated every 9 weeks; (ii) oral folic acid supplementation at 1000 µg daily beginning 1 week before the first chemotherapy doses, continuing throughout treatment and for 3 weeks post-treatment; and (iii) oral dexamethasone at 4 mg twice daily taken the day before, the day of, and the day after the administration of pemetrexed.



Impressive symptomatic and functional improvements as well as some radiological response were observed after the first 2 cycles. However, the disease in both patients progressed despite 4 cycles of pemetrexed/cisplatin. Hence, chemotherapy was discontinued. Both patients had grade 2 anaemia requiring blood transfusion pre-chemotherapy. One patient had grade 2 stomatitis which resolved with symptomatic treatment.

#### **CONCLUSIONS**

Malignant pleural mesothelioma is generally resistant to conventional cytotoxic chemotherapy. Pemetrexed combined with platinum is an active regimen which confers symptomatic and radiological response accompanied by tolerable side effects with appropriate premedication.

PP 06

### **SENDING CHILDREN HOME WITH HOME VENTILATION: THE MALAYSIAN EXPERIENCE**

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#### **INTRODUCTION**

There is an increasing population of children with chronic respiratory failure due to underlying conditions such as failure of ventilatory control, chest wall abnormalities and muscle disorders.

#### **METHODS**

We conduct a retrospective review of all children that were ventilated at home. These children were referred to the Respiratory Unit for a respiratory evaluation including sleep disordered breathing (SDB). Polysomnography were performed on all these patients. Ventilation was initiated using pressure preset ventilator assist mode. (BIPAP-RESMED).

#### **RESULTS**

From 2001 – 2004, a total of 17 patients were discharged home on BIPAP support.

The median age of starting BIPAP support was 5 years old (0.3 – 11 years). Thirteen children were males with an ethnic distribution predominantly Malays.

Eight children required full time ventilation while the remaining eight children required nocturnal support during sleep. One patient died due to progressive disease.

Six patients were ventilated via tracheostomy while the remaining 11 patients were ventilated non-invasively via nasal mask as interface.

Prior to the initiation of the BIPAP support, these patients had respiratory failure type 2. With BIPAP, there was statistically significant improvement in pH ( $p = 0.008$ ), and reduction in  $pCO_2$  ( $p = 0.028$ ) and improvement in  $SpO_2$  ( $p = 0.056$ ).

#### **CONCLUSION**

There is an increasing trend of ventilating children at home. Non-invasive ventilation is a mode of ventilating children at home.



## COMPLIANCE AND SIDE-EFFECTS OF CPAP AFTER AUTASET TITRATION

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### INTRODUCTION

Continuous positive airway pressure (CPAP) is standard treatment for patients with obstructive sleep apnoea (OSA). It is not however without side-effects, which may affect the compliance with therapy. This study was undertaken to determine the prevalence of CPAP side-effects and their impact on patient compliance.

### METHODOLOGY

Patients with OSA who received an auto-CPAP titration study were selected at random and studied prospectively. They were required to complete a questionnaire on CPAP use and side-effects.

### RESULTS

Twenty-two patients completed the questionnaire. Only one patient was found to be markedly non-compliant with therapy. Of those who complied with CPAP, side effects were generally mild and well tolerated.

### CONCLUSIONS

In this group of mild to severe OSA patients CPAP following autotitration was effective treatment and was associated with few side-effects.

**Keywords:** CPAP, auto CPAP, side-effects, compliance

## OXYGEN THERAPY IN THE ACUTE HOSPITAL SETTING – AN AUDIT

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### INTRODUCTION

The prescription and use of oxygen in hospital can be haphazard. We decided to investigate further and write recommendations for the use of oxygen in our Hospital.

### OBJECTIVES

- Assessment of knowledge of doctors and paramedics in the use of oxygen
- To write recommendations for the use of oxygen in our hospital

### METHODOLOGY

Prescription of oxygen by doctors and paramedics in the Accident and Emergency (A & E), Coronary Care Unit (CCU) and the active medical wards were studied. This is done by requesting them to fill up prepared questionnaires (Appendix 1)

### RESULTS

Ninety eight staff participated.

What percentage oxygen would you give in a cardiac/respiratory arrest?



82.6% would give 60 – 100%, 5.1% would give 40 – 60%, 2.0 % would give 28 – 40% while 10% do not know what to give.

What percentage of oxygen would you give in a chronic obstructive pulmonary disease (COPD) patient with acute exacerbation?

1% did not know, 16.3% would give oxygen depending on the situation, 63.2% would give 28 – 40%, 19.4% would give 40 – 60%

What percentage of oxygen would you give in acute exacerbation of asthma?

10.2% would give 100% or more, 31.63% would give 60 – 100%, 25.51% would give 40 – 60% 5.9% would give 28 – 40%, while the rest were unsure.

## **CONCLUSIONS**

Oxygen is a drug and should be prescribed with care

Specific prescription charts may improve the prescription of oxygen

PP 09

## **CONGENITAL BILATERAL VOCAL CORD PARALYSIS – A CASE SERIES**

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Congenital upper airway obstruction is a relatively rare but important cause of major respiratory problems in the neonatal period. Vocal cord paralysis is the second most common cause of congenital airway obstruction presenting with neonatal stridor and is often the reason for the failure of neonates to wean from the respiratory support.

A retrospective analysis of medical record review was conducted. There were seven paediatric patients diagnosed with bilateral vocal fold paralysis for the past 3 years, of which five of them were recently diagnosed. All patients underwent flexible with/without rigid bronchoscopes to confirm the diagnosis.

This case series highlight our experience in managing the problem of bilateral vocal fold paralysis in paediatric population, with particular emphasis on their clinical presentations, associated complications and other upper and lower airway abnormalities as well as the management options and outcome of these patients.



## USE OF NASAL CPAP IN OBESE CHILDREN WITH OBSTRUCTIVE SLEEP APNEA

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### **INTRODUCTION**

Obesity is a significant risk factor for obstructive sleep apnea syndrome (OSAS). Over the last decade, nasal continuous positive airway pressure (CPAP) has been increasingly used in children with OSAS as a successful alternative to upper airway surgery or tracheotomy.

### **OBJECTIVE**

To report our experience in treating obese children with OSAS with nasal CPAP, in Paediatric Respiratory Unit, Hospital Kuala Lumpur, over the last two years.

### **METHODS**

A retrospective analysis of medical record reviews was conducted. Seventeen obese children with OSA were prescribed nasal CPAP from February 2002 to August 2004. Three patients were excluded as their medical records were missing. The diagnosis of OSA was confirmed by an overnight polysomnography.

### **RESULTS**

The median age of 14 children was 8.5 years. Their mean body mass index was 34.4 (range 27.6 – 42.0). The commonest symptoms were snoring and night awakening (100%), difficulty in breathing during sleep (92.9%) and daytime hypersomnolence (85.7%). All patients had significant respiratory events with Respiratory Disturbances Index (RDI) > 5 (median 13.4) with Obstructive Apnea Index (OAI) > 1 (median 4.4). All patients experience improvement in their clinical symptoms. Two patients were managed to wean off nasal CPAP after adenotonsillectomy. The rest are still on CPAP, most likely due to increasing weight.

### **CONCLUSION**

Nasal CPAP is feasible and well-tolerated in obese children with OSAS. The treatment of OSAS by tonsillectomy and/or adenoidectomy in obese children leads to clinical improvement of the obstructive symptoms, but will not help in weight reduction.



## PERCEPTION OF THE ISLAMIC RULING ON SMOKING AMONG MUSLIMS

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### INTRODUCTION

Smoking is still prevalent among muslims in this country despite the public knowledge that some muslim religious leaders regard smoking as haram.

### OBJECTIVES

Our objective was to determine whether there are differences of perception about the Islamic ruling of smoking between muslim smokers and muslim non-smokers.

### METHODS

A questionnaire survey was carried out among the public who attended the IIUM Faculty of Medicine open day in Kuantan, Pahang on 12 – 13 June 2004.

### RESULTS

Seventy four muslims participated in the survey. 46 (63%) were smokers (including 1 ex-smokers) and 28 (37%) were non-smokers. There was no statistical difference between the knowledge of smoking-related illnesses between smokers and non-smokers. Smokers and non-smokers showed no difference in knowing that certain religious scholars verdict smoking as haram. (58% vs 42% respectively,  $p > 0.05$ ). Only 6.7% of smokers perceive smoking as haram compared to 48% of non-smokers ( $p < 0.001$ ). 82% of smokers viewed smoking as makruh compared to 40% of non-smokers ( $p < 0.001$ ).

36% of non-smokers perceive smoking is haram as the main reason for not smoking and 54% because of the danger of smoking to health.

### CONCLUSIONS

Perception that smoking is haram among smokers is still poor, which may be one of the main reasons contributing to the high prevalence of smoking in our Muslim society.

## CLINICAL OUTCOMES AND PATIENT SATISFACTION WITH A PIONEER OUTPATIENT PULMONARY REHABILITATION PROGRAM IN HOSPITAL UNIVERSITI KEBANGSAAN MALAYSIA (HUKM)

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### INTRODUCTION

Pulmonary rehabilitation (PR) is a beneficial multidisciplinary program for patients with chronic respiratory diseases. It was started in HUKM in March 2004. HUKM is the pioneer in Malaysia in PR and the service is offered as an eight-week outpatient program.



## **OBJECTIVES**

To assess patients' breathlessness and satisfaction with the HUKM PR program.

## **METHODOLOGY**

Patients who completed their PR program from March 2004 until April 2005 answered self-administered questionnaires. Data was collected on gender, age, race and underlying diagnoses. We asked about breathlessness before and after the program and their overall satisfaction.

## **RESULTS**

Within the period, 18 patients (16 males and 2 females) entered and completed the program. Response rate was 17/18 (94%). Mean age 62 years (age range 46 – 80). Majority was Malay (14/17, 82%), followed by Indians (2/17, 12%) and others (Iban 1/17, 6%). COPD predominates (15/17, 88%); other diagnoses are lung fibrosis (1/17, 6%) and bronchiectasis (1/17, 6%). More than half (11/17, 65%) found it hard to exercise initially but all reported improvement at the end of week 8. Majority (15/17, 88%) were less breathless at the end of the programme. All patients reported satisfaction with the service.

## **CONCLUSION**

PR is beneficial for patients with chronic respiratory impairment. Our patients were satisfied with our service.

**PP 13**

## **METABOLIC ALKALOSIS IS A COMMON MANIFESTATION OF CYSTIC FIBROSIS IN THE LOCAL POPULATION**

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Cystic fibrosis is an uncommon disease in the Asian population. Patients usually present with respiratory and gastro-intestinal manifestations and, although metabolic alkalosis is a well-recognised occurrence, it does not appear to be a typical feature in the European population. We discuss a child who presented as a diagnostic dilemma with recurrent episodes of hyponatraemic, hypokalaemic metabolic acidosis and apparently minimal respiratory and gastro-intestinal symptoms. This patient will be contrasted with two others, one of whom presented with primarily respiratory symptoms and the other who presented with primarily gastro-intestinal symptoms. However, both these patients also experienced significant electrolyte abnormalities – the former displaying a pronounced pseudo-Bartter phenomenon associated with the respiratory exacerbations and the other requiring potassium supplements for unexplained hypokalemia before the diagnosis was made. It would appear that hypokalemic metabolic alkalosis is a consistent feature in these patients and is seen more commonly in local patients with cystic fibrosis than in European patients. This is likely to be due partially to the hot tropical climate but may also signify different expressions of the disease.



## DERMOGRAPHIC DATA OF HIV INFECTED INMATES OF A REHABILITATION CENTRE

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### **INTRODUCTION**

All inmates of drug rehabilitation centres are screened for HIV. The dermographic data of those infected with the virus were studied in a local rehabilitation centre.

### **OBJECTIVES**

- To find out the dermographic distribution of the inmates
- To find out the risk behaviour resulting in HIV infection
- To look into factors contributing to HIV infection in these inmates

### **METHODOLOGY**

After getting a written consent, HIV infected inmates were interviewed individually by trained staff using prepared questionnaires.

### **RESULTS**

One hundred inmates were interviewed. All of them were males age ranging from 21 to 44 years old. One was a Chinese, another Indian while the rest were Malays. Seventy percent were still single while 20% were married and the last 10% were divorced. None had tertiary education, 2% never went to school while 80% had secondary school education. Twenty-three percent were unemployed, 12% were fishermen, 39% were self-employed, 10% owned small businesses, while only 1% had a fixed occupation. Ninety percent were smokers where 82 percent of these smoked more than 20 cigarettes per day and all acquired the addiction to nicotine through friends. Seventy-five percent acquired HIV via infected shared needles, 20% sexually while the rest declined to state their risk behavior.

### **CONCLUSIONS**

The HIV infected individuals belonged to a young age group.

More than a third are injecting drug users.

They did not have a high level of education

Most did not earn a fixed income



## PULMONARY MELIOIDOSIS: A REVIEW OF 70 CASES FROM PAHANG

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### OBJECTIVE

To study clinical features, radiological findings and clinical outcome of patients with pulmonary melioidosis.

### METHODOLOGY

Retrospective study on adult patients with pulmonary melioidosis in Pahang from January 2000 to June 2003 with positive culture for *B. pseudomallei*.

### RESULT

There were 59 Malays (84.2%), 7 Chinese (10.0%), 2 Indians (2.9%) and 2 aborigines (2.9%). Most patients were between 40 to 60 years of age and the mean age was  $53 \pm 13$  years. Commonest predisposing factor was diabetes mellitus (82.8%). Fever was the commonest presentation (96%) followed by cough (75%) but only one had haemoptysis. Majority of patients presented with isolated pneumonia (78.6%), the remaining had multiple organ involvement. There was no pathognomonic feature on chest radiograph; but multi-lobe involvement was more common. In our series, *B. pseudomallei* was most commonly sensitive to cefoperazone-sulbactam (100%), imipenem (100%) and ceftazidime (98.6%). Only half (51.4%) of our patients received appropriate empirical antibiotics and the mortality was 71% (63.6% of the death occurring within 48 hours of admission). Among 18 patients who survived and were discharged well, only 10 (55.6%) received at least one appropriate antibiotic for at least two weeks, 6 patients (33.3%) received one of the appropriate antibiotics but for less than two weeks and the remaining patients received other antibiotics. 16.6% had culture proven relapses.

### CONCLUSION

Pulmonary melioidosis is commonly associated with diabetes mellitus and has a highly mortality rate.

## ENDOBRONCHIAL ACTINOMYCOSIS: IS A REPEAT BRONCHOSCOPY AFTER TREATMENT NECESSARY?

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Actinomycosis is a chronic granulomatous infection that becomes suppurative resulting in abscesses and draining sinuses. Endobronchial actinomycosis is rare and has been reported in association with foreign body aspiration, bronchogenic carcinoma and endobronchial lipoma. A 51 year old lady presented with a history of chronic cough for 18 months. Physical examination revealed fine crepitation and rhonchi in the base of the right lung. Contrast enhanced chest computed tomogram revealed a right middle lobe consolidation with air-bronchogram. Bronchoscopy showed nodular lesions causing subtotal occlusion of the middle lobe bronchus. Biopsy of these lesions revealed filamentous-like bacterial colonies which were Gram stain positive and modified Ziehl-Neelsen stain negative with a background of acute and chronic inflammation consistent with actinomycosis. She was treated with penicillin for 7 months. Repeat bronchoscopy showed nodular lesions in the right main bronchus appeared smaller and a piece of "tissue" at the bifurcation of the middle bronchus which was removed with forceps. Oral penicillin at the same dose was continued. Three months later, another bronchoscopy showed complete resolution of the right main bronchus nodule. Therefore, it is essential to repeat bronchoscopy after treatment of endobronchial actinomycosis to exclude a concomitant tumour or foreign bodies even if the initial bronchoscopy does not revealed such abnormalities.



**FOREIGN WORKERS WITH TUBERCULOSIS IN CHEST CLINIC, PENANG HOSPITAL**

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**BACKGROUND**

Malaysia still depends on the foreign workers in several industries and construction sites. The intake of foreign workers depends on the government policy and agreement with the foreign countries. As for now, Indonesia, Bangladesh, Thailand and Nepal are countries where these workers are recruited. A medical examination is expected to be done in the country of origin. One year after working in Malaysia, another medical examination is performed. The strictness of medical examination in the country of origin is questionable as these workers were noted to have infectious diseases on arrival to Malaysia. This study shows the number of foreign workers noted to have tuberculosis while in Malaysia. A small number also have HIV infection.

**METHODS**

All foreign workers diagnosed with tuberculosis in the Respiratory Clinic were recruited. The registries of the foreign workers with tuberculosis were retrospectively reviewed for the year 2004.

**RESULTS**

A total of 32 patients were detected to have TB in 2004. There were 17 male (53%) and female 15 (47%). The largest number of patients were from Indonesia (44%) followed by Indian and Myanmar each 16%. Most of the patients were young adults about 20 to 30 years of age (72%). Pulmonary tuberculosis constitute 60% while extra-pulmonary tuberculosis is 40%. The commonest extrapulmonary presentation was lymph node swelling at the neck (85%). All the patients with pulmonary tuberculosis presented with cough (100%), 79% presented with other associated symptoms like fever, loss of appetite, loss of weight and cough. Only 16% presented with haemoptysis. The symptoms of cough were present for more than one month in 68% of the cases with pulmonary TB. 17/19 patients with pulmonary TB had severe chest x-ray changes.

Eight patients (25%) were referred by general practitioners while 47% was referred by government clinic, the rest were referred by government specialist clinics (surgical and ENT clinics). Only 28% of the foreign workers have history of contact with a TB patient.

Majority of the workers were working in factories (43%), building construction laborers (18%) and house maid (12%). Six patients (19%) were also co-infected with HIV virus.

**CONCLUSION**

Infectious pulmonary TB is still noted in the foreign workers who are working in areas where there is close proximity with other local and foreign workers. This can contribute to be a source of infection and an increase in the number of TB in the country. Medical examination should be done on entry and yearly examinations to exclude late manifestations of infectious diseases.



## DIAGNOSTIC YIELD OF PERIPHERAL LYMPH NODE BY FINE NEEDLE ASPIRATION

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### BACKGROUND

Tuberculosis (TB) is a common problem in developing countries. More than 80% of cases are pulmonary TB while about 20% are due to extra-pulmonary TB. Lymph node tuberculosis is the commonest presentation in patients with extra-pulmonary TB. Diagnosis of lymph node TB can be arrived by performing needle biopsy in an out-patient clinic.

### METHODS

All patients with TB lymph node diagnosed in year 2004 in Respiratory Clinic, Hospital Pulau Pinang were reviewed. The data from the TB Registration card and biopsy reports were collected retrospectively. The needle aspiration was done by using a 18 gauge needle and plunger with 10 ml syringe.

### RESULTS

Slight female preponderance 32/58 (55%), more than 60% of the patients were in the age group between 20 and 40 years. Abnormal chest x-ray was noted in 66% and only 8 (14%) had sputum for acid fast bacilli (AFB) positive. There were 19 (33%) with caseous necrosis, 26 (45%) with granulomatous inflammation and 17 (30%) has lymph node aspiration with AFB positive smear. In this study, it was also noted that 9 patients (16%) had human immunodeficiency virus (HIV) co-infection.

### CONCLUSION

This study shows that out-patient fine needle aspiration is a simple and fast way of diagnosing lymph node TB. In the era of HIV and TB co-infection, extrapulmonary TB especially lymph node TB is a common presentation. This procedure is safe, well tolerated and has good diagnostic yield.

## IS THE HEAVY WORKLOAD OF THE LABORATORY TECHNICIANS A CAUSE FOR POOR YIELD OF SPUTUM ACID FAST BACILLI SMEAR MICROSCOPY?

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### BACKGROUND

The main method of diagnosing pulmonary tuberculosis (TB) is by sputum microscopy for Acid Fast Bacilli (AFB). In most government hospitals and clinics, the symptomatic examination for sputum AFB microscopy is very low. As the symptomatic examination is low, the yield is also low. This can be due to many factors like: sputum not sent for microscopy, poor sputum specimen, sputum quantity is low for microscopy, patients did not give specimen for examination, sputum AFB microscopy not requested by doctor and technical problems with the microscopes and staining methods. The workload of the laboratory technician may also be a reason for the poor yield. This study is to look into the workload of these technicians involved in sputum AFB microscopy.

### METHODS

This is a retrospective study conducted on four hospitals and four clinics in the state of Penang. All sputum microscopy for AFB done in the year 2003, in these clinics were reviewed. According to guidelines by WHO/IUATLD, on the workload of laboratory technicians for AFB: heavy workload if > 20 smears/day/technician and low workload if < 15 smears/week/technician.



## RESULTS

Sputum AFB smear positive for Hospitals A, B, C and D were 144, 47, 106 and 2 cases respectively and for Clinics E, F, G and H are 23, 0, 0 and 6 cases respectively. Attendance of patients for the hospitals and clinics were 1863, 390, 2134, 563, 1212, 347, 272 and 816 patients respectively. Based on Spearman correlation test, the number of patients has direct correlation to the sputum AFB positive results ( $p = 0.011$ ). The following were the workload of sputum AFB microscopy of the hospitals and clinics per day respectively: 20.7, 4.3, 23.7, 6.2, 13.2, 3.9, 3.0 and 8.8. Only two hospitals, Hospital A and C, had values more than 20 smears/day/technician. When workload was calculated per week per technician, all were more than 15 (143, 30, 164, 43, 93, 26, 20 and 61).

## CONCLUSION

This study shows that the technicians were not overworked or under working, though two hospitals showed values more than 20. The results were between heavy and low workload ( $< 20$  smears/day/technician and  $> 15$  smears/week/technician). The low sputum AFB yield is not due to technician's load of working, other factors play a role which need to be identified for better symptomatic investigations and yield.

PP 20

## CUTANEOUS ADVERSE DRUG REACTION (CADR) FROM 1<sup>ST</sup> LINE ANTITUBERCULOSIS DRUGS AMONG PATIENTS TREATED FOR ACTIVE TUBERCULOSIS – RESPIRATORY UNIT, PENANG HOSPITAL 2004

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## INTRODUCTION

First line Anti-TB therapy with rifampicin, isoniazid, pyrazinamide, and ethambutol/streptomycin is very effective. However, major adverse reactions to antituberculous drugs can cause significant morbidity and mortality, and compromise treatment regimens for tuberculosis (TB). CADR is one of the commonly observed major side effects.

## OBJECTIVES

To determine pattern of CADR that is commonly associated with anti-TB therapy.

To determine drug(s) that commonly cause CADR in patients treated for TB.

To determine the role of various risk factors in the development of CADR in patients receiving anti-TB therapy.

## METHODOLOGY

This retrospective study looked at the cases of adult active TB treated in Respiratory Unit, Penang Hospital from January 2004 to December 2004. The information were obtained from patient's medical report, TB booklet and in-patient record (if they were admitted before).

## RESULTS

Of a total of 381 patients treated for active TB, 23 patients (12 females; 11 males) developed CADR (6.0%). 11 of 23 patients were Chinese, Malay 7 patients, Indian 4 patients and 1 foreigner. The common patterns of CADR observed include morbilliform rash (74.0%), Stevens-Johnson Syndrome (8.7%), erythema multiforme (4.3%) and others (which include exfoliative dermatitis and lichenoid eruption). 60.8% of events occurred between 1 week to 1 month in relation to initial dose. In all the patients, skin rash improved following dechallenge. All patients presented with itchy skin rash. Other presentations include fever, facial swelling, oral ulcer, etc. Among the first line anti-TB drugs, pyrazinamide was the commonest offending drug (47.8%), followed by rifampicin (26.1%), isoniazid (21.7%), ethambutol (17.4%) and streptomycin (13.0%). Various risk factors were identified, which include polypharmacy (30.4%), HIV infection (21.7%), autoimmune disorders (8.7%), chronic renal failure (8.7%), liver disease (4.3%). None of our patients have previous history of drug allergy or malignancy.

## CONCLUSION

The incidence of CADR was highest with Pyrazinamide, associated with HIV infection and polypharmacy. Risk of CADR observed among males and females were comparable in our study. CADR is a diagnosis of high index of suspicion especially in those having itchy skin rashes between 1 week to 1 month in relation to initial dose of anti-TB.



## A CASE OF $\alpha_1$ – ANTITRYPSIN DEFICIENCY IN AN 81-YEAR OLD LIFE TIME NON SMOKER – ARE OTHER FACTORS INVOLVED?

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$\alpha_1$ -antitrypsin deficiency is a rare cause of emphysema. Patients often present in the third or fourth decade of life leading to early death. We report the details of an 81-year-old man who has emphysema secondary to  $\alpha_1$ -antitrypsin deficiency. He first presented with symptoms of dyspnoea at age 74, had a radiographic diagnosis of emphysema at age 76 and is still alive at age 81.

He had worked as an engineer in a timber mill and had no known exposure to environmental toxins. His mother was a non-smoker who also suffered from emphysema. He is a life-long non-smoker. His  $\alpha_1$ -antitrypsin level on two occasions was 0.4 g/L and 0.3 g/L (phenotype ZZ, normal 0.8 to 2.0 g/L).

He was evaluated for lung volume reduction surgery but he was deemed unsuitable due to his lower lobe predominant disease and therefore referred for pulmonary rehabilitation programme.

He is one of the oldest patients to be diagnosed with this condition in the world and this raises questions as to whether other factors may be important in the presentation of  $\alpha_1$ -antitrypsin deficiency.

**Key words:**  $\alpha_1$ -antitrypsin, emphysema, case report

## CYSTEINYL LEUKOTRIENES AND PROSTAGLANDIN E<sub>2</sub> IN INDUCED SPUTUM OF PATIENTS WITH EOSINOPHILIC OR NON-EOSINOPHILIC ASTHMA

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Airway inflammation in asthmatic patients results in the production of cysteinyl leukotrienes (cysLT), by eosinophils and mast cells as well as prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) by airway epithelium and macrophages.

### AIM

To determine whether the concentrations of cysLT and PGE<sub>2</sub> in induced sputum are associated with eosinophilic or non-eosinophilic airway inflammation in asthma.

### METHODS

Hypertonic saline was used to induce sputum in 38 asthmatic patients, 10 of whom were categorised as having sputum eosinophilia ( $\geq 2\%$  sputum eosinophils). Specific enzyme immunoassays were used to measure the concentrations of cysLT and PGE<sub>2</sub> in sputum supernatants of patients with (n = 10) and without (n = 28) sputum eosinophilia.

### RESULTS

For all asthmatic patients the percentage of eosinophils in sputum was negatively correlated with FEV<sub>1</sub> (Rho = - 0.5, P = 0.002). CysLT concentrations were correlated with the percentage of sputum eosinophils (Rho = 0.64, P < 0.05) in patients with sputum eosinophilia. CysLT concentrations were significantly higher (P < 0.05), while PGE<sub>2</sub> concentrations



were significantly lower ( $P < 0.025$ ) in asthmatic patients with sputum eosinophilia. For all asthmatic patients, urinary  $\text{LTE}_4$  concentration was correlated with the percentage of sputum eosinophils ( $\text{Rho} = 0.41$ ,  $P = 0.01$ ) and patients with sputum eosinophilia had significantly higher urinary  $\text{LTE}_4$  concentrations compared with patients without sputum eosinophilia ( $P = 0.003$ ).

#### **CONCLUSION**

Increased airway  $\text{cysLT}$  and urinary  $\text{LTE}_4$  concentrations and decreased  $\text{PGE}_2$  concentrations in the airways may contribute to airway inflammation in patients with eosinophilic asthma.

Supported by the CRC for Asthma

**Key words:** asthma, inflammation, eosinophils, leukotrienes

PP 23

### **PERCEPTION TOWARDS ASTHMA CLINICAL PRACTICE GUIDELINES – A COMPARISON BETWEEN GOVERNMENT AND PRIVATE DOCTORS IN MALAYSIA**

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A self-answered, anonymously completed, nationwide questionnaire survey was conducted between June 2002 and May 2003 among Malaysian doctors through post and medical meetings. Findings based on 116 government and 110 private doctors satisfactorily completed forms (effective respondent rate: 30.1%) showed that more than 70% of government and private doctors claimed familiarity with asthma CPGs but proportionately more private doctors considered them “unworkable” and were reluctant to adopt them in their practice setting, quoting cost as the primary reason. Albeit the shortcomings of such survey, our findings suggest that medical resource cost is an important concern in the acceptance of asthma CPGs recommendations and should be addressed more thoroughly.



## EFFECT ON ASTHMA SEVERITY CLASSIFICATION AND TREATMENT APPROPRIATENESS WHEN SPIROMETRY IS USED FOR ASSESSMENT

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Current asthma treatment is directed by severity of symptoms and lung function. In Malaysia, spirometry is not widely available and therefore not used in most medical consultations. In 163 asthmatic patients [mean (95% CI) age: 41 (38 – 44) yrs; 29% male; 32% Malays, 32% Chinese, 34% Indians] who were being followed up in a State Hospital medical outpatient clinic and a large urban-based health clinic, we studied the effect on Global Initiative for Asthma (GINA) disease severity classification and the appropriateness of currently prescribed treatment when Forced Expiratory Volume in One Second (FEV<sub>1</sub>) was considered together with symptoms severity. We showed that as a result, 52% of the patients were upgraded to a higher severity classification, compared to 11% who were downgraded to a lower severity, and 71% of the patients were “under-treated” compared to 5% who were “over-treated”. If based on “symptoms alone” to assess severity, 39% of the patients were still “under-treated”, compared to 19% of the patients who were “over-treated”. We concluded that the disease severity in many asthmatic patients might have been underestimated and therefore not adequately treated, because spirometry was not available or used to assess asthma severity. The use of spirometry, or at least peak flow meter, should be advocated more widely among clinicians treating asthma in Malaysia.

## ASTHMA AND OBESITY IN THE PAEDIATRIC CLINIC

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### INTRODUCTION

Asthma is a common condition occurring in 7 – 16% of the paediatric population in the Klang Valley and has been increasing in prevalence (ISAAC). Obesity is a complex multi-factorial chronic disease that develops from an interaction of genotype and environment. There has been a rising trend in obesity worldwide. It is believed that there is an association between asthma and obesity. The rise in childhood asthma could be linked to the surge in obesity. This study was conducted to look at a possible link between asthma and obesity in children attending clinic in University Malaya Medical Centre (UMMC).

### METHODOLOGY AND MATERIALS

Subjects included successive patients attending the paediatric asthma clinic (n = 67), the general paediatric clinic (n = 67) and the paediatric obesity clinic (n = 36) within a one-month period in 2005. The notes of patients attending the paediatric asthma and respiratory clinics were reviewed and Body Mass Index (BMI) was calculated from their recorded heights and weights. This group was compared with children attending the general paediatric clinic. Obese children attending the paediatric obesity clinic were interviewed using the International Study of Asthma and Allergy in Childhood (ISAAC) questionnaire to look for the prevalence of asthma symptoms in this group.

### RESULTS AND DISCUSSION

Obesity was significantly more common amongst asthmatic patients (20.9%) than amongst patients attending the general paediatric clinic with other problems (11.9%) ( $p < 0.05$ ). Asthma was very prevalent in the patients attending the obesity clinic all of whom had a body mass index (BMI) above 30 – 27.8% had previous symptoms of asthma and 19.4% had current asthma i.e. half had ever had symptoms of asthma which is far higher than in the general population.

There is a positive link between asthma and obesity in our clinic patients. Obesity is a pro-inflammatory condition and may facilitate the development of asthma through immune mechanisms. Public misperception about ability to exercise and also consumption of high calorie food may increase the risk of obesity among asthmatic patients. Asthma control may be improved by educating the children to consume a balanced and nutritious diet and by increasing physical activities in order to reduce weight.



## THE PREVALENCE OF TUBERCULOSIS (TB) AMONG HUMANIMMUNODEFICIENCY VIRUS (HIV) INFECTED DRUG USERS IN A REHABILITATION CENTRE

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### **INTRODUCTION**

People living with HIV/AIDS are at increased risk of contracting TB<sup>1</sup>. HIV infection is the strongest known risk factor for reactivation of a latent TB infection<sup>1</sup>.

### **METHODOLOGY**

Mantoux test was done on 100 HIV positive inmates at a drug rehabilitation center. Those who had a positive mantoux test and symptomatic inmates had chest radiographs done.

### **RESULTS**

Three of the 100 inmates were found to have tuberculosis ie. a 3% positive pick up rate.

### **CONCLUSION**

Active case finding in HIV infected persons is an effective way of detecting TB disease.

**Keywords:** TB, HIV