PROGRAMME & ABSTRACT BOOK

Organised by:

MALAYSIAN THORACIC SOCIETY

ANNUAL CONGRESS 2022

13th – 16th OCTOBER 2022

Setia SPICE Convention Centre

MTS 2022 Congress Secretariat:
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WELCOME ADDRESS FROM PRESIDENT OF MALAYSIAN THORACIC SOCIETY

I would like to begin by welcoming all of you to MTS 2022 Congress.

The year 2022 heralds a new page in human health history as community living begins to normalise in the post-COVID-19 pandemic. This is certainly a welcoming development that we all yearn to see.

I am sure many of you cannot wait to travel, visit interesting places and meet people, whether they are old friends or acquaintances.

The Malaysian Thoracic Society understands this human need, and hence we have chosen to hold our annual scientific congress on the beautiful island of Penang. The congress venue at Setia SPICE Convention Centre, with its spacious and eco-friendly establishment, will provide a safe and harmonious environment while this is taking place.

In the past 9 months, our scientific committee has been busy preparing a highly educational and power packed programme to meet your practice needs and appetite for knowledge enhancement. Many renowned experts from within the country and abroad have been invited to enlighten and update us on the most recent discoveries in respiratory medicine.

While science and clinical practice remain the core focus of the meeting, I hope you will enjoy the opportunity provided by this meeting to interact and communicate face-to-face with your peers and the experts.

I would like to take this opportunity to express my utmost gratitude to the organising committee who have worked relentlessly hard to ensure the success of this congress.

Looking forward to seeing you at the Congress!

With warmest regards,

Associate Professor Dr Pang Yong Kek
President
Malaysian Thoracic Society

WELCOME ADDRESS FROM ORGANISING CHAIRPERSON

On behalf of the Malaysian Thoracic Society (MTS) Executive Council and the MTS2022 Organising Committee, it gives me great pleasure and honour to invite you to participate in the forthcoming MTS2022 Annual Congress, held in SPICE Convention Centre, Penang from 13th till 16th October 2022.

MTS Annual Congress has always been a unique meeting focusing on both adult and paediatric respiratory diseases. It is the optimal forum for sharing advances, updates and new information in all areas of adult and paediatric pulmonology. The meeting caters for all. It is undoubtedly an excellent opportunity for interactions between clinicians, academics and allied health professionals alike.

We shall kick start MTS2022 with the congress workshops focussing on Pulmonary hypertension, Critical care medicine and Paediatric thoracic radiology. The main congress includes plenary and meet the expert sessions, topic symposia and interactive sessions.

In addition, the program also includes in-depth learning for specific topics, poster and oral presentation of original scientific research and clinical case reports. Don't miss out on our sunrise sessions which offers the latest updates from ERS2022 and tips and tricks on acing the Respiratory exit viva exams! It is a power-packed scientific program line up this year, involving both local and international experts. So, expect the best during MTS2022!

I would like to take this opportunity to thank all the members of the organising committee in advance for their efforts and enthusiasm. They are the key towards a successful MTS2022.

Lastly, enjoy Penang! Just mask up and stay safe. Looking forward to meeting all of you in person at MTS2022.

P.Lalitha

Dr Lalitha Pereirasamy
Organising Chairperson, MTS 2022

PROGRAMME SUMMARY

Day 1: Thursday, 13th October 2022	
Time	**Programme**
	CONGRESS WORKSHOP (Includes Lunch)
0800 - 1230	**Workshop 1**
	Pulmonary Hypertension
0800 - 1230	**Workshop 2**
	Respiratory Support for Acute Respiratory Failure
0800 - 1230	**Workshop 3**
	The Colourful World of Paediatric Thoracic Radiology
1230 - 1315	**LUNCH SYMPOSIUM (Philips)**
1315 - 1400	**LUNCH**
1400 - 1700	**Workshop 1**
	Pulmonary Hypertension
1700	**COFFEE BREAK**
1400 - 1630	**Workshop 2**
	Respiratory Support for Acute Respiratory Failure
1630	**COFFEE BREAK**
1400 - 1705	**Workshop 3**
	The Colourful World of Paediatric Thoracic Radiology
1705	**COFFEE BREAK**

Day 2: Friday, 14th October 2022	
Time	**Programme**
0700 – 0800	**REGISTRATION**
0800 – 0810	**WELCOME ADDRESS**
0810 – 0850	**PLENARY 1** **New Advances in Management of Advanced Lung Cancer**
0850 – 1005	**SYMPOSIUM 1**
	S1A - Asthma
	S1B - COPD
	S1C – Paediatric Airway Diseases
1005 – 1035	**COFFEE BREAK**
1035 – 1150	**SYMPOSIUM 2**
	S2A - Tuberculosis
	S2B – Interventional Pulmonology
	S2C – Pulmonary Vascular and Lymphatic Disorders
1150 – 1240	**SPONSORED SYMPOSIUM 1A (AstraZeneca)**
	SPONSORED SYMPOSIUM 1B (Boehringer Ingelheim)
1240 – 1430	**LUNCH AND FRIDAY PRAYERS**
1430 – 1600	**SYMPOSIUM 3**
	S3A – Meet the Expert Session I
	S3B – Interstitial Lung Disease
	S3C – Potpourri
1600 – 1650	**SPONSORED SYMPOSIUM 2 (GlaxoSmithKline)**
1650 - 1740	**SPONSORED SYMPOSIUM 3 (Merck Sharp & Dohme)**
1740 – 1935	**MTS ANNUAL GENERAL MEETING & COFFEE BREAK**
1935 – 2200	**DINNER**

Day 3: Saturday, 15th October 2022	
Time	**Programme**
0700 – 0800	**SUNRISE SESSION** **Respiratory Exit Viva Examination: Tips & Tricks**
0800 – 0840	**PLENARY 2** **Challenges in Childhood and Adolescent TB during COVID-19 Pandemic**
0840 – 1010	**SYMPOSIUM 4**
	S4A – Lung Cancer
	S4B – Sleep Disordered Breathing
	S4C – Neonatal Lung Diseases
1010 – 1040	**COFFEE BREAK**
1040 – 1210	**SYMPOSIUM 5**
	S5A – Advances in Respiratory Medicine
	S5B – Pleural Disease
	S5C – Paediatric Year in Review
1210 – 1300	**SPONSORED SYMPOSIUM 4 (Boehringer Ingelheim)**
1300 – 1400	**LUNCH**
1400 - 1500	**SYMPOSIUM 6**
	S6A – Pulmonary Infection
	S6B – Pulmonary Vascular Disease
1400 - 1500	**POSTER PRESENTATION – Poster Display**
	ORAL PRESENTATION
1500 - 1550	**SPONSORED SYMPOSIUM 5 (Sanofi)**
1550 - 1640	**SPONSORED SYMPOSIUM 6A (GlaxoSmithKline)**
	SPONSORED SYMPOSIUM 6B (Novartis)
1640 - 1700	**COFFEE BREAK**
1930 – 2230	**GALA DINNER**

Day 4: Sunday, 16th October 2022	
Time	**Programme**
0700 – 0800	**SUNRISE SESSION** **Best of ERS 2022**
0800 – 0840	**PLENARY 3** **Bronchiectasis: New Perspectives from Bench to Bedside**
0840 - 1010	**SYMPOSIUM 7**
	S7A – Primary Care
	S7B – Meet the Expert Session II
	S7C – Paediatric Tuberculosis
1010 - 1040	**COFFEE BREAK**
1040 - 1130	**SPONSORED SYMPOSIUM 7 (Pfizer)**
1130 - 1230	**SYMPOSIUM 8** **Multi-Disciplinary Case Discussions** **Adult Case** **1. Gasping for Air** **2. Unceasing Bugs: A Bolt from the Blue** **3. The Milk and Brittle Bones** **Multi-Disciplinary Case Discussions** **Paediatric Case** **1. A Child with Chronic Wet Cough** **2. A Toddler with a Wheeze** **3. A Child with Stridor**
1230 - 1315	**Debate** **Should Asymptomatic Mild OSA be Treated in Patient with Significant Cardiovascular Disease?**
1315 - 1330	**CLOSING CEREMONY**
1330 - 1430	**LUNCH**

CONGRESS WORKSHOP

PULMONARY HYPERTENSION

Thursday, 13th October 2022

Chairpersons: Aisya Natasya Musa/Wan Jen Lye

TIME	TOPIC	SPEAKER	VENUE
0800 – 0830	**REGISTRATION**		Ground Mezzanine Floor Foyer
0830 - 0900	PH definition and classifications: what's new?	*Fatimah Azmah Mohammad, Malaysia*	Function Room 7, Ground Mezzanine Floor
0900 – 0930	PAH early diagnosis from Pulmonologist's perspective	*Lee Chiou Perng, Malaysia*	
0930 - 1000	Echo assessment of PH	*David Chew Soon Ping, Malaysia*	
1000 – 1030	**COFFEE BREAK**		Ground Mezzanine Floor Foyer
1030 - 1100	Right heart catheterization – what parameter matters?	*Teoh Chee Kiang, Malaysia*	Function Room 7, Ground Mezzanine Floor
1100 – 1130	Imaging in PH – what clinicians should look for	*Mohammad Hanafiah Kreah, Malaysia*	
1130 – 1200	Pulmonary hypertension in pregnancy	*Leong Ming Chern, Malaysia*	
1200 - 1230	CTD & PAH	*Hazlyna Baharuddin, Malaysia*	
1230 - 1315	**LUNCH SYMPOSIUM** *Company:* Philips *Chairperson:* *Nicholas Teoh, Malaysia* *Speaker:* *Anna Caroline Braga, Singapore* Topic: Cough assist application in the continuum of care – hospital to home		Function Room 7, Ground Mezzanine Floor
1315 - 1400	**LUNCH**		Ground Mezzanine Floor Foyer
1400 - 1430	Management of CTEPH – operable & non-operable CTEPH	*Sundari Ampikaipakan, United Kingdom*	Function Room 7, Ground Mezzanine Floor
1430 - 1500	Risk stratification and treatment of PAH	*Sean Gaine, United Kingdom*	
1500 - 1530	Monitoring & follow-up in PAH	*Geetha Kandavello, Malaysia*	
1530 - 1700	Case discussion		
	Case 1: Serdang Respiratory (iPAH vs Sarcoidosis)	*Lee Chiou Perng, Malaysia*	
	Case 2: CTD-PAH	*Ng Choon Seong, Malaysia*	
	Case 3: Congenital heart disease PAH	*Raja Ezman Raja Shariff, Malaysia*	
1700	**COFFEE BREAK**		Ground Mezzanine Floor Foyer

CONGRESS WORKSHOP

RESPIRATORY SUPPORT FOR ACUTE RESPIRATORY FAILURE

Thursday, 13th October 2022

Chairpersons: Hilmi Lockman/Tan Jiunn Liang

TIME	TOPIC	SPEAKER	VENUE
0800 – 0830	**REGISTRATION**		Ground Mezzanine Floor Foyer
0830 - 0900	Non-invasive respiratory support: Machines, Modes and Interface	*Mohd Basri Mat Nor, Malaysia*	Function Room 8 and 9, Ground Mezzanine Floor
0900 – 0930	Patient self-inflicted lung injury and other complications of non-invasive respiratory support and their management	*Lim Chew Har, Malaysia*	
0930 - 1000	How to detect and manage patient ventilator asynchrony in non-invasive ventilation	*Premela Naidu Sitaram, Malaysia*	
1000 – 1030	**COFFEE BREAK**		Ground Mezzanine Floor Foyer
1030 - 1100	The role of non-invasive respiratory support in COVID-19 pneumonia	*Rafidah Atan, Malaysia*	Function Room 8 and 9, Ground Mezzanine Floor
1100 – 1130	HNFC in acute respiratory failure	*Philip Eng Cher Tiew, Singapore*	
1130 – 1200	Tips for successful NIV for acute respiratory failure	*Philip Eng Cher Tiew, Singapore*	
1200 - 1230	How to apply NIV in COPD exacerbation	*Hilmi Lockman, Malaysia*	
1230 - 1315	**LUNCH SYMPOSIUM** *Company:* Philips *Chairperson: Nicholas Teoh, Malaysia* *Speaker: Anna Caroline Braga, Singapore* Topic: Cough assist application in the continuum of care – hospital to home		Function Room 8 and 9, Ground Mezzanine Floor
1315 - 1400	**LUNCH**		Ground Mezzanine Floor Foyer
1400 - 1530	**Hands-on Workshop**		Function Room 8 and 9, Ground Mezzanine Floor
	Station 1: Ventilation mode		
	Station 2: Waveform & troubleshooting		
	Station 3: NIV & HFNC initiation		
1530 - 1600	Mechanical ventilation for hypercapnoeic respiratory failure - practical tips	*Mohd Basri Mat Nor, Malaysia*	
1600 - 1630	Lung recruitment strategies	*Yap Mei Hoon, Malaysia*	
1630	**COFFEE BREAK**		Ground Mezzanine Floor Foyer

CONGRESS WORKSHOP

THECOLOURFUL WORLD OF PAEDIATRIC THORACIC RADIOLOGY

Thursday, 13th October 2022

Chairpersons: Rus Anida Awang/Noor Ain Noor Affendi/Nicholas Chang Lee Wen/Alison Ting Yih Hua

TIME	TOPIC	SPEAKER	VENUE
0800 – 0820	**REGISTRATION**		Ground Mezzanine Floor Foyer
0820 - 0830	Welcome remarks	*Rus Anida Awang, Malaysia*	Function Room 5 and 6, Ground Mezzanine Floor
0830 - 0915	Classic chest radiographic findings: pearls and pitfalls	*Normawati Mat Said, Malaysia*	
0915 - 1000	Thoracic ultrasound: how can it help?	*Che Zubaidah Che Daud, Malaysia*	
1000 - 1030	**COFFEE BREAK**		Ground Mezzanine Floor Foyer
1030 - 1115	Paediatric CT thorax and its clinical applications	*Hamzaini Abdul Hamid, Malaysia*	Function Room 5 and 6, Ground Mezzanine Floor
1115 - 1200	MRI thorax: why….when….how?	*Bernard Laya, Philippines*	
1200 - 1230	Case based discussions 1: Infection	*Tan Yee Yen, Malaysia* *Che Zubaidah Che Daud, Malaysia*	
1230 - 1315	**LUNCH SYMPOSIUM** *Company:* Philips *Chairperson:* *Nicholas Teoh, Malaysia* *Speaker:* *Anna Caroline Braga, Singapore* Topic: Cough assist application in the continuum of care – hospital to home		Function Room 5 and 6, Ground Mezzanine Floor
1315 - 1400	**LUNCH**		Ground Mezzanine Floor Foyer
1400 - 1440	Case based discussions 2: Neonatal Lung	*Tan Swee Wei, Malaysia* *Hamzaini Abdul Hamid, Malaysia*	Function Room 5 and 6, Ground Mezzanine Floor
1440 - 1520	Case based discussion 3: Tuberculosis	*H'ng Shih Ying, Malaysia* *Normawati Mat Said, Malaysia*	
1520 - 1600	Case based discussion 4: Lung Malformation	*Hasliza A Razak, Malaysia* *Che Zubaidah Che Daud, Malaysia*	
1600 - 1700	Paediatric thoracic radiology quiz	*Hamzaini Abdul Hamid, Malaysia* *Che Zubaidah Che Daud, Malaysia* *Normawati Mat Said, Malaysia*	
1700 - 1705	Closing remarks	*Rus Anida Awang, Malaysia*	
1705	**COFFEE BREAK**		Ground Mezzanine Floor Foyer

DAILY PROGRAMME		
14th October 2022, Friday		
0800 – 0810	**WELCOME ADDRESS** • Pang Yong Kek, Malaysia *President, Malaysian Thoracic Society*	Ballroom 1, Lower Ground Floor
0810 – 0850	**PLENARY 1 (P1)** *Chairpersons: Pang Yong Kek* New advances in management of advanced lung cancer *Liam Chong Kin, Malaysia*	Ballroom 1, Lower Ground Floor
0850 – 1005	**SYMPOSIUM 1 (S1)**	
	S1A – *Asthma* *Chairpersons: Andrea Ban Yu-Lin/Mohamed Fauzi Abdul Rani* 1. GINA 2022 updates *Helmy Haja Mydin, Malaysia* 2. Allergy testing in asthma *Kent Woo Chee Keen, Malaysia* 3. Roles of biologics in asthma comorbidities *Umadevi A Muthukumaru, Malaysia*	Ballroom 1, Lower Ground Floor
	S1B – *COPD* *Chairpersons: Arvindran Alaga/Hema Yamini Devi* 1. Triple therapy in COPD treatment *Mohd Arif Mohd Zim, Malaysia* 2. Pulmonary rehabilitation in COPD – how we do it? *Fatim Tahirah Mirza Mohd Tahir Beg, Malaysia* 3. Lung volume reduction strategies *Rosmadi Ismail, Malaysia*	Ballroom 2, Lower Ground Floor
	S1C – *Paediatric Airway Diseases* *Chairperson: Patrick Chan Wai Kiong/Eg Kah Peng* 1. Approach to noisy breathing *Hasniah Abdul Latif, Malaysia* 2. Tracheo-Oesophageal Fistula – beyond the neonatal period *Shangari Kunaseelan, Malaysia* 3. Surgical management of severe tracheal stenosis *Zakaria Zahari, Malaysia*	Ballroom 4, Lower Ground Floor
1005 - 1035	**COFFEE BREAK**	Ballroom 3, Lower Ground Floor
1035 – 1150	**SYMPOSIUM 2 (S2)**	
	S2A – *Tuberculosis* *Chairpersons: Nurhayati Mohd Marzuki/Abdul Razak Abdul Muttalif* 1. Management of TB – what's new? *Goon Ai Khiang, Malaysia* 2. Updates on management of NTM PD *Mat Zuki Mat Jaeb, Malaysia* 3. Drug resistant TB *K. Kannan Sivaraman Kannan, Malaysia*	Ballroom 1, Lower Ground Floor
	S2B – *Interventional Pulmonology* *Chairpersons: Arvindran Alaga/Razul Md Nazri Md Kassim* 1. Approach to central airway obstruction *Hideo Saka, Japan* 2. EUS-B by pulmonologist *Masahide Oki, Japan* 3. Robotic bronchoscopy *Calvin Ng Sze Hang, Hong Kong*	Ballroom 2, Lower Ground Floor
	S2C – *Pulmonary Vascular and Lymphatic Disorders* *Chairpersons: Ahmad Fadzil Abdullah/Nicholas Chang Lee Wen* 1. Paediatric lymphatics flow disorders *N. Fafwati Faridatul Akmar Mohammad, Malaysia* 2. Pulmonary hypertension in chronic respiratory disorders: diagnosis and management *Mariana Daud, Malaysia* 3. Pulmonary manifestations of congenital heart disease in children *Dg Zuraini Sahadan, Malaysia*	Ballroom 4, Lower Ground Floor

1150 – 1240	**SPONSORED SYMPOSIUM 1A (SS1A)** *Company:* AstraZeneca Sdn Bhd *Chairperson: Pang Yong Kek, Malaysia* *Speaker: Eric Bateman, South Africa* *Topic*: Breathing Fresh AIR into Asthma Care: From SABINA to GINA 2022 *Speaker: Ian Povard, United Kingdom* *Topic*: Achieving Clinical Remission in Asthma – What Do We Know Thus Far With Biologics?	Ballroom 1, Lower Ground Floor
	SPONSORED SYMPOSIUM 1B (SS1B) *Company:* Boehringer Ingelheim (Malaysia) Sdn Bhd *Chairperson: Irfhan Ali Hyder Ali, Malaysia* *Speaker: Syazatul Syakirin Sirol Aflah, Malaysia* *Topic*: 2022 ATS/ERS/ALAT/JRS Clinical Practice Guidelines: An update on Diagnosis and Treatment of Progressive Pulmonary Fibrosis	Ballroom 2, Lower Ground Floor
1240 – 1430	**LUNCH AND FRIDAY PRAYERS**	Ballroom 3, Lower Ground Floor
1430 – 1600	**SYMPOSIUM 3 (S3)**	
	S3A – *Meet the Expert Session I* *Chairpersons: Tan Jiunn Liang/Soo Chun Ian* 1. How I manage stage III lung cancer *Adlinda Alip, Malaysia* 2. How I approach chronic dyspnoea *Pang Yong Kek, Malaysia* 3. How I treat persistent air leak *Narasimman Sathiamurthy, Malaysia*	Ballroom 1, Lower Ground Floor
	S3B – *Interstitial Lung Disease* *Chairpersons: Syazatul Syakirin Sirol Aflah/Noorul Afidza Muhammad* 1. Sarcoidosis guideline *Marlies Wijsenbeek, Netherland* 2. Updates in hypersensitivity pneumonitis *Martina Koziar Vasakova, Czech* 3. Imaging in ILD – tips & tricks *Anand Devaraj, United Kingdom*	Ballroom 2, Lower Ground Floor
	S3C – *Potpourri* *Chairpersons: Anna Marie Nathan/Shangari Kunaseelan* 1. Respiratory risks of gastric acid suppressants in children *Eg Kah Peng, Malaysia* 2. Role of non-invasive ventilation in neuromuscular disease *Hui-Leng Tan, United Kingdom* 3. Management of bronchiectasis exacerbation *Vikas Goyal, Australia*	Ballroom 4, Lower Ground Floor
1600 - 1650	**SPONSORED SYMPOSIUM 2 (SS2)** *Company:* GlaxoSmithKline Pharmaceutical Sdn Bhd *Chairperson: Pang Yong Kek, Malaysia* *Speaker: Kittipong Maneechotesuwan, Thailand* *Abdul Razak Abdul Muttalif, Malaysia* *Topic*: Application of TI modelling in real life/clinical practice - through observation and experience	Ballroom 1, Lower Ground Floor
1650 - 1740	**SPONSORED SYMPOSIUM 3 (SS3)** *Company:* Merck Sharp & Dohme (Malaysia) Sdn Bhd *Chairperson: How Soon Hin, Malaysia* *Speaker: Daniel Tan, Singapore* *Topic*: Expanding the role of immuno-oncology into metastatic and early-stage NSCLC	Ballroom 2, Lower Ground Floor
1740 - 1935	**MTS ANNUAL GENERAL MEETING & COFFEE BREAK**	Ballroom 1, Lower Ground Floor Ballroom 3, Lower Ground Floor
1935 - 2200	**DINNER**	Rooftop @ SPICE

DAILY PROGRAMME		
15th October 2022, Saturday		
0700 - 0800	**SUNRISE SESSION** *Chairperson: Tan Jiunn Liang* Respiratory exit viva examination – tips & tricks *Umadevi A Muthukumaru, Malaysia*	Ballroom 1, Lower Ground Floor
0800 – 0840	**PLENARY 2 (P2)** *Chairperson: Rus Anida Awang* Challenges in childhood and adolescent TB during COVID-19 pandemic *Marieke Van Der Zalm, South Africa*	Ballroom 4, Lower Ground Floor
0840 – 1010	**SYMPOSIUM 4 (S4)**	
	S4A – Lung Cancer *Chairpersons: How Soon Hin/Loh Thian Chee* 1. Next generation sequencing – do we need it? *Pathmanathan Rajadurai, Malaysia* 2. Unmet need in immuno-oncology *Adlinda Alip, Malaysia* 3. Pulmonary nodules – management updates *Zuhanis Abdul Hamid, Malaysia*	Ballroom 1, Lower Ground Floor
	S4B – *Sleep Disordered Breathing* *Chairpersons: Megat Razeem Abdul Razak/Nurul Yaqeen Mohd Esa* 1. PAP therapy in OHS *Rashidah Yasin, Malaysia* 2. Weight reduction surgery in sleep apnoea *Nik Ritza Kosai Nik Mahmood, Malaysia* 3. Malaysia – sleep guideline *Ahmad Izuanuddin Ismail, Malaysia*	Ballroom 2, Lower Ground Floor
	S4C – *Neonatal Lung Diseases* *Chairpersons: Azizi Omar/Dg Zuraini Sahadan* 1. Respiratory outcomes of prematurity: Malaysian National Neonatal Registry *See Kwee Ching, Malaysia* 2. Advances in non-invasive ventilation strategies in neonatal intensive care unit (NICU) *Chee Seok Chiong, Malaysia* 3. Role of Paediatric Pulmonologist in the management of bronchopulmonary dysplasia: from hospital to home *Nicholas Chang Lee Wen, Malaysia*	Ballroom 4, Lower Ground Floor
1010 - 1040	**COFFEE BREAK**	Ballroom 3, Lower Ground Floor
1040 – 1210	**SYMPOSIUM 5 (S5)**	
	S5A – *Advances in Respiratory Medicine* *Chairperson: Ong Choo Khoon/Mustafa Kamal Razak* 1. New biologics in severe asthma *Azza Omar, Malaysia* *2.* Lung ultrasound in management of respiratory diseases *Zuhanis Abdul Hamid, Malaysia* 3. Lung transplantation - overview *Tan Han Loong, Malaysia*	Ballroom 1, Lower Ground Floor
	S5B – Pleural Disease *Chairpersons: Mohamed Faisal Abdul Hamid/Muhammad Redzwan S. Rashid Ali* *1.* Management of persistent transudative effusion *Anantham Devanand, Singapore* 2. Management of pleuro-cutaneous fistula *Benedict Dharmaraj, Malaysia* 3. Management of chylothorax *Gary Lee Y. C., Australia*	Ballroom 2, Lower Ground Floor
	S5C – *Paediatric Year in Review* *Chairpersons: Norzila Mohamed Zainudin/Mariana Daud* 1. Long term pulmonary complications in paediatric COVID-19 *Su Siew Choo, Malaysia*	Ballroom 4, Lower Ground Floor

	2. Updates on asthma management based on GINA 2022 guidelines *Jessie Anne de Bruyne, Malaysia* 3. Genetic testing for inherited respiratory conditions in the newborns *Anna Marie Nathan, Malaysia*	
1210 - 1300	**SPONSORED SYMPOSIUM 4 (SS4)** *Company:* Boehringer Ingelheim (Malaysia) Sdn Bhd *Chairperson: Irfhan Ali Hyder Ali, Malaysia* *Speaker: Lalitha Pereirasamy, Malaysia* *Topic*: The G.O.L.D Standard: Maximizing bronchodilator therapy for COPD patients	Ballroom 1, Lower Ground Floor
1300 - 1400	**LUNCH**	Ballroom 3, Lower Ground Floor
1400 - 1500	**SYMPOSIUM 6 (S6)**	
	S6A – Pulmonary Infection *Chairpersons: Poh Mau Ern/Suzila Che Sayuti* 1. New therapeutics in managing HAP *Petrick Periyasamy, Malaysia* 2. Fungal disease in asthma, COPD and bronchiectasis *Sanjay Haresh Chortimall, Singapore*	Ballroom 1, Lower Ground Floor
	S6B – Pulmonary Vascular Disease *Chairpersons: Aisya Natasya Musa/Chin Ka Kiat* *1.* Role of early combination therapy in PAH *Luke Howard, United Kingdom* 2. Pulmonary arterial hypertension – what's new? *Lee Chiou Perng, Malaysia*	Ballroom 2, Lower Ground Floor
	E-POSTER PRESENTATION ***Judges*** *Rashidah Yasin, Malaysia* *Helmy Haja Mydin, Malaysia* *Azizi Hj Omar, Malaysia* *Jaya Muneswarao Ramadoo, Malaysia* *Tengku Saifudin Tengku Ismail, Malaysia* *Hasniah Abdul Latif, Malaysia* *Mohammed Fauzi Abdul Rani, Malaysia* *Rozanah Abd Rahman, Malaysia* *Jessie Anne De Bruyne, Malaysia* *Irfhan Ali Hyder Ali, Malaysia* *Wong Jyi Lin, Malaysia* *Norzila Mohamed Zainudin, Malaysia*	POSTER DISPLAY
	ORAL PRESENTATION ***Judges*** *Roslina Abdul Manap, Malaysia* *Abdul Razak Abdul Muttalif, Malaysia* *Patrick Chan Wai Kiong, Malaysia*	Ballroom 4, Lower Ground Floor
1500 - 1550	**SPONSORED SYMPOSIUM 5 (SS5)** *Company*: Sanofi *Chairperson: Irfhan Ali Hyder Ali, Malaysia* *Speaker: Mohammed Fauzi Abdul Rani, Malaysia* Topic: Expanding horizons: Targeting type 2 inflammation as a promising therapeutic strategy *Speaker: Cheah Wee Kooi, Malaysia* Topic: Expanding horizons: Influenza is back: Evidence and impact	Ballroom 2, Lower Ground Floor
1550 - 1640	**SPONSORED SYMPOSIUM 6A (SS6A)** *Company:* GlaxoSmithKline Pharmaceutical Sdn Bhd *Chairperson: Pang Yong Kek, Malaysia* *Speaker: Mariko Koh, Singapore* Topic: The right patients at the right time - elevating care for SEA patients with biologics	Ballroom 1, Lower Ground Floor

	SPONSORED SYMPOSIUM 6B (SS6B) *Company:* Novartis *Chairperson: Arvindran Alaga, Malaysia* *Speaker: Helmy Haja Mydin, Malaysia* Topic: The Platinum League: Better Breath Tomorrow	Ballroom 2, Lower Ground Floor
1640 - 1710	**COFFEE BREAK**	Ballroom 3, Lower Ground Floor
1930 - 1030	**GALA DINNER**	Jadeite Ballroom, Amari Hotel

DAILY PROGRAMME		
16th October 2022, Sunday		
0700 - 0800	**SUNRISE SESSION** *Chairperson: Nurul Yaqeen Mohd Esa* Best of ERS 2022 COVID-19: Highlights from the ERS Congress 2022 *Thomas Gille, France* Basic and translational respiratory science: highlights from the ERS Congress 2022 *Sara Cuevas Ocana, United Kingdom* Sleep disordered breathing: highlights from the ERS Congress 2022 *Matteo Bradicich, Switzerland*	Ballroom 1, Lower Ground Floor
0800 - 0840	**PLENARY 3 (P3)** *Chairperson: Ahmad Izuanuddin Ismail* Bronchiectasis: new perspective from bench to bedside *Sanjay Haresh Chotirmall, Singapore*	Ballroom 1, Lower Ground Floor
0840 - 1010	**SYMPOISUM 7 (S7)**	
	S7A – Primary Care *Chairpersons: Wong Chee Kuan/ Mohd Arif Mohd Zim* 1. Personalising Inhaler Devices and How RMTAC Can Help *Jaya Muneswarao Ramadoo, Malaysia* 2. Mild asthma – management strategy *Sri Wahyu Taher, Malaysia* 3. COPD in primary care *Richard Loh Li Cher, Malaysia*	Ballroom 1, Lower Ground Floor
	S7B – Meet the Expert Session II *Chairpersons: Tengku Saifudin Tengku Ismail/Norhaya Mohd Razali* 1. How I managed massive hemoptysis *Tie Siew Teck, Malaysia* 2. How I manage MDR-TB (Complicated regime/case) *Zamzurina Abu Bakar, Malaysia* 3. How I choose biologic in severe asthma *Azza Omar, Malaysia*	Ballroom 2, Lower Ground Floor
	S7C – Paediatric Tuberculosis *Chairpersons: Mariana Daud/Alison Ting Yih Hua* 1. Updates on the Malaysian Tuberculosis Clinical Practice Guidelines 2022: Active and latent TB in children *Choo Chong Ming, Malaysia* 2. Short and long-term complications of pulmonary tuberculosis *Hafizah Zainudin, Malaysia* 3. Non tuberculosis mycobacterium disease in children *Noor Ain Noor Affendi, Malaysia*	Ballroom 4, Lower Ground Floor
1010 - 1040	**COFFEE BREAK**	Ballroom 3, Lower Ground Floor
1040 - 1130	**SPONSORED SYMPOSIUM 7 (SS7)** *Company:* Pfizer (Malaysia) Sdn Bhd *Chairperson: Chai Chee Shee, Malaysia* *Speaker: Pang Yong Kek, Malaysia* Topic: Sequential vaccination strategies for adult pneumococcal disease	Ballroom 1, Lower Ground Floor
1130 - 1230	**SYMPOSIUM 8 (S8)**	
	S8A – Multi-Disciplinary Case Discussion: Adult *Chairpersons: Roslina Abdul Manap/Hilmi Lockman* Case 1: Gasping for air *Presenter: Vijayan Munusamy, Malaysia* Case 2: Unceasing bugs: a bolt from the blue *Presenter: Haly Rozie Ahmad, Malaysia* Case 3: The milk and brittle bones Presenter: *Teoh Sze Kye, Malaysia*	Ballroom 1, Lower Ground Floor

	S8B – Multi-Disciplinary Case Discussion: Paediatrics *Chairpersons: Su Siew Choo/N. Fafwati Faridatul Akmar Mohammad* Case 1: A child with chronic wet cough *Presenter: Nor Diyana Ismail, Malaysia* *Che Zubaidah Che Daud, Malaysia* Case 2: A toddler with a wheeze *Presenter: Kavetha Ramalingam, Malaysia* *Normawati Mat Said, Malaysia* Case 3: A child with stridor *Presenter: Chua Yi Cheau, Malaysia* *Hamzaini Abdul Hamid, Malaysia*	Ballroom 4, Lower Ground Floor
1230 - 1315	**DEBATE** *Chairperson: Lalitha Pereirasamy* Should asymptomatic mild OSA be treated in patients with significant cardiovascular disease? *Megat Razeem Abdul Razak, Malaysia* *Rashidah Yasin, Malaysia*	Ballroom 1, Lower Ground Floor
1315 - 1330	**CLOSING CEREMONY** *Organising Chairperson: Lalitha Pereirasamy*	Ballroom 1, Lower Ground Floor
1330 - 1400	**LUNCH**	Ballroom 3, Lower Ground Floor

FLOOR PLAN & TRADE EXHIBITION

MEETING & CONFERENCE SPACE

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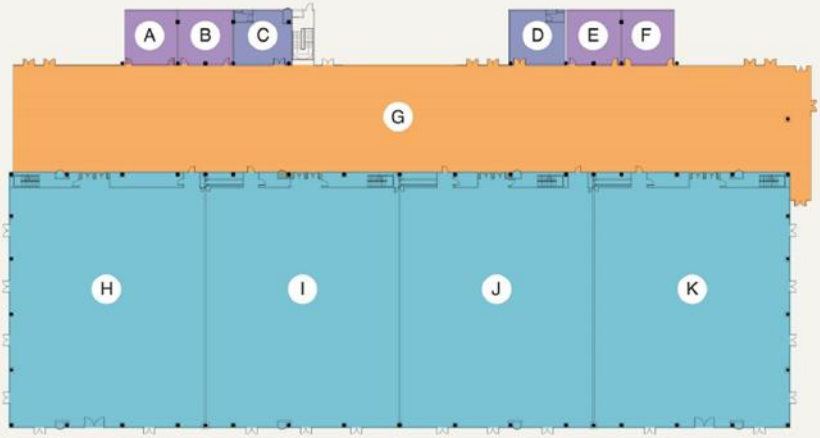
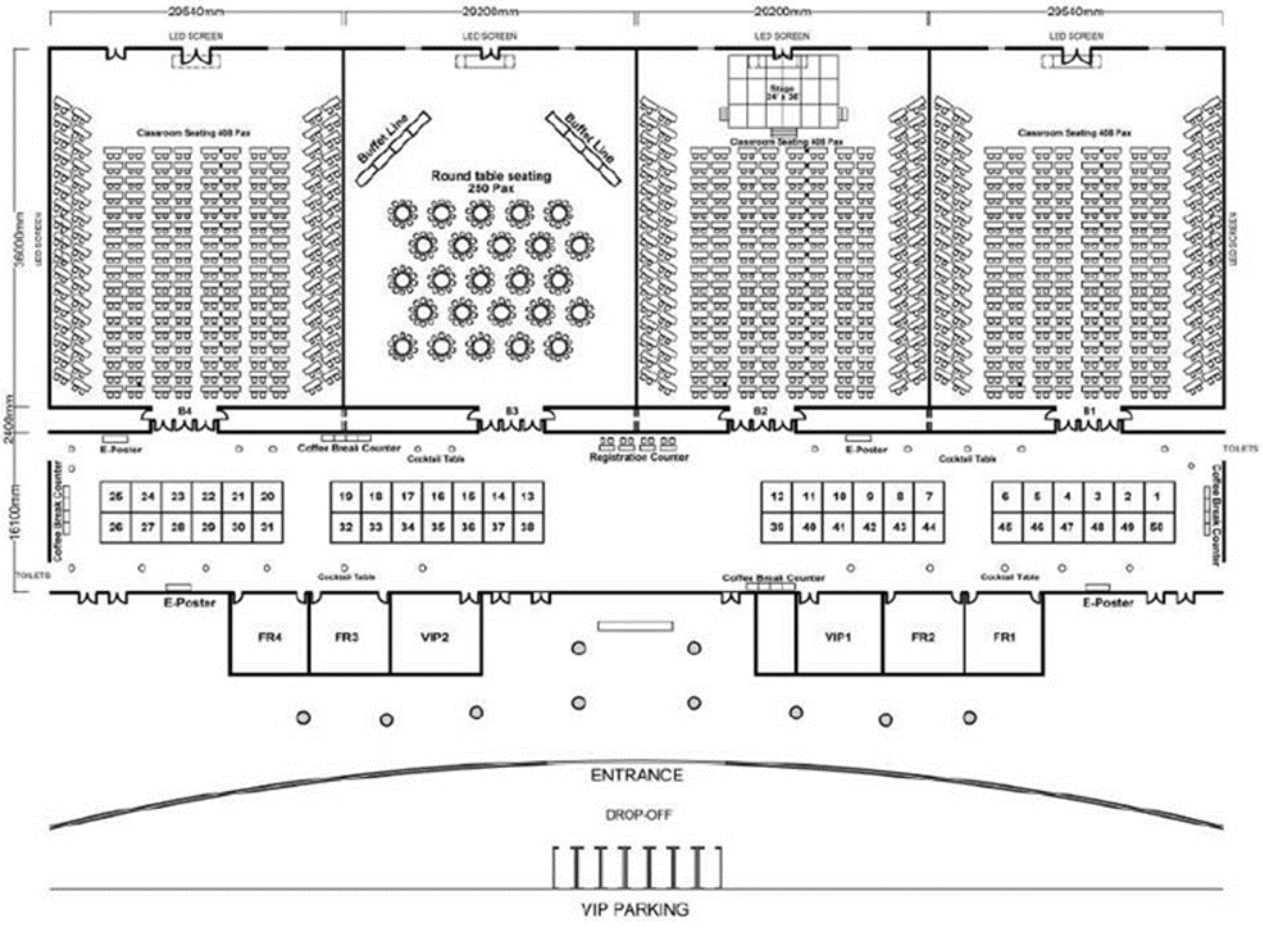
SETIA SPICE CONVENTION CENTRE



- A Function Room 1
- B Function Room 2
- C VIP Room 1
- D VIP Room 2
- E Function Room 3
- F Function Room 4
- G Grand Foyer
- H Ballroom 1
- I Ballroom 2
- J Ballroom 3
- K Ballroom 4



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Boehringer Ingelheim (Malaysia) Sdn Bhd	11, 12, 39 and 40
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Pulmonary Hypertension Workshop

PH DEFINITION AND CLASSIFICATIONS: WHAT'S NEW?

Fatimah Azmah Mohammad
Hospital Serdang, Selangor, Malaysia

Pulmonary hypertension (PH) has historically been defined as a mean pulmonary artery pressure (mPAP) ≥ 25 mm Hg measured by right heart catheterization (RHC).The Sixth World Symposium on Pulmonary Hypertension (6th WSPH) in 2018 proposed a new hemodynamic threshold of mPAP > 20 mm Hg. A number of reasons led to the proposed change in the hemodynamic definition of PH. The change in hemodynamic definition of PH poses new challenges in the field. The updated definition will lead to increased case finding of patients with PH. It has the potential to identify patients with PH at an earlier stage of the disease, and optimistically, permit introduction of therapeutics at an earlier timeframe with potential to improve outcomes. PH is divided into 5 major groups for clinical classification purposes. These are: 1) Pulmonary Arterial Hypertension (PAH); 2) PH due to left heart disease; (3) PH due to lung disease and/or hypoxia (PH-LD); 4) PH due to pulmonary artery obstruction and 5) PH with unclear and/or multifactorial mechanisms. In addition to hemodynamic differences, the groups encompass a broad range of underlying conditions, with varied prevalence and therapeutic approach.

Pulmonary Hypertension Workshop

PAH EARLY DIAGNOSIS FROM PULMONOLOGIST'S PERSPECTIVE

Lee Chiou Perng
Hospital Serdang, Selangor, Malaysia

The new 2022 ERS/ESC PAH guideline has just been published recently. There were important updates in diagnostic algorithm which also included suggestions for primary care. In this talk, we will be discussing on some latest updates from this guideline. Late diagnosis has always been associated with poorer outcome, therefore, in this session we will also looking into how we can improve this unmet need.

Pulmonary Hypertension Workshop

ECHO ASSESSMENT OF PH

David Chew Soon Ping
Cardio Vascular Sentral Sdn Bhd, Kuala Lumpur, Malaysia

Pulmonary hypertension is defined as a mean pulmonary artery pressure that is more than 20 mmHg. Pulmonary hypertension classification has been updated according to the 6th world symposium on pulmonary hypertension 2018. Echocardiography is the key imaging modality in the diagnosis and assessment of pulmonary hypertension.

Pulmonary hypertension can affect the right ventricle leading to dilatation and ultimately right heart failure. Echocardiography gives information on cardiac structure and function. Pulmonary hypertension can result in hypertrophy of the right ventricle (RV) as well as dilatation of RV and right atrium. The use of doppler echocardiography allows estimation of the pulmonary artery pressure to screen, detect and assess the severity of pulmonary hypertension. Hence echocardiography is the most useful screening tool for the detection of pulmonary hypertension.

Echocardiography can also assess possible causes of pulmonary hypertension i.e. due to left heart disease, valve disease or congenital heart disease. In patients with pulmonary hypertension, echo gives useful information of the effects of pulmonary hypertension on the right heart. Assessment of RV function parameters (e.g TAPSE, Tei index) gives prognostic information. The presence of impaired RV function is an indicator of poorer outcomes and serial echo re assessment after therapy can give useful prognostic information.

Pulmonary Hypertension Workshop

RIGHT HEART CATHETERIZATION – WHAT PARAMETER MATTERS?

Teoh Chee Kiang
National Heart Institute, Kuala Lumpur, Malaysia

Right heart catheterization is a diagnostic procedure in which a small catheter is inserted into central vein and maneuvered into right side of heart, in order to measure right heart pressure, pulmonary hemodynamics and cardiac output. There is no universally accepted indication of right heart catheterization but it is used as diagnostic test which includes pulmonary hypertension evaluation, congenital heart study, heart-lung transplantation and others. It is also widely used in critical care unit in patient with cardiogenic shock. Zeroing and referencing of the pressure system are the important steps before starting the procedure in order to ensure the correct evaluation of hemodynamic parameters. It is utmost important to avoid errors in pressure measurement especially pulmonary capillary wedge pressure because it can complicate the differentiation of pulmonary arterial hypertension from other pulmonary hypertension disorders and lead to wrong diagnosis. In conclusion, clinical correlation and standardization of right heart catheterization are warranted to ensure the accuracy of diagnosis and establishing prognosis of patients with pulmonary arterial hypertension.

Pulmonary Hypertension Workshop

IMAGING IN PH – WHAT CLINICIANS SHOULD LOOK FOR

Mohammad Hanafiah Kreah
Sunway Medical Centre, Selangor, Malaysia

Pulmonary hypertension (PH) is a condition characterized by increased pressure in the pulmonary circulation. It may be idiopathic or arise in the setting of other clinical conditions. Imaging plays an important role in the evaluation and management of PH, including diagnosis, establishing etiology, prognostication and assessment of response to therapy. Multiple imaging modalities are available, including radiographs, computed tomography, magnetic resonance imaging, nuclear medicine, echocardiography and invasive catheter angiography. Some features seen on cross sectional imaging can suggest a subtype or probable cause of PH that may facilitate placing the patient in the correct category. It is crucial to understand the advantages and disadvantages of the different imaging tools available for the diagnostic work-up and follow-up of patients with pulmonary hypertension.

Pulmonary Hypertension Workshop

PULMONARY HYPERTENSION IN PREGNANCY

Leong Ming Chern
National Heart Institute, Kuala Lumpur, Malaysia

Women with pulmonary hypertension have a high risk of morbidity and mortality during pregnancy. The inability of the heart to cope with the increase in the cardiac output and the physiological stress post-delivery often lead to heart failure and not uncommonly, death. The risks are compounded by the hypercoagulability, disruption of equilibrium in the pulmonary and systemic vascular resistance and interruption of pulmonary hypertension targeted therapy during pregnancy. While there are novel therapies for pulmonary hypertension, the risk of pregnancy in severe pulmonary hypertension is still prohibitively high. However, pregnancy is contraindicated in women with pulmonary hypertension. When pregnancy occurs, the care should be managed by a multidisciplinary team with experience in the management of both pulmonary hypertension and high-risk pregnancies. This talk focuses on the physiological changes seen in a parturient with severe pulmonary hypertension and some of the strategies employed by the team to mitigate pregnancy risks. Lastly, it reiterates the importance of pre-pregnancy counselling in managing this group of high-risk patients.

Pulmonary Hypertension Workshop

CTD & PAH

Hazlyna Baharuddin
UiTM Private Specialist Centre, Sungai Buloh Campus, Selangor, Malaysia

There are more than 200 different types of connective tissue diseases (CTD). Rare diseases such as Marfan and Ehler-Danlos are inherited. The more 'common' autoimmune CTD are rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), systemic sclerosis (SSc), Sjogren Syndrome, mixed connective tissue disease (MCTD), idiopathic inflammatory myositis (IIM) and systemic vasculitis. Although these CTDs have diverse clinical symptoms, courses, and prognosis, they have overlapping features of development of specific autoantibodies, sustained inflammation and systemic phenotype involving several organs.

Pulmonary arterial hypertension (PAH) is a progressive disease characterised by an elevation of pulmonary arterial pressure (PAP) and pulmonary vascular resistance, leading to right ventricular and death. There was little interest in PAH until the epidemic of aminorex-induced PAH in the late 1960's. Since then, advances in the epidemiology, mechanisms, and genetics of PAH have led to a surge of clinical trials since the turn of the new millennium, leading to development of various therapeutic options.

Now it is known that although PAH is rare is in its idiopathic form, it is not uncommonly associated with CTD. Real-life cases of CTD-PAH will be discussed in this talk. At the end of this talk, the participants should be knowledgeable in these aspects of CTD-PAH

1) the definition and differences between pulmonary hypertension (PH) and PAH
2) the epidemiology of CTD-PAH
3) the importance of early detection of CTD-PAH
4) the screening tools available
5) the treatment available

Pulmonary Hypertension Workshop

MANAGEMENT OF CTEPH – OPERABLE & NON-OPERABLE CTEPH

Sundari Ampikaipakan
Norfolk and Norwich University Hospital, United Kingdom

Chronic thromboembolic pulmonary hypertension (CTEPH) is a progressive pulmonary vascular disorder, classified as group 4 pulmonary hypertension (PH) in the European Society of Cardiology (ESC)/European Respiratory Society (ERS) guidelines. The disease is usually a result of one or more episodes of pulmonary embolism and has been reported to occur in 0.6–4.4% of patients who have had a pulmonary embolism. CTEPH is characterised by macroscopic thromboembolic lesions within proximal or distal pulmonary arteries and microscopic pulmonary vasculopathy. The clinical consequences of these pathological changes, which can include intimal thickening, vascular remodelling and plexiform lesions, are elevated pulmonary vascular pressures and increased pulmonary vascular resistance (PVR), which can lead to right heart failure and death.

This talk will provide an overview on current treatment strategies for the management of CTEPH both medical and surgical with a look into what the future holds.

Pulmonary Hypertension Workshop

RISK STRATIFICATION AND TREATMENT OF PAH

Sean Gaine
Mater Misericordiae University Hospital, Ireland

Once the diagnosis of pulmonary arterial hypertension (PAH) has been made treatment needs to be initiated promptly. However, deciding on the most appropriate therapeutic approach requires a careful assessment of the patient's mortality risk. A three strata approach that includes clinical parameters, exercise testing, biomarkers, imaging and haemodynamics is used at initial assessment to determine if the one-year risk of mortality is low (<5%), intermediate (5-20%) or high (>20%). Perhaps even more important than the initial risk assessment is the first follow up visit, at around three months, where the impact of the chosen therapy is evaluated. A new validated four strata approach allows a more granular assessment of risk and helps decide if treatment escalation is required. Treatment strategies for PAH have evolved over the past few years to emphasize the importance of combination therapy and early escalation. More recently there has been a focus on patients with PAH and cardiopulmonary comorbidities where a more individualised approach to treatment and escalation is advised. New therapies are under active investigation currently, but we need ongoing vigilance to use the therapies we currently have as promptly and efficiently as possible to insure better long term outcomes for our patients.

Reference

Humbert, M et al European Heart Journal, 2022;, ehac237, https://doi.org/10.1093/eurheartj/ehac237

Pulmonary Hypertension Workshop

MONITORING & FOLLOW-UP IN PAH

Geetha Kandavello
National Heart Institute, Kuala Lumpur, Malaysia

Pulmonary arterial hypertension is a progressive disease and the it has been shown in the National Institute of Health (NIH) registry in 1981 that the median survival was 2.8 years if not treated early. Even though survival over 7 years has improved in the later era with advances in therapy as shown in the Registry to Evaluate Early And Long-term PAH disease (REVEAL registry) which enrolled PAH patients from 2006 to 2009 in the US who had PAH targeted therapy within 6 months of diagnosis, it is still suboptimal with a survival rate of only $58.9 \pm 2.7\%$.

There are many reasons for this but strategic monitoring and objective assessment of these patients on follow up following initiation of PAH targeted therapy is crucial.

Some important principles are:

1. Early review with 1-3 months following initiation of therapy and 3-6 months subsequently. This allows for monitoring of adverse events, compliance and response to therapy. Treatment can be revised and optimized early.
2. Objective multiparametric assessment of the response to therapy using risk assessment at follow up. , (e.g. ESC risk assessment table, Reveal risk score , French registry etc , .).

Clinical assessment as well as appropriate investigations to assess the functional capacity using 6min walk test/ cardiopulmonary exercise testing, monitoring of the right ventricular function with biomarkers, echocardiogram and Cardiac magnetic resonance as well as cardiac catherization when indicated is currently the standard of care for PAH patients

3. Accelerating PAH targeted therapy based on the risk of the patient either upfront combination therapy, early sequential therapy or even triple combination therapy in high risk patients is recommended by the guidelines. The aim is to get the patients into the low risk status and maintain them in the low risk to optimize survival.iii,iv,
4. It is also important to understand the PAH's patients' experience and challenges they face living with PAH. Hence patient-reported outcome measures (PROM) must be also assessed during follow up. A number of PH-specific HR-QoL instruments have been developed and validated (e.g. Cambridge Pulmonary Hypertension Outcome Review [CAMPHOR] , emPHasis-10 ,living with Pulmonary Hypertension ,and Pulmonary Arterial Hypertension-Symptoms and Impact [PAH-SYMPACT]).

Pulmonary Hypertension Workshop

CASE 1: SERDANG RESPIRATORY (IPAH VS SARCOIDOSIS)

Lee Chiou Perng
Hospital Serdang, Selangor, Malaysia

Establishing an accurate diagnosis and PAH grouping is extremely important, given the differences in treatment options. However, in real world setting, it is often difficult to achieve. In this session, we will be sharing our experience in managing a young lady with a background history of possible sarcoidosis presenting with clinical evidence suggesting PAH. We will take you through her treatment journey.

Pulmonary Hypertension Workshop

CASE 2: CTD-PAH

Ng Choon Seong
Hospital Selayang, Selangor, Malaysia

Pulmonary arterial hypertension is a rare disease but it has gained increasing attention due to its high mortality risk. Here, we presented a case of connective tissue disease related pulmonary arterial hypertension. In this case, it highlights the complex etiology of pulmonary arterial hypertension in relation to connective tissue disease. This patient had both components of group 1 and group 3 pulmonary arterial hypertension. It is important to risk stratify the patient, to consider escalation of therapy including combination therapy when treatment goal of low risk not achieved. Multidisciplinary approach from cardiology, rheumatology and pulmonology as well as shared decision between patient and attending physician do play a crucial role here.

Pulmonary Hypertension Workshop

CASE 3: CONGENITAL HEART DISEASE PAH

Raja Ezman Raja Shariff
UiTM Selangor Branch, Sungai Buloh Campus, Selangor, Malaysia

Patent ductus arteriosus (PDA) makes up 5 to 10% of all congenital heart diseases (CHD). Although more uncommon than atrial septal defects (ASD), clinicians caring for adult patients should be aware of PDA as they can commonly be missed in childhood and patients affected by the condition may only manifest symptoms in their mid-20's or 30's. The case presented is of a 28-year-old gentleman who was referred to IJN from a neighbouring hospital for typical symptoms of left and right ventricular failure. However, on review of his ECG (showing prominent right ventricular strain patterns) and an extremely trabeculated left ventricle, suspicion of a chronic congenital condition arose. Closer evaluation of his echocardiography revealed the presence of a significant PDA shunt with evidence of Eisenmenger physiology proven on right heart catheterization.

Key Points:

- Look hard for shunts in the presence of pulmonary hypertension
- Symptomatic PDA in adulthood is normally a BAD sign

However, Eisenmenger syndrome is **NOT** a death sentence

Respiratory Support for Acute Respiratory Failure Workshop

NON-INVASIVE RESPIRATORY SUPPORT: MACHINES, MODES AND INTERFACE

Mohd Basri Mat Nor

International Islamic University Malaysia, Kuala Lumpur, Malaysia

-No abstract-

Respiratory Support for Acute Respiratory Failure Workshop

PATIENT SELF-INFLICTED LUNG INJURY AND OTHER COMPLICATIONS OF NON-INVASIVE RESPIRATORY SUPPORT AND THEIR MANAGEMENT

Lim Chew Har

Hospital Pulau Pinang, Pulau Pinang, Malaysia

-No abstract-

Respiratory Support for Acute Respiratory Failure Workshop

HOW TO DETECT AND MANAGE PATIENT VENTILATOR ASYNCHRONY IN NON-INVASIVE VENTILATION

Premela Naidu Sitaram

Subang Jaya Medical Centre, Selangor, Malaysia

Non-Invasive Ventilation (NIV) refers to the delivery of assisted ventilator support via a face mask, nasal mask or a helmet as interface. In carefully selected patients this mode of oxygen delivery has shown to be beneficial in the management of respiratory failure. However, failure rate of NIV is reported to be as high as 40% and asynchrony identified as a leading cause. There are many contributing factors to asynchrony on NIV and thus identification and implementation of strategies to ensure success of this modality is priority.

Respiratory Support for Acute Respiratory Failure Workshop

THE ROLE OF NON-INVASIVE RESPIRATORY SUPPORT IN COVID-19 PNEUMONIA

Rafidah Atan

University Malaya Medical Centre, Kuala Lumpur, Malaysia

Non-invasive respiratory support gained a prominent role in the management of respiratory failure during this covid-19 pandemic. Different approaches have been explored, each with its attending pros and cons. Its widespread use has resulted in various attempts to guide clinical practice, including when to draw the line of treatment failure. Some controversies continue to exist regarding certain aspects of its use.

Respiratory Support for Acute Respiratory Failure Workshop

HNFC IN ACUTE RESPIRATORY FAILURE

Philip Eng Cher Tiew

National University of Singapore, Singapore

HFNC oxygen was first used in paediatrics ICUs in the early 2000s but has since been used in adults. However, the greatest uptake was its use in the current covid19 pandemic in patients in lieu of intubation and mechanical ventilation. This short discussion will focus on its current state of the art.

Respiratory Support for Acute Respiratory Failure Workshop

TIPS FOR SUCCESSFUL NIV FOR ACUTE RESPIRATORY FAILURE

Philip Eng Cher Tiew

National University of Singapore, Singapore

Non-invasive ventilation has been a standard tool in the management of acute respiratory failure in the ICU for a few decades now. Its use has slowly expanded to various indications and various settings outside of the ICU. It remains another tool in the management of critically ill patients during this current covid19 pandemic.

Respiratory Support for Acute Respiratory Failure Workshop

HOW TO APPLY THE NIV IN COPD EXACERBATION

Hilmi Lockman

Prince Court Medical Centre, Kuala Lumpur, Malaysia

NIV is used in a number of medical conditions, most commonly in COPD exacerbation. COPD patients are at risk of developing decompensated carbon dioxide retention exacerbation. Early NIV can help to alleviate the problem and can lead to a better outcome.

Choosing the right patient needing NIV would the most important 1st step rather than the initial setting or mechanics of the machine. Fulfilling expectations of both the physicians, patient and families and limitation of what NIV can or cannot achieve including the possible next step or consideration what might be the ceiling of care should be planned ahead.

Instructions concerning the setting, titration, sampling of blood gases, patient conscious level should be clear. Patient nutrition is often ignored, possible pressure damage from the mask and even having pressure relieving mattress preventing bed sores are frequently forgotten.

Teamwork is key to achieve the best possible outcome for the patient.

Respiratory Support for Acute Respiratory Failure Workshop

MECHANICAL VENTILATION FOR HYPERCAPNOEIC RESPIRATORY FAILURE – PRACTICAL TIPS

Mohd Basri Mat Nor

International Islamic University Malaysia, Kuala Lumpur, Malaysia

-No abstract-

Respiratory Support for Acute Respiratory Failure Workshop

LUNG RECRUITMENT STRATEGIES

Yap Mei Hoon

University Malaya Medical Centre, Kuala Lumpur, Malaysia

Lung recruitment is not unlike a powerful force – used inappropriately, it can wreak havoc. While the application of PEEP may be able to prevent alveolar collapse, higher (more dangerous) pressures may be needed to re-open atelactactic alveoli and improve oxygenation. Assessment of the recruitment potential of the lungs is an essential first step to differentiate recruiters from non-recruiters, as lung recruitment should be avoided in the latter group. Providers also need to be familiar with some of the common recruitment maneuvers and anticipate the complications that may arise. At the end of the maneuver, PEEP is set based on the patient's optimum PEEP.

The Colourful World of Paediatric Thoracic Radiology

CLASSIC CHEST RADIOGRAPHIC FINDINGS: PEARLS AND PITFALLS

Normawati Mat Said

Hospital Tuanku Azizah, Kuala Lumpur, Malaysia

Chest radiography is the most commonly performed imaging examination in paediatric patients with potential thoracic disorders. It remains the initial imaging study to evaluate most thoracic diseases in children. A systematic approach to the interpretation of paediatric chest radiographs, knowledge of basic radiological findings and consideration of clinical information, are the key to a correct radiological diagnosis. The normal mediastinum can have a variable appearance on radiographs, depending on the patient's age, developmental stage, and health status and the anatomic variations of the thymus. Errors in interpretation may lead to inappropriate further imaging, incurring additional radiation exposure and cost. Obtaining a technically adequate chest radiograph in small children is particularly challenging due to their lack of cooperation. Potential pitfalls related to suboptimal images have to be considered.

The Colourful World of Paediatric Thoracic Radiology

THORACIC ULTRASOUND: HOW CAN IT HELP?

Che Zubaidah Che Daud

Hospital Tuanku Azizah, Kuala Lumpur, Malaysia

Thoracic ultrasonography is an important imaging adjunct for diagnosing and managing disease involving pediatric chest following careful evaluation of chest radiographs. Ultrasound was initially applied mainly to detect pleural fluid however, the applications of US for the chest have been widely extended over time. Although air in healthy lungs and calcium in bony structures hinder transmission of the US beam, chest lesions involving the lung, mediastinum and pleura can be studied through anatomical "acoustic windows". The technique has several advantages that are particularly beneficial in children: unlike CT, US does not use ionizing radiation or require administration of contrast material to identify vascular structures, most patients do not require sedation and examination can be performed at bedside. Improvements in the resolution of the equipment provide images of excellent quality, which facilitates recognition of parenchymal, pleural and extra-pleural lesions. Ultrasound also excels at demonstrating and characterizing pleural fluid collections. Sonography is the only technique that permits visualization of the lesions in real time and in different planes.

In this review, I will discuss and illustrate the US findings of diseases affecting lung parenchyma, pleura, diaphragm and mediastinum.

The Colourful World of Paediatric Thoracic Radiology

PAEDIATRIC CT THORAX AND ITS CLINICAL APPLICATIONS

Hamzaini Abdul Hamid

Universiti Kebangsaan Malaysia, Selangor, Malaysia

There is a wide range of diseases involving paediatric respiratory system which arises from lung parenchyma, mediastinum, pleural and chest wall. Imaging plays as an adjunct and important component in the management of patients. Modalities involved in imaging of paediatric chest include chest radiograph, ultrasound, fluoroscopy/angiography, nuclear medicine, CT scan and MRI.

However, before we even perform an imaging on paediatric patients, there is an important aspect of imaging that need to be highlighted, radiation awareness among clinicians. Whenever we want to consider a choice of imaging especially CT scan, radiation dose should be our concern and if it is needed then it must be justified. CT scan is one of the highest radiation dose when performed. Why are we more concern on radiation dose in children versus adults? i) Children are considerably more radiosensitive than adults, as demonstrated in epidemiologic studies of exposed populations. ii) Children also have a longer life expectancy than adults, resulting in a larger window of opportunity for expressing radiation damage. iii) Children receive a higher dose than necessary when adult imaging protocol are used for children.

In this lecture we will highlight the role of CT in assessment of thoracic abnormality in children. Case base approach will be discussed in highlighting the clinical application of CT Thorax. The case presentation will be based on 3 main compartments in the chest i.e.; lung parenchyma, airway and mediastinum. The advantage and disadvantage of CT scan will also be discussed.

In conclusion, imaging plays as an adjunct and important component in the management of paediatric patient with thoracic diseases. CT scan is currently the main imaging modality for assessment thorax particularly the lung parenchyma. Choice of imaging is important in order to get the correct diagnosis and weighing between risk and benefit of radiation dose is mandatory especially on decision of using CT scan in children. Regular discussion between Paediatrician/Clinician and Radiologist and good teamwork are important to make sure our paediatric patients are getting the best imaging, the best diagnosis and treatment.

The Colourful World of Paediatric Thoracic Radiology

MRI THORAX: WHY….WHEN….HOW?

Bernard Laya

St. Luke's Medical Center, Philippines

Magnetic resonance imaging (MRI) is a cross-sectional imaging tool that offers excellent spatial resolution and soft tissue differentiation without the use of ionizing radiation. It is complimentary to other imaging tools when diagnoses have not been established with radiographs, ultrasound, or CT. It is an established non-invasive cross-sectional imaging modality for various organ systems that enables accurate characterization and vascular assessment of tissues and lesions. In addition, it can be used for assessing response to therapy and detecting recurrence and/or metastasis in post-therapeutic follow-up. MRI provides both physiologic and anatomic information with multiplanar imaging capability. Disadvantages of MRA include limited availability, higher cost, long acquisition times, and the need for deep sedation or general anesthesia in young children.

MRI is very helpful for evaluating the thorax, particularly the chest wall and mediastinum. Pulmonary diseases involving alveolar infiltration or exudation patterns such as pneumonia and pulmonary edema are reliably depicted on MRI. Unfortunately, early and subtle interstitial lung diseases are not easily visualized on MRI. This is because the lung has inherent low proton density, high loss of signal due to susceptibility, and substantial motion artifacts.

This lecture presents the clinical indications, preparations and technique in MRI evaluation of thorax in children. MRI appearance of common thoracic abnormalities in children will be discussed in clinic-radiologic approach.

The Colourful World of Paediatric Thoracic Radiology
CASE BASED DISCUSSIONS 1: INFECTION

Tan Yee Yen
Hospital Tunku Azizah, Kuala Lumpur, Malaysia
Che Zubaidah Che Daud
Hospital Tunku Azizah, Kuala Lumpur, Malaysia

Complicated pneumonia is not uncommon and general paediatricians are expected to manage this condition with confidence. The appropriate use of different imaging modalities is important in the deciding whether the patient is treated conservatively with antibiotic only, with chest tube drainage with or without fibrinolytic agent, or with surgical decortication. We present two cases of complicated pneumonia to illustrate this.

The Colourful World of Paediatric Thoracic Radiology
CASE BASED DISCUSSIONS 2: NEONATAL LUNG

Tan Swee Wei
Hospital Sultan Abdul Halim, Kedah, Malaysia
Hamzaini Abdul Hamid
Universiti Kebangsaan Malaysia, Selangor, Malaysia

A wide spectrum of disorders may affect the lungs of neonate. Discussion on two neonatal cases on persistent oxygen dependency. First case relates to premature lung while second case relates to aerodigestive system.

The Colourful World of Paediatric Thoracic Radiology
CASE BASED DISCUSSION 3: TUBERCULOSIS

H'ng Shih Ying
University Malaya Medical Centre, Kuala Lumpur, Malaysia
Normawati Mat Said
Hospital Tunku Azizah, Kuala Lumpur, Malaysia

These are 2 cases of patients with different presentations that eventually diagnosed with tuberculosis. The first case highlights the importance of good history taking. The second case highlights the challenge to diagnose extrapulmonary tuberculosis in children.

The Colourful World of Paediatric Thoracic Radiology
CASE BASED DISCUSSION 4: LUNG MALFORMATION

Hasliza A Razak
Hospital Serdang, Selangor, Malaysia
Che Zubaidah Che Daud
Hospital Tunku Azizah, Kuala Lumpur, Malaysia

Introduction
Advances in prenatal care allows diagnosis of congenital lung malformation (CLM).

Case Series
We describe 2 cases of CLM. Case 1, 8 months old Malay girl with antenatal diagnosis of CLM. She was admitted at birth for congenital pneumonia required supplemental oxygen. Subsequently she was well and thriving. Clinical examination revealed reduced breath sound over the left lower zone. Case 2, Malay boy born at term with antenatal scan at 19 weeks suspicious of right CLM. He developed respiratory distress at birth required intubation due to congenital pneumonia complicated with pulmonary haemorrhage. He required invasive ventilation support for 3 days and oxygen supplementation until 3 weeks of life. Clinical findings noted hyperinflated left lung with reduced breath sound over the right lung. CT scans were performed for both patients and confirmed the diagnosis of CLM.

Conclusion
Congenital lung malformation is an umbrella term to describe a wide range of disorders. The presentation varies with most remains asymptomatic at birth while some patients developed severe respiratory distress.

Plenary 1
NEW ADVANCES IN MANAGEMENT OF ADVANCED LUNG CANCER

Liam Chong Kin
University Malaya Medical Centre, Kuala Lumpur, Malaysia

In recent years, lung cancer has moved to the forefront of the 2 most important trends in medical oncology - namely, targeted therapy and immunotherapy. The treatment landscape for non-small cell lung cancer (NSCLC) continues to evolve with the addition of newer generations of drugs for existing targets, as well as new and emerging targets. Current testing guidelines recommend broad next-generation sequencing (NGS)-based biomarker testing and PD-L1 expression by immunohistochemistry for all patients with newly diagnosed advanced NSCLC. Patients who receive targeted therapy have significantly better overall survival compared with patients who do not receive targeted therapy. Waiting for NGS-based biomarker test results is strongly recommended before initiating treatment with an immune checkpoint inhibitor (ICI)-based therapy to make the optimal first-line treatment choice and to avoid unnecessary and heightened toxicities associated with switching from upfront chemoimmunotherapy to an EGFR tyrosine kinase inhibitor, for example. Well-established genetic alterations and corresponding targeted treatments in the first-line treatment of advanced NSCLC include *EGFR* mutations (gefitinib, erlotinib, afatinib, dacomitinib, osimertinib), *ALK* rearrangements (crizotinib, ceritinib, alectinib, brigatinib, lorlatinib), *ROS1* fusions (crizotinib, entrectinib), and *BRAF* V600E mutations (dabrafenib plus trametinib). More recently, new targeted therapies are approved for patients with advanced NSCLC harbouring *NTRK* fusions (entrectinib and larotrectinib), *MET* exon 14 skipping mutations (capmatinib and tepotinib), *RET* fusion (selpercatinib and pralsetinib), *KRAS* G12C mutation (sotorasib and adagrasib after platinum-based chemotherapy), and *EGFR* exon 20 insertion mutations (amivantamab and mobocertinib after platinum-based chemotherapy).
Patients with advanced NSCLC and high PD-L1 expression (≥50%) whose disease does not harbour any actionable alteration should be considered for a single-agent ICI (pembrolizumab, atezolizumab, or cemiplimab),

an ICI in combination with chemotherapy, or dual ICI therapy. Patients with low or no PD-L1 expression (<1% to 49%) should receive chemotherapy in combination with either an ICI or dual ICI therapy.

S1A - Asthma
GINA 2022 UPDATES

Helmy Haja Mydin
Pantai Hospital Kuala Lumpur, Kuala Lumpur, Malaysia

GINA was established by the WHO and NHLBI in 1993 to increase awareness about asthma and to improve asthma prevention and management through a coordinated worldwide effort. Its evidence-based report is updated annually and acts as a standard for local health systems.
This talk will look into updates and changes in GINA 2022 including: 1. diagnosing asthma 2. the risk of SABA monotherapy 3. management of severe asthma 4. COVID-19 and asthma.

S1A – Asthma
ALLERGY TESTING IN ASTHMA

Kent Woo Chee Keen
Gleneagles Hospital Kuala Lumpur, Kuala Lumpur, Malaysia

The diagnosis of allergy depends mainly on obtaining an accurate history from the patient. From there, the testing confirms the diagnosis and helps guide avoidance measures and medical therapy.
Allergy testing for asthma measures specific IgE sensitization to the inhaled allergens. This can be achieved through physical skin prick testing or through serology testing via blood draw. The pros and cons of each method will be highlighted.
Have you ever wondered why some patients report that their asthma gets worst during periods of heavy rain? What indoor allergens may be relevant to test for? Does outdoor pollen play a role in asthma?
Certain pollen allergies are also associated with food allergy, a condition called pollen food allergy syndrome. This talk will go over relevant aeroallergens in Malaysia and other triggers to consider when approaching allergic asthma

S1A – Asthma
ROLES OF BIOLOGICS IN ASTHMA COMORBIDITIES

Umadevi A. Muthukumaru
Hospital Pulau Pinang, Pulau Pinang, Malaysia

Asthma affects over 250 million people and is responsible for over 20 million disability-adjusted life years. Worldwide 5%–10% suffer from severe persistent symptoms and contribute to the majority of healthcare utilization associated with the disease. Severe exacerbations requiring emergency management, lung function decline risk and quality of life may affect patients with poorly controlled asthma. In addition to non pharmacological interventions, various pharmacological therapies are currently available to help manage severe asthma, including biological therapies for patients with elevated markers of type 2 inflammation.
Severe asthma is a heterogeneous disease phenotypically and biologically, involving various inflammatory cells and cytokines. Recent insights into type 2 inflammation in severe asthma and the current available biologic treatment including their mechanism of action, efficacy and association with specific phenotypes and comorbidities will be reviewed.

S1B – COPD
TRIPLE THERAPY IN COPD TREATMENT

Mohd Arif Mohd Zim
UiTM Sungai Buloh, Selangor, Malaysia

There are 65 million people worldwide have moderate to severe COPD and more than 3 million people died of COPD in 2005 globally. It is projected that COPD will be the third leading cause of death worldwide in 2030. In Malaysia COPD is the top 5 causes of death after ischaemic heart attack, lower respiratory tract infection, stroke and road traffic accidents. The aim of treatment for COPD according to GOLD 2021 is to reduce symptoms and reduce risk of exacerbation. Severe exacerbation carries approximately 16% mortality rate in patient with COPD.
Bronchodilator is the mainstay of treatment for COPD.Dual bronchodilator LABA/LAMA improve dyspnoea, exercise tolerance, lung function and quality of life compared to its monotherapy and combination LABA/ICS. Inhaled corticosteroid (ICS) plays an important role in selected COPD patients. The use of ICS in combination with LABA/LAMA as a triple therapy has been shown to reduce moderate to severe exacerbation compared to dual bronchodilator. The role of triple therapy benefits GOLD D COPD, patients with concomitant asthma and patients with elevated blood eosinophils.

S1B – COPD
PULMONARY REHABILITATION IN COPD – HOW WE DO IT?

Fatim Tahirah Mirza Mohd Tahir Beg
UiTM Puncak Alam, Selangor, Malaysia

The concept in which exercise helps people with dyspnea on exertion was first described in 1952. The first standardized outpatient PR program was established in 1960s. ACCP then formulated a definition of PR program in 1974 and this definition has been updated by the ATS/ERS regularly (last in 2013). To date, PR, especially for people with COPD has achieved strong evidence for benefits in multiple outcomes including symptom control (dyspnea and fatigue), exercise capacity, muscle strength and quality of life. Despite PR was introduced since at least 60 years ago and has a Level 1 recommendation for benefits in people with COPD, PR is still scarce in Malaysia. Low knowledge and awareness of PR among healthcare professionals, poor multidisciplinary involvement, logistics, accessibility to the program and patient barriers such as lack of perceived benefits were identified as barriers to PR program among healthcare professionals in Malaysia. The first step to setting up a PR program in Malaysia is to break these barriers. The 20min session on 'PR for COPD – How do we do it?' will share how a standard PR program can be delivered using minimal resources. Possible solutions to each of the barriers to PR program will also be discussed.

S1B – COPD
LUNG VOLUME REDUCTION STRATEGIES

Rosmadi Ismail
Sunway Medical Centre, Selangor, Malaysia

Patient with advanced stage of chronic obstructive pulmonary disease (COPD) tend to have poor quality of life despite on maximum medical therapy. Despite a significant advantages of lung volume reduction surgery (LVRS) in selected group of end stage COPD patients, the majority of these patient may not be able to go through the procedure due to various reason.
A number of innovations have emerged in recent years to both increase access to effective therapies for severe COPD and improve upon the limitations of LVRS. Among these are several bronchoscopic lung volume reduction (BLVR) techniques that may potentially equal the LVRS. BLVR is a relatively new non-surgical procedures with proven benefit to selected patients with end-stage COPD to try and improve the quantity and quality of life. The lecture will focus on various aspect of BLVR strategies in advance emphysema

S1C – Paediatric Airway Diseases
APPROACH TO NOISY BREATHING

Hasniah Abdul Latif
Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Noisy breathing occurs as a result of turbulent airflow, typically indicates some degree of airflow obstruction. Evaluating a child with noisy breathing can be challenging due to the wide range of potential cause of noise. Obtaining a comprehensive history and physical examination is critically important first step in determining possible etiology. Recognition of different types of noisy breathing and its quality or characteristics can be further evaluated through physical examination to determine either the pathology is in intrathoracic or extra thoracic. Further diagnostic evaluation such as airway endoscopy and thoracic imaging may be required to assist in diagnosis and intervention.

S1C – Paediatric Airway Diseases
TRACHEO-OESOPHAGEAL FISTULA – BEYOND THE NEONATAL PERIOD

Shangari Kunaseelan
Hospital Tunku Azizah, Kuala Lumpur, Malaysia

With the advancement of neonatal intensive care and paediatric anaesthesiology, the survival rate of neonates following trachea-oesophageal fistula repair has improved tremendously. However, esophageal and pulmonary morbidity persists in children and adolescents. Follow up of these patients through multidisciplinary clinics are helpful to detect any long term complications early so it can be addressed. Even more useful would be to have standardized guidelines on surveillance of these survivors. Clinicians should also be aware that one or more comorbidities are associated in about 50% of children with trachea-oesophageal fistula.

The long term complications in these survivors may be due to the intrinsic structural anomaly of the oesophagus or trachea. They will manifest with dysphagia, gastro-oesophageal reflux, oesophageal dysmotility, late oesophageal strictures, tracheomalacia or vocal cord dysfunction. The most common respiratory morbidity is tracheomalacia. This occurs due to longer and more compliant membranous portion of the posterior wall of the trachea, leading to poor secretion clearance and recurrent pneumonia. The lung parenchyma may suffer from secondary insult due to recurrent aspiration or recurrent infection. Secondarily, from a thoracotomy done for repair, chest wall deformities may also occur, leading to reduction in lung function.

Satisfactory outcome of children beyond the neonatal period can be fostered by coordination with the surgical, medical, radiological and nutritional team.

S1C – Paediatric Airway Diseases
SURGICAL MANAGEMENT OF SEVERE TRACHEAL STENOSIS

Zakaria Zahari
Hospital Tunku Azizah, Kuala Lumpur, Malaysia

Tracheal stenosis can be a life threatening disease which is usually associated with Cardio-pulmonary anomalies esp left pulmonary artery (LPA) sling. This condition is congenital in nature and will cause major respiratory issues especially in those with Grade 3 or 4 narrowing in the Cotton Myer classification. The only way to deal with this problem is through surgery to enlarge the stenosed trachea i.e tracheoplasty

Tracheoplasty can be done in many ways, the most versatile and commonest of which is Slide Tracheoplasty.

In this presentation, the surgery of slide Tracheoplasty in terms of pre-, intra- and postoperative management will be described in detail

S2A – Tuberculosis
MANAGEMENT OF TB – WHAT'S NEW?

Goon Ai Khiang
Hospital Pulau Pinang, Pulau Pinang, Malaysia

The End TB strategy is the most ambitious global TB control strategy todate. The vision for the End TB strategy is to end TB as a public health threat by 2035. In order to meet its targets of reducing TB incidence by 90%, TB mortality by 95% and to ensure no catastrophic cost to families due to TB by 2035, compared with baseline rates in 2015, the World Health Organization (WHO) stressed on the need to adopt bold policies, intensify research and innovations in TB diagnosis, treatment and control. This has spurred research that not only contributed to our better understanding of tuberculosis but also the development of new diagnostic tests, drugs, treatment regimens and management strategies for TB. There were many notable developments in these areas. Clinicians would be glad to know that the latest international and local clinical practice guidelines have been updated to keep them abreast of the latest evidence and recommendations. Since 2020, WHO has consolidated and updated multiple guidelines on tuberculosis, first with latent tuberculosis and lately with drug-susceptible tuberculosis in 2022. In keeping with the END TB strategy and national strategic plan for TB control, the Malaysian CPG development group produced its latest evidence-based guideline on the management of drug susceptible TB in 2021, taking into account the local challenges, healthcare resources and settings. This presentation will review the latest Malaysian Management of TB clinical practice guideline and related international guidelines. New recommendations on the management of latent and active drug-susceptible TB will be presented.

S2A – Tuberculosis
UPDATES ON MANAGEMENT OF NTM PD

Mat Zuki Mat Jaeb
Hospital Raja Perempuan Zainab II, Kelantan, Malaysia

Nontuberculous mycobacterial pulmonary disease (NTM-PD) is a challenging infection which is becoming increasingly prevalent, causing significant morbidity and mortality in both immune competent and immune compromised populations. NTM- PD infection caused by ubiquitous organisms in the environment, frequently slow and progressive disease affecting predominantly vulnerable patient populations. Low virulence organisms together with generally their slow growth rate and onset of disease symptoms is often insidious with variable incubation periods making diagnosis difficult. *Mycobacterium avium* complex, *Mycobacterium kansasii*, and *Mycobacterium xenopi* among the slowly growing NTM and *Mycobacterium abscessus*, the rapidly growing NTM are among the most common organism causing NTM-PD worldwide. Patients with both genetic or acquired structural lung diseases such as cystic fibrosis, chronic obstructive pulmonary disease, non-CF bronchiectasis, previous pulmonary tuberculosis, and lung cancer. Patients with immune suppression due to primary immune deficiency syndromes, immunodeficiency syndromes including AIDS and haematological malignancies are also susceptible to NTM infection.

Diagnosis of NTM-PD requires confirmation by isolation of NTM along with clinical and radiological criteria and appropriate exclusion of other diagnosis. Susceptibility testing is complex and not available for many of the drugs. NTM-PD treatment requires complex and prolonged multi-drug therapy. Recurrence is common with rates of 30–50% being recorded in MAC infection, majority are due to reinfection. Many patients develop persistent chronic infection despite treatment while others succumb to the disease Adjuvant therapies have been tested with little success.

Recently, International societies namely ATS, ERS, ESCMID, IDSA have jointly developed and published guideline on treatment recommendation for NTM-PD in adult.

References:

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2. Tan Y et al. BMC Pulm Med. (2018) 18:168
3. Lim AYH et al. BMC Pulm Med. (2018) 18:85

S2A – Tuberculosis
DRUG RESISTANT TB

K. Kannan Sivaraman Kannan
Hospital Queen Elizabeth, Sabah, Malaysia

This talk would be covering all the latest updates in the diagnosis and management of DR TB in our country. It will also highlight certain issues and modifications with regards to treatment of DR TB on the ground. I will also try to give my personal experience accounts on managing DR TB in a state with the highest number of TB cases in Malaysia.

S2B – Interventional Pulmonology
APPROACH TO CENTRAL AIRWAY OBSTRUCTION

Hideo Saka
Matsunami General Hospital, Japan

Stenosis of the central airway leads to dyspnea and asphyxia, which are highly likely to be life-threatening. The treatment is often provided as a lifesaving emergency measure.
The most common malignant cause is tracheal or bronchial stenosis due to advanced lung cancer, followed by esophageal cancer, esophagotracheal fistula, thyroid cancer, mediastinal-type malignant lymphoma, metastasis to the airway (renal, breast, melanoma, hepatic, etc.), and low-grade tumors of the central airway.
Benign diseases include post-tracheostomy stenosis, idiopathic subglottic stenosis, tracheobronchial tuberculosis, primary tracheal tumors, GPA (Wegener's granulomatosis), and tracheobronchomalacia.
Stenting should be performed under general anesthesia using a rigid bronchoscopy as much as possible. Central airway procedure is hazardous to the patient.
We can use three types of airway stents: silicone stents, self-expandable metallic stents (SEMS), and fully-covered hybrid stents.
Silicon stents are available in many lengths, shapes, and sizes, and the length can be adjusted by cutting or combining multiple stents to suit individual cases.
SEMS have been widely used because they can be inserted under local anesthesia. By FDA recommendations, it is not usually used for benign diseases.
The hybrid stent is a self-expandable metallic stent made of laser-cut Nitinol tubing, fully covered with polyurethane.
For tailor-made stents, human studies using 3-D printers to fabricate silicone stents, 4-D printing technology to deform to the airway over time, drug-permeable stents, and biodegradable stents that can be absorbed by the body are on developing.

S2B – Interventional Pulmonology
EUS-B BY PULMONOLOGIST

Masahide Oki
Nagoya Medical Centre, Japan

Real-time ultrasound-guided needle aspiration technique through the airway (endobronchial ultrasound-guided transbronchial needle aspiration; EBUS-TBNA) or esophagus (endoscopic ultrasound-guided fine needle aspiration; EUS-FNA) has been reported to be an accurate and minimally invasive technique for evaluation of hilar/ mediastinal lesions. Both techniques have been reported to be complementary because some accessible regions differ from each other. However, the combination of these procedures, which require separate equipment or examiners, is much more complex than either procedure by itself. The mechanism of EBUS bronchoscopes is similar to that of EUS endoscopes, and so bronchoscopic transesophageal ultrasound–guided fine needle aspiration (EUS-B-FNA) is feasible. The combination of EBUS-TBNA and EUS-B-FNA in place of conventional EUS-FNA is an accurate and simple technique for mediastinal staging of lung cancer, which can be performed by a pulmonologist using an EBUS bronchoscope in one session. Individual pulmonologists should be trained in both EBUS-TBNA and EUS-B-FNA.

S2B – Interventional Pulmonology
ROBOTIC BRONCHOSCOPY

Calvin Ng Sze Hang
The Chinese University Hong Kong, Hong Kong

Lung cancer is the leading type of cancer and the leading cause of cancer-related mortality. With increasing patient awareness and recent lung cancer screening trials leading to more lung nodules being found, there is a need for safe and accurate techniques for pulmonary nodule biopsy.

RB is the most recent state-of-the-art localization technique. It utilizes the power of robotics and telescoping design to reach deeper into the lung than conventional methods. This precision comes from articulating catheters and real-time direct vision, together with advanced maneuverability for fine adjustment for precise biopsy in the small, tortuous airways of the lungs. This new platform also provides greater stability with the robotic control, locking in position once target nodule has been reached. Physicians' hands are then free for other interventions. Currently, there are two commercially available RB platforms, namely the Monarch™ Platform (Auris Health, Redwood City, CA, USA); and the Ion™ Endoluminal System (Intuitive Surgical, Sunnyvale, CA, USA). Similar to ENB, pre-operative high-resolution CT is required to create a virtual map for the RB and guide the instruments through electromagnetic navigation (EMN) (Monarch™) or shape-sensing technology (Ion™). Radial EBUS, fluoroscopy, and cone-beam CT (CBCT) can also be integrated into the system for more precise localization.

In this presentation, we will review the progression of robotic bronchoscopy (RB), its early results, and future developments.

S2C – Pulmonary Vascular and Lymphatic Disorders
PAEDIATRIC LYMPHATICS FLOW DISORDERS

N. Fafwati Faridatul Akmar Mohammad
Hospital Tunku Azizah, Kuala Lumpur, Malaysia

There is a wide spectrum of lymphatic disorders ranging from congenital malformations to other processes leading to lymph and/or chyle accumulation or lymphatic flow abnormalities. The lymphatic system performs multiple important functions in the human body, including maintenance of fluid balance, absorption of fat from the digestive tract and immune surveillance. Pulmonary lymphatic flow disorders involve the abnormal lymphatic flow via lymphatic channels to the lungs and pleural space.

The International Society for the Study of Vascular Anomalies (ISSVA) 2018 classifies the various lymphatic malformation (LM) into common cystic LM, generalized lymphatic anomaly, Gorham-Stout disease, channel-type LM, acquired progressive lymphatic anomaly and primary lymphedema. Given the heterogenous conditions, the precise workup and management depend on the underlying disorder and clinical context.

S2C – Pulmonary Vascular and Lymphatic Disorders
PULMONARY HYPERTENSION IN CHRONIC RESPIRATORY DISORDERS: DIAGNOSIS AND MANAGEMENT

Mariana Daud
Hospital Raja Perempuan Zainab II, Kelantan, Malaysia

Paediatric Pulmonary hypertension (PH) is a diverse diseases which occur at any age and it's usually progressive. There are differences in aetiology, presentation and outcomes in children, therefore require a unique approach as compared to adults.

Historically, paediatric PH is defined as mean pulmonary arterial pressure (mPAP) ⩾25 mmHg after 3 months of age. The 6th WSPH proposed new definition for PH as mPAP >20 mmHg and to include PVR ⩾3 WU·m2 measured during cardiac catherization to identify pre-capillary PH. The definition of PH when using echocardiography is when systolic PA pressure is more than half systolic systemic pressure.

There are many classifications for PH according to the aetiology. Generally PH is classified into pulmonary arterial hypertension (PAH), PH due to left heart disease, PH due to lung disease and/or hypoxia, PH due to pulmonary artery obstruction and PH due to unclear and/or multifactorial mechanisms.

The presentation of paediatric PH are nonspecific, and clinical features may be subtle even in advanced disease. Neonates and infants may present with hydrops fetalis, right ventricular dysfunction, loud pulmonary second sound and heart failure. In bigger children, the symptoms are breathlessness, reduced effort tolerance, fatiguability, chest pain, seizures, arryhthmias, syncope, hemoptysis and symptoms contributing to systemic diseases. Symptomatic severity based on functional capacity has been connected to prognosis.

The diagnosis is still mainly based on echocardiographic and cardiac catheter findings (gold standard). A thorough diagnostic workup is important as the treatment options depend upon the underlying cause which may be treatable. Respiratory system investigations includes chest radiograph, arterial blood gas and pulmonary function tests. Sleep studies should be undertaken to identify obstructive sleep apnoea (OSAS). A ventilation perfusion scan could be useful in particular in chronic thromboembolic phenomenon. More definitive tests include pulmonary angiogram and/or high resolution CT scan and cardiac MRI. A 6 minute walk test and/or cardiopulmonary exercise testing are used to evaluate exercise capacity. Biomarkers such as BNP and ProBNP is also helpful. Genetic studies should be considered if one suspects inheritable conditions.

Treating PH involves multidisciplinary care and often challenging as mainly rely on evidence-based adult studies and the paediatric experts' opinion. PH that is caused by upper airway obstruction might undergo adenotonsillectomy, and those with chronic respiratory disorders should be managed with the relevant therapeutics, including home oxygen and non-invasive ventilation (NIV). Sympathomimetic decongestants with α-adrenergic that cause vasoconstriction should be avoided. Children with PAH may benefit from treatment with PAH-targeted drugs: prostanoids/prostacyclin (epoprostenol, treprostinil, iloprost, beraprost), ERAs (bosentan, ambrisentan), and PDE5 inhibitors (sildenafil, tadalafil) as well as calcium channel antagonist, either alone or combination therapy. However, the role of PAH pharmacotherapy in patients whose primary abnormality is lung disease remains speculative. A trial of PAH-targeted therapy is reasonable in patients with advanced lung disease with evidence of PAH as PH/PAH confers a significant increase in morbidity and mortality.

S2C – Pulmonary Vascular and Lymphatic Disorders

PULMONARY MANIFESTATIONS OF CONGENITAL HEART DISEASE IN CHILDREN

Dg Zuraini Sahadan

Hospital Serdang, Selangor, Malaysia

Sharing the same body cavity, the heart and lungs are closely interconnected by the pulmonary vasculature. Cardiac and pulmonary patho-physiologies are closely interdependent, which makes the management of patients with congenital heart disease (CHD) more complex.

Congenital heart disease (CHD) imparts consequences to the airway, respiratory system mechanics, pulmonary vascular system, and lymphatic system. An increase or decrease in pulmonary vascular pressures leads to changes in the blood vessels, which directly affect the airways, lung interstitium, alveoli, and pleura. CHD often leads to respiratory failure as a result of its impact on gas exchange, water/solute exchange, and pulmonary mechanics. The appearance of lung disease secondary to cardiac disease depends on whether the changes in the pulmonary vascular pressures are acute or chronic.

Meanwhile, alterations in pulmonary blood flow associated with CHD can cause abnormalities in pulmonary mechanics and limitation of exercise. Another concern is abnormal formation or enlargement of great vessels can compress airways and cause large and small airway obstructions. CHD can also lead to pulmonary arterial hypertension. While lymphatic abnormalities associated with CHD can cause pulmonary edema, chylothorax, or plastic bronchitis. Clinical manifestations of cardiac disease include pulmonary edema, pleural effusion, hypoxemia, pulmonary hypertension, atelectasis and trachea-bronchomalacia.

Understanding how the cardiovascular system has an impact on pulmonary growth and function can help determine options and timing of intervention.

S3A – Meet the Expert Session I
HOW I MANAGE STAGE III LUNG CANCER

Adlinda Alip
University Malaya Medical Centre, Kuala Lumpur, Malaysia

Stage III Non-Small Cell Lung Cancer represents one of the most heterogenous subgroups of lung cancer. The choice of multimodality treatment including chemotherapy, surgery, immunotherapy and radiotherapy within this subgroup of lung cancer, varies significantly among clinicians. In this session I would address the management of Stage III NSCLC based on published evidence and international guidelines.

S3A – Meet the Expert Session I
HOW I APPROACH CHRONIC DYSPNOEA

Pang Yong Kek
University Malaya Medical Centre, Kuala Lumpur, Malaysia

Chronic dyspnoea is a commonly encountered clinical manifestation. This is normally worsened by exertion and relieved by taking rest. The heart and lungs are the organs that provide the vital driving force during exertion. Any disorder that impairs the function of these vital organs will lead to a reduction in effort tolerance. The severity of dyspnoea and the level of effort tolerance are normally commensurate with the degree of organ dysfunction. Besides, any weight gain also affects the level of effort tolerance, as the extra weight will add to the load of the heart and lungs. Apart from this, the haemoglobin level will determine the oxygen-carrying capacity of the blood and how much "fuel" can be consumed in the tissue.
In this lecture, I will discuss approaches for evaluating patients with chronic dyspnoea and how we may optimise the treatment through a good understanding of the underlying pathophysiology.

S3A – Meet the Expert Session I
HOW I TREAT PERSISTENT AIR LEAK

Narasimman Sathiamurthy
Hospital Kuala Lumpur, Kuala Lumpur, Malaysia

Persistent air leak (PAL) is a management dilemma to many physicians, especially if it is associated with respiratory compromisation. PAL is associated with high morbidity, prolong hospital stay and higher cost of treatment. There are various ways to manage PAL, and traditionally surgery is known to be the most effective way to treat it. In the last decade or so, newer and less invasive methods were developed to especially treat patients who are unfit for surgical intervention. In this talk, both surgical and nonsurgical options to treat PAL will be discussed

S3B – Interstitial Lung Disease
SARCOIDOSIS GUIDELINE

Marlies Wijsenbeek
University Medical Centre Rotterdam, Netherland

In the past two years, two guidelines and a clinical statement on sarcoidosis were published. This was about time, with the last international guideline for sarcoidosis dating from 1999.
The European Respiratory Society published a clinical practice guideline on treatment of sarcoidosis and the American Thoracic Society a clinical practice guideline on diagnosis and detection of sarcoidosis. In addition to these guidelines, the British Thoracic Society published a clinical statement on pulmonary sarcoidosis, which covers both diagnosis and management. In this talk I will review the different guidelines /statements, including the underlying evidence of the recommendations and discuss differences and similarities. Furthermore, I will briefly touch on unmet needs and new developments in the treatment of sarcoidosis.

S3B – Interstitial Lung Disease
UPDATES IN HYPERSENSITIVITY PNEUMONITIS

Martina Koziar Vasakova
Thomayer University Hospital, Czech

Hypersensitivity pneumonitis (HP) is an immune-mediated interstitial lung disease caused by recurrent exposure to inciting antigen in genetically susceptible individuals. It mimics other acute and chronic pulmonary diseases and is quiet often misdiagnosed as idiopathic pulmonary fibrosis or another idiopathic interstitial pneumonia if the history of exposure to the inducer is not elicited. There was a long time unmet need for new guideline on HP since the last one was more than 30 years old and outdated. Recently two new guidelines have consecutively emerged, one ATS guideline published in AJRCCM 2020 and the second one being published 2021 in CHEST. Both guidelines come with concept of fibrotic and non fibrotic HP, which reflects properly the difference of the two main phenotypes of HP with distinct radiologic and histopathologic findings and clinical behaviour. The need for identification of inciting antigen not only for the diagnosis and management but also for assessing prognosis is crucial and is a initial part of diagnostic process in both guidelines. High resulution computed tomography is crucial for HP diagnosis and lymphocytosis in bronchoalveolar lavage (BAL) suppports the diagnosis as well. However, the approach to bronchoscopy with BAL is different. While BAL is obligatory part of diagnostic process in the ATS guidelines, in the CHEST guidelines bronchoscopy is not recommended when clinical picture, exposure and radiologic findings fit the HP diagnosis. Biopsy is applied in both guidelines in case the HP diagnosis is not sure. While the CHEST guideline does not comment on type of biopsy, the ATS guideline for the first time establishes a role of cryobiopsy in the fibrotic form of HP. The two guidelines bring reasonable approach to diagnosis of this phenotypically diverse disease based on complex and multidisciplinary approach with central role of multidisciplinary discussion. Treatment of HP is based on the phenotype of the disease, i.e. in nonfibrotic corticosteroids can be used either alone or in combination with other immunosuppressants, i.e. azathioprne or mycophenolate mophetil. If the disease is fibrotic and fulfills criteria of progressive pulmonary fibrosis, nintedanib is a method of choice. For advanced HP lung transplantation might be a solution for some individuals. Complex palliative and symptomatic care is the best approach for all patients with advanced HP.

S3B – Interstitial Lung Disease
IMAGING IN ILD – TIPS & TRICKS

Anand Devaraj
Royal Brompton Hospital, United Kingdom

This presentation will provide a practical approach to interpreting interstitial lung disease on HRCT. Common patterns and pitfalls of fibrotic ILD will be reviewed. Challenges with interpreting serial CT will also be discussed.

S3C – Potpourri
RESPIRATORY RISKS OF GASTRIC ACID SUPPRESSANTS IN CHILDREN

Eg Kah Peng
University Malaya Medical Centre, Kuala Lumpur, Malaysia

In the last few decades, there was a markedly rise in the prescriptions of gastric acid-suppressing agents, proton pump inhibitors (PPIs) and histamine-2 receptor antagonists (H_2RAs), for the treatment of gastro-oesophageal reflux disease in both adults and children. Along with this, there have been increasing safety concerns about the use of these agents, particularly in young children and infants. Adult studies reported that long-term use of gastric acid suppressants was associated with increased risks of respiratory and gastrointestinal tract infections, vitamin B_{12} deficiency, hypomagnesaemia, bone fractures and rebound hyperacidity after discontinuation. The proposed pathogenic mechanisms of acid suppressant-associated infections were related to inhibition of gastric acid secretion, alterations of the gut microbiome and immunity. A recent large cohort study in children showed that the use of acid suppressants was associated with a doubled risk of community-associated pneumonia. Although there are limited data in the paediatric population, current evidence suggests that the acid suppressants

are not free of adverse drug reactions. Advocating a rationale individualised approach and appropriate use of these drugs would minimise any serious adverse consequences.

S3C – Potpourri

ROLE OF NON-INVASIVE VENTILATION IN NEUROMUSCULAR DISEASE

Tan Hui-Leng

Royal Brompton Hospital, United Kingdom

Non-invasive ventilation (NIV) has resulted in a significant improvement in outcomes of children with neuromuscular disease. The most common indication for starting NIV in this group of children is for the treatment of sleep disordered breathing/ nocturnal hypoventilation. Other indications include the prevention of chest wall deformity and to facilitate post-operative outcome of spinal surgery. In this presentation, on overview of the literature will be discussed and illustrative clinical cases will be presented. It is an exciting time with the advent of several new disease modifying therapies and the impact of these will also be explored.

S3C – Potpourri

MANAGEMENT OF BRONCHIECTASIS EXACERBATION

Vikas Goyal

Queensland Children's and Gold Coast University Hospital, Australia

Bronchiectasis is a chronic respiratory disease characterised by chronic or recurrent wet/productive cough combined with airway infection, neutrophilic inflammation and abnormal bronchial dilatation on a chest computed tomography scan. The European Respiratory Society (ERS) considers bronchiectasis as one of the most neglected pulmonary disorders in paediatric and adult medicine. Exacerbations are common in children and adolescents with bronchiectasis. Exacerbations are clinically important as they are associated with psychological stress, impaired quality of life, lung function decline, and are among the top clinical and research priorities expressed by parents/patients/clinicians in paediatrics and adult European and USA bronchiectasis groups. The recent ERS clinical practice guideline for managing children/adolescents with bronchiectasis recommendations include early and appropriate management using a multidisciplinary approach, including that for exacerbations. Currently, all bronchiectasis guidelines recommend at least 14-days of antibiotics for respiratory exacerbations and airway clearnace for children. Recent publications have provided robust paediatric data for use of antibiotics for acute exacerbations, long term macrolides and hypertonic saline for children with bronchiectasis but gaps in knowledge remain. For example, we need novel data that can identify those who will most benefit from antibiotics and those in whom such treatment may be unnecessary. Studies are currently underway to examine the role of novel agents to decrease airway neutrophilic inflammation and role of vaccines. The next few years is likely to see significant advances in our understanding of endotypes and phenotypes in paediatric bronchiectasis. This will allow for a precision medicine approach where treatable traits are addressed.

Sunrise Session

RESPIRATORY EXIT VIVA EXAMINATION – TIPS & TRICKS

Umadevi A. Muthukumaru

Hospital Pulau Pinang, Pulau Pinang, Malaysia

Ever wonder what will be the respiratory subspecialty exam like?
What are the coming theory component assessment will be?
How to excel in the respiratory exit viva exam?

Calling all respiratory subspecialty trainees and doctors that are interested in pursuing a career in Respiratory Medicine Subspecialty. Do come and join the discussion regarding the current exit viva exam and future proposed change to the examination with a part 1 (theory component) with up-close and personal with Examination Committee Lead.

Plenary 2
CHALLENGES IN CHILDHOOD AND ADOLESCENT TB DURING COVID-19 PANDEMIC

Marieke Van Der Zalm
Stellenbosch University, South Africa

Severe acute respiratory syndrome corona virus- 2 (SARS-CoV-2) and M. tuberculosis together have killed approximately 5.7 million people worldwide over the past 2 years. The COVID-19 pandemic and the nonpharmaceutical interventions to mitigate COVID-19 transmission (including social distancing regulations, partial lockdowns and quarantines), have had devastating effects on tuberculosis (TB) care globally with repeated disruptions of routine services and reduced access to care. In addition, a history of TB or concurrent infection with TB has been associated with more severe disease and increased mortality of COVID-19. Similarly, COVID-19 might have an impact on the inception and progression of TB disease. Little is known about the pandemic's impact on child and adolescent TB. In this plenary talk I will discuss the challenges for childhood and adolescent TB during the COVID-19 pandemic and how we can use the lessons learned from the COVID pandemic to our advantage to improve TB care going forward.

S4A – Lung Cancer
NEXT GENERATION SEQUENCING – DO WE NEED IT?

Pathmanathan Rajadurai
Subang Jaya Medical Centre, Selangor, Malaysia

Lung cancer continues to be a major cause of cancer related morbidity and mortality globally. Enhanced biomolecular characterisation of non small cell lung cancer (NSCLC) has revealed that at the cellular core, lung cancers are genetically unique, each cancer distinguished by driver mutations that trigger cellular pathways that initiate and propel tumour cell growth, affect the propensity for metastasis and are likely to play a critical role in the development of selected resistance mechanisms, especially under the pressure of targeted therapy. Most patients present at a surgically unresectable stage. The increasing number of approved drugs that target underlying driver mutations along with the utilisation of next generation sequencing (NGS) technologies provide the best solutions to extract the most diagnostically useful information from the small samples available from biopsies and cell blocks. The detection of rare mutations may not be possible using a serial testing approach as tissue is quickly depleted after performing 3- 4 tests. Targetable driver mutations which may be found more than 60% of NSCLC cases coupled with driver mutation-based targeted therapies, generally enhance the therapeutic response and quality of life for these select group of patients. Indeed, NGS may be the only cost effective and accurate method to detect some molecular events such as Met exon 14 skipping, NTRK fusions and Exon20 insertions, all of which are eminently targetable. Furthermore, NGS testing of liquid biopsies is gaining traction and as the sensitivity levels improve, is likely to become standard of care in the management of NSCLC patients in the foreseeable future.

S4A – Lung Cancer
UNMET NEED IN IMMUNO-ONCOLOGY
Adlinda Alip
University Malaya Medical Centre, Kuala Lumpur, Malaysia

A lot of progress has been made in the field of immune-oncology specifically in NSCLC and small cell lung cancers in the recent years. The major unmet need especially in this region would be lack of accessibility due to prohibitive cost to majority of lung cancer patients in public hospitals. Putting aside this limitation, one the biggest unmet need would be effective second line treatment after patient progress on standard immunotherapy-based agents. Other unmet needs include the role of immunotherapy in NSCLC with driver mutation, post-targeted therapy space and the best way to utilise immunotherapy in earlier stage lung cancer. I will be exploring and covering the current practice relating to immune-oncology and the 'unmet need' in my talk.

S4A – Lung Cancer
PULMONARY NODULES – MANAGEMENT UPDATES
Zuhanis Abdul Hamid
National Cancer Institute, Putrajaya, Malaysia

Management of pulmonary nodules has been revised and updated. In this lecture discussion of latest nodules management according to Fleischner's Society will be elaborated. It will include the lung nodule criteria in solid, subsolid and pure ground glass nodule and multiple lung nodules and prolonged consolidation management will also be discussed.
The lecture will also include brief discussion on Lung Rads criteria and BTS guideline for management comparisons.

S4B – Sleep Disordered Breathing
PAP THERAPY IN OHS
Rashidah Yasin
Oriental Melaka Straits Medical Centre, Melaka, Malaysia

Positive airway pressure (PAP) therapy is the first-line treatment for obesity hypoventilation syndrome (OHS), which characterized by daytime hypercapnia ($PaCO_2$>45mmHg) in obese people (BMI>30kg/m^2) who experiences hypoventilation. Alveolar hypoventilation is a result of an imbalance between the capability of respiratory muscles to maintain ventilation and gas exchange leading to daytime hypercapnia that can be assessed by blood gas analysis. In patient with OHS, the presence of daytime hypercapnia is explained by several co-existing mechanisms such as obesity-related changes in the respiratory system, alterations in respiratory drive and breathing abnormalities during sleep. Polysomnography is recommended to exclude concomitant obstructive sleep apnea (OSA). The clinical symptoms of hypoventilation are used to evaluate the disease severity and prognosis as well as decision-making for initiating PAP. Treatment options include continuous positive airway pressure (CPAP), bi-level PAP and other non-invasive ventilation (NIV) modalities. The current recommendation is to use CPAP rather than NIV if concomitant severe OSA in stable patients. NIV can be beneficial in patients having hypercapnia in the absence of significant apnea, if the patient did not tolerate PAP or did not respond to CPAP as initial therapy. Application of PAP in OHS shown benefits, which include improve daytime sleepiness, significantly reduce daytime hypercapnia, increase in the ventilatory response, improve lung compliance and quality of life. However, NIV should be used in hospitalized patients with acute hypercapnia respiratory failure suspected of having OHS until they undergo outpatient diagnostic procedures and PAP titration in the sleep laboratory. The lecture will evaluate PAP therapy and ventilatory strategies in the management of OHS using latest clinical evidences.

S4B – Sleep Disordered Breathing

WEIGHT REDUCTION SURGERY IN SLEEP APNOEA

Nik Ritza Kosai Nik Mahmood
Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Obesity is a global pandemic, WHO has classify it as a Disease. Obesity attracts over 100 medical co-morbidities with an alarming reduction of life span. OSA (Obstructive sleep apnoea)is very prevalent (85%) among morbidly obese patients and increase the risk of pulmonary hypertension, followed by heart failure. Bariatric surgery is currently the gold standard treatment for morbidly obese patients whom has failed the best medical treatment for weight loss. Numerous clinical evidence strongly support the safety and efficacy of bariatric surgery in significant weight loss and reversal of co- morbidities including OSA. The systematic Approach in patients undergoing bariatric surgery has now been established and has been reflected in the numerous international guidelines including the Malaysian Bariatric Expert concensus published in 2022. These stepwise approach in relation to patients with sleep Aponea and the efficacy in reduction and reversal of OSA following Bariatric surgery will be discussed.

S4B – Sleep Disordered Breathing

MALAYSIA – SLEEP GUIDELINE

Ahmad Izuanuddin Ismail
Hospital Al-Sultan Abdullah, Selangor, Malaysia

Obstructive Sleep Apnoea (OSA) is a common condition that occurs during sleep leading to repetitive breathing cessation due to upper airway collapse. It affects both children and adults and is associated with significant morbidity. To date, there is no specific local CPG addressing the management of OSA. Thus, it is timely to have the first Malaysian CPG on OSA to guide local healthcare providers in managing this common disorder. As chairman of the development group, my talk will give snippets of the upcoming CPG which is at the final stage of completion.

S4C – Neonatal Lung Diseases

RESPIRATORY OUTCOMES OF PREMATURITY: MALAYSIAN NATIONAL NEONATAL REGISTRY

See Kwee Ching
ParkCity Medical Centre, Kuala Lumpur, Malaysia

The Malaysian National Neonatal Registry was setup in 2002 to study the outcome of sick babies admitted to NICUs in Malaysia..Despite the increasing surivival rates for infants born at less than 32 weeks gestation, they are at a higher risk for neonatal morbidity such as chronic lung disease of prematurity. In 2018, the incidence of chronic lung disease of prematurity among admitted babies with gestational age <32 weeks surviving to day 28 of life and 36 weeks post conceptional age were 24.7 % and 17.5% respectively. While the incidence of chronic lung disease of prematurity among admitted babies with birth weight of < 1500 g surviving to day 28 of life and 36 weeks post conceptional age were 22.6 % and 21.9 % respectively. Antenatal steroid use, surfactant replacement therapy, lung protective strategies and early nutrition pathways lead to a better outcome.

S4C – Neonatal Lung Diseases

ADVANCES IN NON-INVASIVE VENTILATION STRATEGIES IN NEONATAL INTENSIVE CARE UNIT (NICU)

Chee Seok Chiong
Hospital Selayang, Selangor, Malaysia

The use of non- invasive ventilation (NIV) in neonatal intensive care has increased in recent decades to reduce ventilator induced lung injury. NIV is frequently used to avoid intubation or as post extubation support for spontaneously breathing neonates experiencing respiratory distress. Various modes of NIV strategies used in preterm neonates include nasal continuous positive airway pressure (NCPAP), bilevel CPAP (Bi-PAP), humidified high flow nasal cannula (HHFNC) and nasal intermittent positive pressure ventilation (NIPPV).

NCPAP is a mainstay of NIV for preterm neonates. NCPAP is preferred to HHFNC as primary mode of NIV in preterm infants with respiratory distress syndrome (RDS), whereas HHFNC is an effective alternative to NCPAP after extubation. HHFNC is associated with significantly less nasal trauma and air leak. Combining the early use of NIV with surfactant therapy may reduce the need of mechanical ventilation (MV).

NIPPV is as strategy that combines a continuous distending pressure with intermittent pressure increases. Bilevel CPAP and NIPPV differs in pressure and cycling times. NIPPV is an alternative to NCPAP as primary or post extubation respiratory support. Studies have shown that early NIPPV is superior to NCPAP to decrease the need for MV in preterm infants with RDS especially when ventilator generated, synchronized NIPPV is used.

Newer modes, nasal high frequency oscillatory ventilation (nHFOV) and non-invasive neurally adjusted ventilatory assist (NIV-NAVA) are promising interventions but are not well studied in neonates and need further evaluations before routine use of these modes.

S4C – Neonatal Lung Diseases

ROLE OF PAEDIATRIC PULMONOLOGIST IN THE MANAGEMENT OF BRONCHOPULMONARY DYSPLASIA: FROM HOSPITAL TO HOME

Nicholas Chang Lee Wen
Hospital Pulau Pinang, Pulau Pinang, Malaysia

Bronchopulmonary dysplasia (BPD) or also known as neonatal chronic lung disease is an important respiratory illness among preterm newborns which results in significant morbidity and mortality. Bronchopulmonary dysplasia commonly affects the neonatal lung parenchyma, large airways or pulmonary artery. Paediatric pulmonologists and neonatologists work hand-in-hand to combat this diverse disease with the aim of promoting lung development and repair, improving symptoms, minimizing further pulmonary damage and detection of acute pulmonary decompensation and long-term complications. This presentation will focus on the role of a paediatric pulmonologist in the long- term follow-up. Long-term complications and outcomes of bronchopulmonary dysplasia include abnormal pulmonary function tests, airway reactivity, abnormal chemoreceptor sensitivity, recurrent wheezing episodes and sleep disordered breathing. Treatment options such as supplemental oxygen, nutrition, vaccination and potential medications will also be explored.

S5A – Advances in Respiratory Medicine
NEW BIOLOGICS IN SEVERE ASTHMA

Azza Omar
Hospital Raja Perempuan Zainab II, Kelantan, Malaysia

The Global Initiative for Asthma (GINA) defines severe asthma as asthma that is not controlled by proper use of high-dose inhaled corticosteroids and long-acting beta-agonists or that worsens when high doses of these drugs are lowered. Severe asthma is a heterogenous disease characterized by multiple phenotypes. The complex and heterogeneous nature of severe asthma and despite recent advances, many patients continue to experience frequent exacerbations, an increased risk of hospitalization and a significantly reduced quality of life.

Research into the pathogenesis of asthma has led to the development of biologics that target cytokines directly involved in causing severe asthma symptoms. These cytokines include interleukin (IL)-4, IL-5 and IL-13, which are responsible for the high levels of eosinophils and immunoglobulin E (IgE) seen in some types of severe asthma.
Severe asthma is classified into three types based on patients' response to treatment and the presence of certain biomarkers: allergic asthma, eosinophilic asthma, and noneosinophilic asthma.

As of 2021, GINA guidelines for the management of severe asthma include biologics as add-on therapy for severe allergic and eosinophilic asthma. Targeted biologic therapies have revolutionarily changed the management of severe asthma by affecting various clinical outcomes, mainly by reducing exacerbations and the use of maintenance corticosteroids, but also by improving lung function and patient quality of life.

Inhaled corticosteroids are not effective for those with noneosinophilic asthma, and only one of the currently available biologics targets a cytokine active in this type of asthma. That is hymic stromal lymphopoietin (TSLP) blocker is an epithelial cytokine responsible for starting a cascade of inflammation in asthma. Tezepelumab is the first agent with FDA-approved indications for all types of severe asthma, including noneosinophilic asthma, regardless of the presence of biomarkers.

The evolution persists as novel biologics targeting noneosinophilic asthma who do not respond to corticosteroids. Additionally, current biologics consist of injectable agents, many of which must be administered by a healthcare professional. A few companies are investigating new oral drugs and inhalers for use in patients with severe asthma.

S5A – Advances in Respiratory Medicine
LUNG ULTRASOUND IN MANAGEMENT OF RESPIRATORY DISEASES

Zuhanis Abdul Hamid
National Cancer Institute, Putrajaya, Malaysia

Usage of lung US in management of respiratory problem is increasing common especially in the era of COVID19 pandemic and even before. This lecture consist of basic knowledge of sonography technique, imaging patterns, its indications and findings in common respiratory diseases. The objective is to familiarised participant in Lung US examination in order to be able to utilise it in their daily practice.

S5A – Advances in Respiratory Medicine
LUNG TRANSPLANTATION – OVERVIEW

Tan Han Loong
Institut Perubatan Respiratori, Kuala Lumpur, Malaysia

Since the first human lung transplantation in 1963, it has continued to grow as a field, particularly after the advent of ciclosporin as well as refinement of surgical technique and lung preservation. Lung transplantation should be considered for adults with chronic, end-stage lung disease who have high mortality within 2 years without transplantation and high likelihood of 5-year post transplant survival. The timing of referral and listing of candidates continues to pose challenges. The appropriate selection of lung transplant recipients is an important determinant of outcomes. An unsuccessful lung transplant affects not only the individual who was transplanted, but also a potential alternative recipient who did not have the opportunity to be transplanted. The indications for lung transplantation can be broadly separated into diffuse parenchymal lung disease, obstructive lung disease, pulmonary vascular disease and suppurative lung disease. Single lung, bilateral lung or combined heart-lung transplantation can be performed depending on the indication for transplantation, recipient factors and donor availability. Bilateral lung transplantation is normally performed as sequential single-lung transplants via the traditional clamshell incision. Donor shortages and chronic lung allograft dysfunction continue to prevent lung transplantation from reaching its full potential. Chronic lung allograft dysfunction is the major contributor to long-term mortality and morbidity while graft failure and infection are the leading cause of death during the first year post transplantation. Careful selection of candidate, retrieval and preservation of donor lung in good condition, well-performed surgery and concerted effort of multidisciplinary team are keys to success in lung transplantation.

S5B – Pleural Disease
MANAGEMENT OF PERSISTENT TRANSUDATIVE EFFUSION

Anantham Devanand
Singapore General Hospital, Singapore

The use of Light's criteria to dichotomise pleural effusions into transudates and exudates may not be sufficiently specific. Many transudates can be misclassified as exudates especially in the presence of diuretic use. Therefore, the terminology has shifted to non-malignant pleural effusions. The three commonest causes are related to cardiac disease, renal failure and hepatic hydrothorax. Dual pathologies often co-exist in these patients and accurate diagnosis is essential because the cornerstone of therapy is to treat the underlying cause. If patients remain symptomatic despite systemic therapy, then pleural drainage is indicated. These patients are typically on antiplatelet therapy and can be thrombocytopenic or coagulopathic, which can raise the bleeding risk from interventions. They tend to be prone to infections, have electrolyte derangements and may even be hypotensive. Repeated ultrasound guided therapeutic thoracentesis has been the traditional approach and pleural manometry can help identify lung entrapment. If there is lung re-expansion, chemical pleurodesis with talc can be considered. Pleurodesis success may be hampered if there is ongoing pleural drainage. Indwelling pleural catheters have been licensed by the FDA for the management of non-malignant effusions. Possible complications include infections, symptomatic loculations, catheter blockage and hypoalbuminemia from chronic drainage. Choice of intervention depends on the rate of re-accumulation of pleural fluid, ability to control underlying disease, prognosis, and patient preference. Refractory transudative pleural effusions due to organ failure can have a grave prognosis with a shorter median survival than primary pleural malignancy. Where appropriate, palliation of symptoms should be considered.

S5B – Pleural Disease

MANAGEMENT OF PLEURO-CUTANEOUS FISTULA

Benedict Dharmaraj Retna Pandian
Hospital Kuala Lumpur, Kuala Lumpur, Malaysia

Pleuro-cutaneous fistula is defined as a pathological communication between pleural space and subcutaneous tissue of the chest wall. It is rare and causes include pleural tuberculosis, foreign bodies, malignancies, post radiation, complication following thoracic surgeries or tube thoracostomy. Therapeutic strategy includes treatment of the causal agent and predisposing factor. Surgery is indicated when medical therapy fails.

S5B – Pleural Disease

MANAGEMENT OF CHYLOTHORAX

Gary Lee Y.C
UWA School of Medicine & Pharmacology, Australia

Chylothorax (chyle in the pleural space) was first described by Bartolet in 1633. Chylothorax is a diagnosis often under-recognized or mistaken as empyema, causing a delay in management. Knowledge of the anatomy of the thoracic duct is important to understanding the causes, diagnoses and management options of chylothoraces. Chylothorax can generally be classified as traumatic (including surgery) or non-traumatic types. Common causes of non-traumatic chylothoraces include lymphoma and other mediastinal lymphadenopathies (especially metastatic malignancies) and lymphatic abnormalities (including LAM). Presence of chylomicrons or high levels of triglyceride in the pleural fluid define a chylothorax. Lymphangiography can potentially identify the leak site. Multidisciplinary therapeutic approach is often necessary and the best treatment depend on the underlying causes.

S5C – Paediatric Year in Review

LONG TERM PULMONARY COMPLICATIONS IN PAEDIATRIC COVID-19

Su Siew Choo
Hospital Tengku Ampuan Rahimah, Selangor, Malaysia

Long-term pulmonary complications following COVID-19 have been extensively described in the adult population. Unfortunately, data in children and adolescents are still scarce. Diagnoses of post-COVID syndrome refer to clinical features persisting for more than 12 weeks after acute COVID-19, which could not be explained by any alternative diagnosis.

Chronic cough, chest tightness, nasal symptoms and exertional dyspnoea are the most common persistent respiratory symptoms reported in children following acute COVID-19 infection. However, most symptoms are self-limiting and tend to resolve by 12 weeks. The time to improvement depends on the premorbid condition and the severity of the illness.

The pathophysiology of pulmonary complications post COVID-19 is not precisely known. It may occur due to direct damage to the respiratory system or other system involvement (cardiac or rheumatological). The postulated mechanisms are lung damage due to the initial infection, ongoing virus-host interaction, persistent hyper-inflammation, poor antibody response, and/or an exaggerated immune response leading to autoimmunity. Follow-up studies on small cohorts of these children have shown only a minority with persistent pulmonary function abnormality and a few case reports of post-infectious bronchiolitis obliterans following acute COVID-19 have been reported.

Large cohorts with a longer duration of follow-up with standardised imaging and pulmonary function testing will be required to fully ascertain the long-term pulmonary complications of COVID-19 in children. Time will provide an advanced understanding for the prevention and appropriate care of long term pulmonary sequeale in the paediatric population.

S5C – Paediatric Year in Review
UPDATES ON ASTHMA MANAGEMENT BASED ON GINA 2022 GUIDELINES

Jessie Anne de Bruyne
University Malaya Medical Centre, Kuala Lumpur, Malaysia

The GINA guidelines were updated in 2022.
There is more emphasis on making the diagnosis of asthma before initiation of treatment based on variability in Forced Expiratory Volume in 1second (FEV1) or peak expiratory flow rate(PEFR). If treatment has been started and variability is not demonstrated, spirometry can be repeated after withholding treatment.
It recommends the term 'mild asthma' should generally be avoided in clinical practice and warns about the risks of severe exacerbations and the need for regular ICS containing treatment.
There was also increased emphasis on using combination – inhaled corticosteroid (ICS) and long-acting beta-agonist (LABA) - treatment as maintenance and reliever therapy (MART). A separate track was added to emphasize superiority over using short-acting beta-agonists (SABA) as reliever. More studies showing reduction in severe exacerbations, and/or hospital visits and admissions were presented as evidence for the superiority of combination treatment as reliever in mild asthma.
Long-acting muscarinic antagonists (LAMA) were not recommended. Cromones have been discontinued.
New biologics have been added to Step 5 options in severe eosinophilic and Type 2 asthma.
Asthma action plans should be written (printed, digital and/or pictorial) rather than just verbal.
Children less than 5-years-old with intermittent viral wheezing may be treated with intermittent short courses of ICS.

S5C – Paediatric Year in Review
GENETIC TESTING FOR INHERITED RESPIRATORY CONDITIONS IN THE NEWBORNS

Anna Marie Nathan
University Malaya Medical Centre, Kuala Lumpur, Malaysia

Introduction: Respiratory distress is common in term newborn infants. Persistence of hypoxia or respiratory distress by two weeks should make one consider the possible diagnosis of Children's Interstitial Lung Disease (chILD). ***Objectives:*** To discuss the "when, why and what" of genetic testing in infants suspected of chILD through clinical vignettes. ***Discussion***: a) Baby J was intubated for respiratory distress from day 2 of life. Childhood ILD was considered at day 26 of life when transferred to our care. Whole Exome Sequencing (WES) revealed that he had compound heterozygote variants of ABCA3 mutation. Although he was extubated at day 83 of life, he required high non-invasive respiratory support that was finally withdrawn at 11 months old. b) Baby N presented with respiratory distress from birth and was invasively ventilated from day 10 till day 35 of life. She also had congenital hypothyroidism. Initial genetic investigation (INVITAE) detected a pathogenic variant in the NKX2-1 gene. However, it also detected multiple other variants of unknown significance, including for CF and PCD. Finally, WES confirmed the diagnosis of TTF-1. This patient defaulted to treatment and eventually succumbed to her illness at one year of life. C) This is an infant who presented at 2 months old with chronic diarrhoea, severe failure-to-thrive and recurrent respiratory infections. Bronchoscopic alveolar lavage showed evidence of lipid-laden macrophage and periodic-acid Schiff positive. Lung biopsy showed a possible acquired form of pulmonary alveolar proteinosis possibly secondary to aspiration or macrophage dysfunction and suggested genetic testing. Unfortunately, genetic testing was not able to detect any abnormality. The patient finally succumbed to her illness at 1yr 8 mths old. **Conclusion:** Genetic testing is essential in a child suspected of chILD. Although results may not be timely or positive, it is essential for both the clinician and parent.

S6A – Pulmonary Infection
NEW THERAPEUTICS IN MANAGING HAP

Petrick Periyasamy
Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Hospital Acquired Pneumonia can cause mortality up to more than 20%. This is worsened by increasing rates of multi drug resistance organism seen in this category. It has an annual incidence of 5 to 10 cases per 1000 hospital admissions globally.

The Human and Economic cost of Antimicrobial Resistance (AMR) is expected to cause 10 million deaths attributed to AMR in 2050. There could be a reduction of 2% to 3.5% in Gross Domestic Product (GDP) costing the world up to 100 trillion USD to manage this silent pandemic soon.

WHO publishes its first ever list of antibiotic-resistant "priority pathogens" – a catalogue of 12 families of bacteria that pose the greatest threat to human health. Priority 1 which is CRITICAL are carbapenem-resistant Acinetobacter baumannii (CRAB), carbapenem-resistant Pseudomonas aeruginosa, carbapenem-resistant Enterobacteriaceae (CRE).

We will look at the common multi drug resistant organisms around this region and see how the new drugs cater to our own country needs. Some of the drugs that are already available in our shores are Zerbaxa (Ceftolozane/Tazobactam) and Zavicefta (ceftazidime and avibactam). We will see how best we can use them. However there still seems to be a big hole left in terms of treatment which is the treatment of metallo beta lactamase (MBL) CRE and CRAB in our country. For this, we will explore some potential new antibiotics like cefiderocol in terms of treatment of this difficult organism.

S6A – Pulmonary Infection
FUNGAL DISEASE IN ASTHMA, COPD AND BRONCHIECTASIS

Sanjay Haresh Chortirmall
Nanyang Technological University, Singapore

Asthma, Chronic Obstructive Pulmonary Disease (COPD) and Bronchiectasis exhibit a broad range of clinical presentation including overlap. Such disease heterogeneity between patients highlights the need for increased personalisation including endo-phenotyping efforts to improve our understanding of disease pathogenesis and progression. Fungal moulds are ubiquitous, and their spores inhaled daily in large numbers into the airway. Removed by intact anatomical barriers and an effective immune response, disease occurrence in chronic respiratory disease states is dictated by the host immune system and virulence of the infecting fungal strain. Patients with chronic respiratory diseases including asthma, COPD and bronchiectasis are at significant risks of acquisition, colonization, infection, and allergic responses to various fungi including *Aspergillus*. Use of next generation sequencing has revolutionised our detection and understanding of the airway microbiome in these settings including its functionality. How best to apply this information into patient care, monitoring and treatment based on fungal airway signatures however remains challenging. Using asthma, COPD, and bronchiectasis as models of respiratory disease, this talk will summarize work performed by our group illustrating the importance of the sensitization, allergy and mycobiome analysis in asthma, COPD and bronchiectasis, which reveal important and clinically relevant microbial signatures based on *Aspergillus* and discuss how environmental microbiomes can be leveraged for clinical application in the era of next generation sequencing and precision medicine.

S6B – Pulmonary Vascular Disease
ROLE OF EARLY COMBINATION THERAPY IN PAH
Luke Howard
Imperial College Healthcare NHS Trust, United Kingdom

Pulmonary arterial hypertension (PAH) is a rare, progressive, and potentially fatal cardiopulmonary syndrome that imposes a significant burden on patients in terms of morbidity and mortality. It is known that simultaneous targeting of multiple pathogenic pathways of PAH provides additive or synergistic clinical effects. The latest 2022 ESC/ERS PH Guidelines recommend that treatment strategy should be a risk-based, goal-orientated treatment approach, where achieving and/or maintaining a low-risk status is favorable and recommended.

S6B – Pulmonary Vascular Disease
PULMONARY ARTERIAL HYPERTENSION – WHAT'S NEW?
Lee Chiou Perng
Hospital Serdang, Selangor, Malaysia

The new 2022 ERS/ESC PAH guideline has just been published recently. There were important updates in definition, classification, diagnostic algorithm as well as treatment suggestions when compared with the last ERS/ESC PAH guidelines published back in 2015. In this talk, we will bring you through some of the important updates based on the latest evidence in the field of PAH. The important updates include lowering down the threshold for diagnosis of PAH, new subgrouping and removal of some diseases in the PAH classification. Besides, we will also look into the newly improved diagnostic strategies aiming at early detection and fast track referrals for high-risk patients.

Sunrise Session
BEST OF ERS 2022
COVID-19: HIGHLIGHTS FROM THE ERS CONGRESS 2022
Thomas Gille
Hôspital Avicenne, France

This lecture is a lookback at some recent articles regarding COVID-19 that were highlighted during the 2022 ERS International Conference, as well as a presentation of some of the novel works that were presented. Various aspects will be covered: pathophysiology, management, prognosis, post-COVID-19 reassessment and sequelae

Sunrise Session
BASIC AND TRANSLATIONAL RESPIRATORY SCIENCE: HIGHLIGHTS FROM THE ERS CONGRESS 2022
Sara Cuevas Ocana
University Park, United Kingdom

The European Respiratory Society International Congress took place for the first time in a hybrid format, with more than 14000 participants attending in person in Barcelona (Spain) and more than 6500 participants attending virtually. This talk aims to highlight some of the sessions featured in the Congress programme, including a 'Year in review – basic science' session entitled 'Preclinical discovery and testing of new approaches to lung repair' that was available as pre congress content.

This talk also summarizes two symposia entitled 'Cell death modalities regulating the onset and progression of chronic lung diseases' and 'Dangers in the air we breathe', a mini symposium entitled 'Deconstructing the developing lung at the single cell level to determine phenotypes and cell-specific targets of bronchopulmonary dysplasia', and one of the main Hot topics on the Congress 'The human Lung cell atlas: a universal reference for all respiratory scientists'.

In addition, there were over 3900 submitted abstracts with over 3200 abstracts accepted for poster or oral presentations, giving the opportunity to present their work to early career respiratory professionals. This talk highlights one interesting oral presentation session on 'Novel targets and approaches in pulmonary translational research'.

Sunrise Session

SLEEP DISORDERED BREATHING: HIGHLIGHTS FROM THE ERS CONGRESS 2022

Matteo Bradicich
University Hospital Zurich, Switzerland

The ERS International Congress 2022 held in Barcelona offered the chance to present and discuss a large number of sleep medicine-centred topics of utmost research and clinical interest. Hereby a brief overview on this content will be presented. New diagnostic, prognostic and therapeutic approaches have been discussed, with the aim of better endo- and phenotyping sleep apnoea patients – e.g. with genomics, proteomics and new indexes like pulse wave amplitude drop (PWAD) and respiratory effort. In this framework, the crucial methodological aspects of future clinical trials validating these new predictors and integrating them with the already assessed indexes has been discussed. Moreover, the available evidence on current and future potential pharmacological strategies has been presented, including the pharmacological management of obesity in order to reduce an independent cardiovascular factor and a structural factor promoting obstructive sleep apnoea. Furthermore, another topic of great research interest, intermittent hypoxia, has been thoroughly discussed as key feature of different apnoea and hypopnoea syndromes, from its systemic role in inflammation and cardiovascular risk increase to its relation with cognitive decline and tumorigenesis. Another broad thematic area has been the therapeutic approach to different sleep disordered breathing conditions, like central sleep apnoea and obesity hypoventilation syndrome, and the importance of a multidisciplinary strategy, which nowadays should include e-health applications as well.

Plenary 3

BRONCHIECTASIS: NEW PERSPECTIVE FROM BENCH TO BEDSIDE

Sanjay Haresh Chortirmall
Nanyang Technological University, Singapore

Current clinical practice guidelines for the management of adult bronchiectasis highlight the limited treatment options currently available for this devastating chronic disease where progressive, permanent, and irreversible dilatation of bronchi ensue resulting in recurrent infection and inflammation in patients from a variety of causes, if at all identifiable. The inherent disease heterogeneity, that has further precluded the success of clinical trials in bronchiectasis, means that a lack of licensed therapies currently exists in practice. This plenary will highlight the promising and rapid developments that have occurred in this field over the last decade including a revised approach to understanding its pathogenesis, emerging endophenotypes of disease (revealing treatable traits), the improved microbial understanding attained from technologies such as next-generation sequencing (NGS) and the potential targeting of inflammation to improve patient outcomes. We are entering an exciting era for bronchiectasis, an era where individualized endo-phenotyping and precision medicine may finally result in evidence-based treatments for individuals with this disease.

S7A – Primary Care
PERSONALIZING INHALER DEVICES AND HOW RMTAC CAN HELP

Jaya Muneswarao Ramadoo
Hospital Pulau Pinang, Pulau Pinang, Malaysia

Poor inhaler technique impairs the delivery of medications in patients with asthma and COPD. Recommendations in asthma and COPD guidelines presuppose that healthcare professionals have the knowledge and tools to select inhaler devices appropriate for individual patients. Appropriate selection or personalization and correct use of inhaler devices are integral components in the management of asthma and COPD. It is well known that there are many challenges with the use of inhalers, and no one device suits all patients. The present lecture includes the science and principles behind commonly used inhalers in asthma and COPD, such as pressurized metered dose inhalers (pMDIs), dry powder inhalers (DPIs) and soft mist inhalers (SMIs). The lecture highlights the importance of effectively matching inhaler devices to individual patients' needs and abilities in treatment decisions. The role of pharmacists in optimizing inhaler devices through the Respiratory Medication Therapy Adherence Clinic (RMTAC) is also included in the present lecture.

S7A – Primary Care
MILD ASTHMA – MANAGEMENT STRATEGY

Sri Wahyu Taher
Klinik Kesihatan Simpang Kuala, Kedah, Malaysia

Primary care clinics follow up more than 50% of mild asthma patients. A smaller proportion are in the moderate to severe asthma. We are now seeing younger patients being diagnosed with asthma. Most of the time the diagnosis was made when they were children however, they are either loss to follow up or became asymptomatic thus needless for regular treatment. Primary care doctors are also seeing pregnant woman with asthma. Primary care has been chronically under resourced and asthma care has not been given adequate attention. For many years asthma treatment has been very basic and intensification of therapy is limited by financial constraint. The challenge we face is optimizing treatment at the very beginning of diagnosis in the hope that these patients stay in mild asthma category for longer duration. GINA 2022 has updated its treatment strategy addressing gaps in early intervention for anti-inflammatory and reliever therapy. How much money is allocated to treat mild asthma using the GINA 2022 recommendations? Despite the constraints, primary care doctors are expected to adopt these updated strategies in order to ensure symptomatic relief, reduction in exacerbation and hospitalization. This year MOH has begun asthma clinical audit implementation at primary care clinics and it is expected a dismal result. However, the audit results should be able to encourage and persuade MOH to improve support in asthma care in primary care setting. The HWP must include strategies on how to improve asthma care since it is long overdue.

S7A – Primary Care
COPD IN PRIMARY CARE

Richard Loh Li Cher
Loh Guan Lye Specialist Centre, Pulau Pinang, Malaysia

COPD is a chronic airway disease that exert significant toll on individual patient and our healthcare system. Primary care doctors play a pivotal role in its detection, treatment and reducing its morbidity and mortality. Local and international guidelines have kept abreast with the latest knowledge and drug recommendations to enable us to treat COPD as best as we can. However adherence and usage of these information in primary care may be a challenge for various reasons. The recurring issues include under-diagnosis due to lack of suspicion and use of spirometry, inappropriate treatment choice, influence of medicinal cost, lack of holistic consultation approach which include cigarette cessation, treating cardiac and metabolic comorbidities, vaccinations, encouraging treatment adherence, and taking a long term view on COPD management cycles. Although the same message should be emphasized to all doctors treating COPD, primary care doctors face a greater task being the frontliner and regular contact person to diagnose COPD and manage it long-term.

S7B – Meet the Expert Session II
HOW I MANAGED MASSIVE HEMOPTYSIS

Tie Siew Teck
Sarawak General Hospital, Sarawak, Malaysia

Massive hemoptysis is not an uncommon clinical presentation in respiratory medicine. It carries a high risk of morbidity and mortality. It is also a challenging and at time, frightening experience for both patient and treating physician.
In this lecture, the speaker will review some important principles in managing massive hemoptysis. The speaker will also share his clinical experience using real cases during presentation.

S7B – Meet the Expert Session II
HOW I MANAGE MDR-TB (COMPLICATED REGIME/CASE)

Zamzurina Abu Bakar
Institut Perubatan Respiratori, Kuala Lumpur, Malaysia

In 2020 an estimated 9.9 million people fell ill with TB. Among these, 132,222 cases of MDR/RR-TB and 25,681 cases of pre-XDR-TB or XDR-TB were detected, giving a combined total of 157,903. Worldwide 150,359 people with MDR/RR-TB were enrolled on treatment in 2020. Multidrug-resistant TB (MDR TB) is caused by *Mycobacterium Tuberculosis* that are resistant to at least isoniazid and rifampicin, the two most potent TB drugs. To build up the regime for MDRTB is easy, however, to maintain a patient on a regime is challenging. An ideal regime should consist of efficacious drugs, short duration, less pill burden, no injectable drugs, low cost of treatment, less adverse drug reaction with excellent treatment success. Recently, WHO has published a new recommendation on all-oral treatment for MDRTB based on TB PRACTECAL and ZeNIX trial which showed excellent success rate of >90%. Finally, there is a hope in MDRTB treatment. However more researches are needed, hence, the theme of world TB day 2022-'**INVEST TO END TB. SAVE LIVES'**.

S7B – Meet the Expert Session II
HOW I CHOOSE BIOLOGIC IN SEVERE ASTHMA

Azza Omar
Hospital raja Perempuan Zainab II, Kelantan, Malaysia

Severe asthma is a subset of difficult-to-treat asthma and affects up to 10% of the adult asthma population. Malaysia is not far from the global statistics on difficult to treat asthma with the need to identify and treat accordingly. In recent decades, the mainstay of treating severe asthma has been a combination of high-dose inhaled corticosteroid and long-acting beta agonist (ICS/LABA), followed by adding a LAMA.

Unfortunately there are patients who remain uncontrolled or continue to experience frequent exacerbations and patients requiring burst oral corticosteroids (OCS). A minority of patients become OCS-dependent to maintain asthma control. However, partly by definition, severe asthma patients often do not respond to regular treatment in a satisfactory manner and require additional interventions.

Currently, our country is burdened from the cost of the new biological treatments and asthma-related healthcare costs. Hence, we should address issues such as adherence, inhaler technique and treatment of comorbidities prior starting such treatment.

The rational choice of such interventions should be based if possible, the underlying endotype, which may have Type 2 (T2) or non-Type 2 (non-T2) immunity characteristics. Only recently have new therapeutic options become available, mostly in the form of monoclonal antibodies ("biologicals") targeting relevant inflammatory pathways.

The availability of a range of new biological treatments targeting type-2 inflammation has provided new opportunities for patients with more severe asthma. Treatment has a bigger effect on exacerbations than day-to-

day symptoms, and efficacy increases with increasing intensity of type-2 airway inflammation as reflected by the blood eosinophil count and fractional exhaled nitric oxide. The similarity of the clinical effects and target populations coupled with the absence of direct head-to-head comparative data makes it difficult to choose the right biologic for a given patient.

In Malaysia, there are four biologics officially approved for use in selected severe asthmatic patients. The first of these is Omalizumab, an anti-IgE monoclonal antibody acting through various mechanisms on allergic pathways. Three more biologics for asthma, belonging to a different class, have been approved first the anti interleukin-5 (IL-5) pathway mepolizumab and benralizumab. Finally, dupilumab is a monoclonal antibody against the receptor of interleukin-4 (IL-4) which blocks the signaling pathways of IL-4 and IL-13.

Both the initial choice of a biologic as well as the option of switching to another gives the clinician an interesting but also difficult decision when choosing a biologic therapy for patients with severe asthma. This decision is mainly based on the individual characteristics of the patient, especially rate of exacerbations and use of systemic corticosteroids, but is also influenced by the presence of comorbidities and lung function impairment. No safety concerns have been raised around the use of these biologics.

S7C – Paediatric Tuberculosis
UPDATES ON THE MALAYSIAN TUBERCULOSIS CLINICAL PRACTICE GUIDELINES 2022: ACTIVE AND LATENT TB IN CHILDREN

Choo Chong Ming
Hospital Pulau Pinang, Pulau Pinang, Malaysia

Active TB in children is usually paucibacillary and diagnosis could be challenging. The presentation mimics common childhood illnesses. Household TB contact history is helpful in diagnosis of TB in children. A good respiratory specimen either induced sputum or gastric aspirate is needed for the diagnosis of pulmonary TB in children. Children TB drug dosage is different from adults. Serial weighing important and dose adjustment needed during follow up.
Young children living in close contact with a case of smear-positive PTB are at HIGH risk of TB infection and disease. Active TB must be excluded before children are treated for latent TB infection. A shorter but effective regime is preferred for the treatment of LTBI in children. All children with LTBI (treated or not) need to be followed up for at least 2 years for possible risk of developing active TB.

S7C – Paediatric Tuberculosis
SHORT AND LONG-TERM COMPLICATIONS OF PULMONARY TUBERCULOSIS

Hafizah Zainudin
UiTM Sungai Buloh, Selangor, Malaysia

The prevalence of complications of tuberculosis vary from 18% to 87% depending on the population studied. TB morbidity is one of the most important causes of chronic lung disease, but the burden is hardly documented in low- and middle-income countries where clinical services, research and advocacy remain inadequate. It has been acknowledged that TB complications are likely to follow delayed diagnosis, extensive disease and long and repeated treatment. Among the most frequent TB sequelae are structural complications (ie Bronchiectasis, tracheobronchial stenosis) and psychosocial (ie anxiety, depression). Despite devastating sequelae of pulmonary TB, many issues remain unresolve and good quality evidence to overcome these problems is still lacking.

S7C – Paediatric Tuberculosis
NON-TUBERCULOSIS MYCOBACTERIUM DISEASE IN CHILDREN

Noor Ain Noor Affendi
Hospital Sultanah Nur Zahirah,Terengganu, Malaysia

Non-Tuberculous Mycobacterium (NTM) are ubiquitous, free living, environmental saprophytic organisms known to occupy water systems, soil and vegetation. It has potential to colonize and eventually infect either immunocompromised or immunocompetent individuals. NTM are found worldwide and the prevalence are increasing in the last three decades. NTM infections is easily missed, difficult to diagnose and difficult to treat. Four distinct clinical syndromes associated with NTM infection has been described in children: skin and soft tissue disease, lymphadenitis, pulmonary disease and disseminated disease. It causes a spectrum of clinical disease ranging from asymptomatic to severe symptomatic infection.

Diagnosis of NTM disease requires clinical, radiological and microbiological assessment. Culture in both liquid and solid media is the gold standard for NTM diagnosis, however NTM growth usually takes 42 to 56 days in liquid and solid medium. Polymerase chain reaction (PCR), is the most sensitive and rapid test to detect NTM infection.

The treatment of NTM infection is challenging. Depending on the context of presentation and site of infection, three overlapping management options for NTM infections are long courses of anti-mycobacterial antibiotics, surgical excision of infected tissue or removal of indwelling foreign bodies and 'watchful wait'.

S8B – Multi-Disciplinary Case Discussion: Paediatrics
CASE 1: A CHILD WITH CHRONIC WET COUGH

Nor Diyana Ismail
Hospital Serdang, Selangor, Malaysia

This is a case of a primary school girl with a history of chronic cough since the age of 3 years old. She had multiple hospitalizations for pneumonia and required courses of antibiotics. Her symptoms did not improve despite started of inhaled corticosteroids. At the age of 5 years old, she was noted to have persistent respiratory symptoms and failure to thrive. Her clinical findings suggest chronic course of illness with chest deformity and digital clubbing with persistent bilateral course crepitations. Serial chest radiographs showed persistent hyperinflation of bilateral lung fields with persistent changes on right middle and lower zones. CT thorax showed evidence of bronchiectasis. Full workup was done TRO cause of bronchiectasis.

This case will highlight the diagnostic approach to children with chronic wet cough and discuss guidelines on management strategies.

S8B – Multi-Disciplinary Case Discussion: Paediatrics
CASE 2: A TODDLER WITH A WHEEZE

Kavetha Ramalingam
Hospital Raja Perempuan Bainun, Perak, Malaysia

This is a 1-year-4-month-old boy who presented with 4 episodes of wheezing over the past 6 weeks. He was born term and had infantile eczema. There was a parental history of asthma too. He was previously well until 1-year 2 -months old, when he was admitted for 10 days due to adenovirus pneumonia requiring respiratory support with high flow nasal cannula. Subsequently, he had another 3 episodes of wheezing over the span of 6 weeks, requiring admissions to hospital. He was diagnosed with multiple trigger wheeze. However, the wheezing and cough persisted despite the use of MDI Flixotide, Montelukast and even MDI Seretide. He was referred to a Paediatric Respiratory physician. On examination, SpO2 was 88% on room air, he had audible wheeze, deep suprasternal recession, generalized rhonchi and crepitations bilaterally. Flexible bronchoscopy revealed severe bronchomalacia of both lower lobes bronchi. HRCT thorax showed patchy ground glass opacities in both lung fields giving a mosaic attenuation pattern. There was also atelectasis in the left lower lobe, and right upper and middle lobes. Bronchial dilatation and peribronchial thickening were seen in the right upper lobe. He was diagnosed with post adenovirus bronchiolitis obliterans with bronchomalacia and treated with home CPAP, MDI Seretide and Azithromycin. His medical condition improved.

This case highlights that although wheezing is common in this age group and commonly attributed to episodic-viral or multi-trigger wheeze, recurrent or persistent wheezing not responding to inhaled corticosteroids should raise suspicion of other diseases.

S8B – Multi-Disciplinary Case Discussion: Paediatrics
CASE 3: A CHILD WITH STRIDOR

Chua Yi Cheau
Hospital Tunku Azizah, Kuala Lumpur, Malaysia

This is a case discussion on a 13-year-old boy with short stature due to chronic recurrent multifocal osteomyelitis of bilateral knees. His short stature was attributed to the chronic use of steroids, poor bone density and growth hormone deficiency. Hence, growth hormone was initiated. Five months after commencement of growth hormone, he developed episodes of acute breathlessness and stridor, especially during sleep. There were some episodes complicated with hypoxic seizures. Further investigations subsequently diagnosed growth hormone induced soft tissue hyperplasia at subglottic region. Growth hormone was withheld and tracheostomy was inserted. Currently, he remains well off GH therapy but still on tracheostomy.
This case will lead the participants to reflect on critical thinking in a multidisciplinary approach of a child with stridor as well as to consider risk versus benefits of any treatment.

Debate
SHOULD ASYMPTOMATIC MILD OSA BE TREATED IN PATIENTS WITH SIGNIFICANT CARDIOVASCULAR DISEASE?

Megat Razeem Abdul Razak
Hospital Tengku Ampuan Afzan, Pahang, Malaysia

Obstructive sleep apnea (OSA), a breathing disorder that occurs during sleep, is characterized by a partial or complete blockage of the upper airway. Mild OSA has frequently been defined as AHI 5/h to less than 15/h based on polysomnography result. *(AASM,1999)*. One estimate of mild OSA prevalence in the general population is 7.6% in men and 15% in women, respectively *(Young T et al, 1993)*. However, whether mild OSA has significant cardiovascular complications is uncertain. Available evidence from population based longitudinal studies indicates that mild OSA is not associated with increased cardiovascular or all-cause mortality. There are no studies of the impact of treatment on cardiovascular mortality. There was no evidence from a single study that treatment of mild OSA reduces all-cause mortality. It is also not clear whether an association exists between mild OSA and the risk for developing atrial fibrillation and other cardiac arrhythmias. Furthermore, randomized clinical trials have failed to demonstrate a role for positive airway pressure (PAP) devices in reducing the risk of cardiovascular events. Therefore, interventions such as attempted weight loss, sleep position, sleep hygiene, will be considered part of usual care for mild OSA cases, and of course the comprehensive management of cardiovascular risk factors is more important due to the robust evidence and proven benefit. CPAP and other modalities such as a dental appliance or surgery should only be reserved for failed treatment in highly selected cases of mild symptomatic OSA.

Debate

SHOULD ASYMPTOMATIC MILD OSA BE TREATED IN PATIENTS WITH SIGNIFICANT CARDIOVASCULAR DISEASE?

Rashidah Yasin

Oriental Melaka Straits Medical Centre, Melaka, Malaysia

Obstructive sleep apnea (OSA) is characterized by recurrent complete and partial upper airway obstructive events, resulting in intermittent hypoxemia, autonomic fluctuation, and sleep fragmentation. OSA prevalence is as high as 40% to 80% in patients with hypertension, heart failure, coronary artery disease, pulmonary hypertension, atrial fibrillation, and stroke. Mild OSA is defined as apnea hypopnea index (AHI) ≥5–15 episodes per hour. The third edition of the International Classification of Sleep Disorders by the American Academy of Sleep Medicine recommends continuous positive airway pressure (CPAP) treatment for the following conditions: (1) AHI > 5 with one or more symptoms (eg, sleepiness, fatigue, insomnia, snoring) or an associated medical or psychiatric disorder (eg, hypertension, coronary artery disease, atrial fibrillation) or (2) AHI > 15, irrespective of symptoms or associated conditions. Numerous treatment options are available for OSA. These include CPAP, auto CPAP, bilevel PAP, adaptive servo-ventilation, lifestyle intervention/medical weight loss, positional therapy, oral appliances, upper airway surgery, upper airway neurostimulation, and bariatric surgery. All patients with OSA should be considered for treatment, including behavioral modifications and weight loss as indicated. CPAP should be offered to patients with severe OSA, whereas oral appliances can be considered for those with mild to moderate OSA or for CPAP intolerant patients. In view of high prevalence of asymptomatic OSA, clinical implications of recommending against beneficial OSA treatment are far-reaching. There are also data that support benefits of CPAP treatment in the asymptomatic patient (eg, favorable impact on endothelial dysfunction assessed by flow-mediated dilatation). This talk provides perspective on treatment rationale of the asymptomatic patient with OSA and cardiovascular disease.

ORAL PRESENTATIONS

OP 1	**ENDOBRONCHIAL ULTRASOUND GUIDED TRANSBRONCHIAL NODAL CRYOBIOPSY** **Nga Hung Ngu**, Chan Sin Chai, Swee Kim Chan, Mei Ching Yong, Sze Shyang Kho, Siew Teck Tie *Division of Respiratory Medicine, Department of Medicine, Sarawak General Hospital, Kuching, Sarawak, Malaysia*	
OP 2	**LOWER DOSE OF OSIMERTINIB AS SECOND LINE TREATMENT IN ADVANCED EGFRM+ NSCLC - DOES IT WORKS? FIRST REAL WORLD EXPERIENCE** **Sin Nee Tan[1]**, Aishah Ibrahim[1], Megat Razeem Abdul Razak[1], Muhammad Naimmuddin Abdul Azih[2], Soon Hin How[2] *1. Hospital Tengku Ampuan Afzan, Kuantan, Malaysia* *2. Kulliyyah of Medicine, International Islamic University Malaysia, Pahang, Malaysia*	
OP 3	**OUTCOME OF CHILDREN WITH MALACIC AIRWAYS ON HOME NON-INVASIVE VENTILATION: A DECADE'S EXPERIENCE** Nor Diyana Ismail1, Hasliza A Razak1, Lim Ah Cheng1, Vivian Laura Anak Jim1, Dayang Zuraini Sahadan1 *1Paediatric Respiratory Unit, Hospital Serdang, Selangor*	
OP 4	**FACTORS ASSOCIATED WITH LUNG CANCER SCREENING UPTAKE AMONG HIGH-RISK CURRENT AND EX-SMOKERS IN SABAH, MALAYSIA: PRELIMINARY DATA FROM A MULTI-CENTRE PILOT STUDY** **Larry Ellee NYANTI[1]** Chia Zhen CHUA[2] Han Chuan LOO[3] Cheng Zhi KHOR[2] Emilia Sheau Yuin TOH[2] Rasvinder Singh GILL[3] Arfian IBRAHIM[4] Hema Yamini Devi RAMARMUTY[5] *[1]Medical Department, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah* *[2]Medical Department, Hospital Queen Elizabeth II, Kota Kinabalu* *[3]Medical Department, Queen Elizabeth Hospital, Kota Kinabalu* *[4]Gleneagles Hospital Kota Kinabalu* *[5]Respiratory Department, Queen Elizabeth Hospital, Kota Kinabalu*	
OP 5	**DETERMINANTS OF LOSS TO FOLLOW-UP (LTFU) AMONG TUBERCULOSIS PATIENTS IN MALAYSIA** **Peter Saah Keng Tok[1]**, Tharani Loganathan[2], Li Ping Wong[2], Su May Liew[2], Asmah Razali[3], Thilaka Chinnayah[3], Shaharom Nor Azian Che Mat Din[4] *[1] Institute for Clinical Research, National Institutes of Health, Ministry of Health Malaysia, Setia Alam, Malaysia* *[2] University of Malaya, Kuala Lumpur, Malaysia* *[3] TB/Leprosy Sector, Disease Control Division, Ministry of Health Malaysia, Putrajaya, Malaysia* *[4] Johor State Health Department, Ministry of Health Malaysia, Johor, Malaysia*	

OP 1

ENDOBRONCHIAL ULTRASOUND GUIDED TRANSBRONCHIAL NODAL CRYOBIOPSY

Nga Hung Ngu, Chan Sin Chai, Swee Kim Chan, Mei Ching Yong, Sze Shyang Kho, Siew Teck Tie
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Background: Endobronchial ultrasound-guided transbronchial nodal cryobiopsy (EBUS-TBNC) have recently emerged as a new technique in mediastinal lymph node sampling. Since the technique can provide greater volume of tissue sample compared to endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA), it might contribute to better histological diagnosis and wider molecular evaluation.

Objective: To assess the safety and diagnostic yield of EBUS-TBNC in our center.

Methodology: A retrospective, observational study conducted among patients who had EBUS-TBNC performed with cryoprobe 1.1 mm from March 2021 till December 2021. Prior to EBUS-TBNC, EBUS-TBNA was performed by using 22G TBNA needle to obtain TBNA samples and create track for cryoprobe insertion. The outcomes of interest were diagnostic yield and procedure-related adverse events.

Results: Twenty-five patients with median age of 60 (IQR 55.5-67.5) years old were recruited. Most cases were performed under conscious sedation (72.0%) with median procedure duration of 75 minutes (IQR 60.0-90.0). Artificial airways were used in all cases (68% laryngeal mask airway, 20% rigid bronchoscopy, 12% endotracheal tube). Fifteen (60.0%) patients required additional incision with electrosurgery knife to facilitate cryoprobe insertion. The median TBNC passes were 4 (IQR 3.0-4.0) with median freezing time of 10 seconds (IQR 8.0-11.0). The median aggregate specimen size obtained was 7 mm (IQR 5.0-8.0). Overall, the diagnostic yield was significantly higher in TBNC compared to TBNA (80% vs 52%, p=0.009). We observed 3 (12.0%) cases of minor bleeding at the puncture site of TBNC. There were no adverse events such as major bleeding, pneumomediastinum, or pneumothorax.

Conclusion: EBUS-TBNC is considered a safe and useful technique that offers higher diagnostic yield compared to EBUS-TBNA.

OP 2

LOWER DOSE OF OSIMERTINIB AS SECOND LINE TREATMENT IN ADVANCED EGFRM+ NSCLC - DOES IT WORKS? FIRST REAL WORLD EXPERIENCE

Sin Nee Tan[1], Aishah Ibrahim[1], Megat Razeem Abdul Razak[1], Muhammad Naimmuddin Abdul Azih[2], Soon Hin How[2]
1. Hospital Tengku Ampuan Afzan, Kuantan, Malaysia
2. Kulliyyah of Medicine, International Islamic University Malaysia, Pahang, Malaysia

Introduction
In Malaysia, 80% of lung cancer patients are non-small cell lung cancer (NSCLC) and about 45% are epidermal growth factor receptor (EGFR) mutation (EGFRm+). The use of third generation EGFR tyrosine kinase inhibitors (TKIs) osimertinib is regard as standard second line after failed first or second generation EGFR TKI in EGFRm+ NSCLC patients upon disease progression when blood or tissue T790M positive.

Objective
To describe the proportion of EGFRm+ NSCLC patients who were started on lower dose of osimertinib as second line treatment, the median of progression free survival (PSF) and overall survival (OS).

Methodology
This is a single center retrospective study. All patients with advanced stage EGFRm+ NSCLC who started on lower dose of osimertinib upon disease progression from 1st of June 2018 to 30th June 2021. The median PFS, resistant mechanism upon progressive disease (PD), and median OS were assessed.

Results
Of the 28 patients with EGFRm+ NCSLS were treated with osimertinib upon disease progressed, 10 were treated with below recommended dose of osimertinib. All patient received first or second generation EGFR TKIs as first-line therapy. Among the 10 patients, only 1 patient underwent re-biopsy upon disease progression with the result of tissue T790M positive. Another 9 patients underwent blood T790M testing, 8 were positive blood T790M, 1 were negative blood T790M. For lower dose osimertinib regime in this study, half of the patient on osimertinib 40mg EOD while another half were on 40mg OD according to patient's affordability. As high as 90% of patient had partial response, 10% were stable disease. The overall median PFS was 11 months and median OS was 28 months.

Conclusion
This is the first real-world experience on lower dose of osimertinib as second line treatment in EGFRm+ advanced NSCLC population within a cost-restrictive setting impacts the overall outcomes.

OP 3

OUTCOME OF CHILDREN WITH MALACIC AIRWAYS ON HOME NON-INVASIVE VENTILATION: A DECADE'S EXPERIENCE

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Introduction
Malacic airways has been recognized to be a significant cause of non-invasive ventilation (NIV) dependency among hospitalized children. Although most of them can be discontinued from NIV, the weaning criteria and their outcome have not been well studied.

Objectives
To determine the sociodemographic characteristics of children with malacic airways on home NIV and to describe their weaning criteria and clinical outcome.

Methodology
This is a retrospective cross-sectional study of children who were discharged with home NIV from January 2012 to December 2021 in Hospital Serdang. The demographic data, indication and duration of home NIV, weaning criteria and clinical outcome were collected from e-His system database.

Results
81 out of 190 patients discharged with home NIV were diagnosed with malacic airway with 46 males and 35 female patients. They were associated with being syndromic (47%), had congenital heart disease (58%) with cardiac surgery done (43%) and developmental delay (48%). Median age of discharge with home NIV was 5.0 months (IQR 3.2-7.0) while median duration of home NIV use was 11 months (IQR 8-16). 54.3% (44/81) patients with malacic airway could be weaned off from home NIV. 48.15% (39/81) patients were weaned off from Continuous Positive Airway Pressure (CPAP), 6.17% (5/81) from Bilevel Positive Airway Pressure (Bi-PAP) and 3.70% (3/81) were switched from Bi-PAP to CPAP. Outcome of home NIV showed improvement in weight gain (50%, 41/81; $x2 = 45$, $p<0.05$) and unplanned admissions (42%, 34/81 $x2 = 41$, $p<0.05$). Statistical analysis identified oximetry study, weight gain and reduction in recurrent pneumonias as weaning criteria.

Conclusion
Most children with malacic airway may improve over time. Weaning from home NIV is highly dependent on associated underlying disorders. Larger studies are needed to standardize weaning protocol.

OP 4

FACTORS ASSOCIATED WITH LUNG CANCER SCREENING UPTAKE AMONG HIGH-RISK CURRENT AND EX-SMOKERS IN SABAH, MALAYSIA: PRELIMINARY DATA FROM A MULTI-CENTRE PILOT STUDY

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Chia Zhen CHUA[2]
Han Chuan LOO[3]
Cheng Zhi KHOR[2]
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Introduction
Lung cancer carries dismal survival rates in Malaysia, due to late-stage diagnosis. Low-dose computed tomography (LDCT) screening has been shown to reduce mortality in high risk individuals. No public-funded screening programs exist in Malaysia.

Objectives
Primary objective: Determine demographic, psychological, smoking-related factors related to LDCT uptake amongst high-risk individuals. Secondary objective: Compare the perceived and objective cancer risk (PLCOm2012norace) amongst the study participants

Methodology
Preliminary data was extracted from an ongoing cross-sectional questionnaire study (NMRR ID-22-00669-QWZ) aiming to recruit 200 inpatients and outpatients meeting US Prevention Services Task Force (USPSTF) screening criteria in two state hospitals and one private hospital in Kota Kinabalu.

Results
Of the 46 respondents, 93.5% indicated willingness to undergo LDCT, 82.6% believe that smoking cessation leads to reduced cancer risk, but only 19.6% understood lung cancer symptoms. 13% would blame themselves while 28.2% feared stigmatization from others if diagnosed with lung cancer. 26.1% of respondents would try traditional medication upon diagnosis of lung cancer, while 67.4% of respondents would agree for surgery if found to have a nodule on screening, but the majority were worried about costs of LDCT (58.7%) and cancer therapy (71.7%).

LDCT uptake was significantly associated with the desire to have an early stage diagnosis ($p<0.01$) and shorter distance to LDCT site ($p=0.02$). Regression analysis showed no significant association between demographic characteristics (age, gender, ethnicity, marital status, education, current or ex-smoker status) with LDCT uptake. Patient perceived risk of lung cancer did not significantly correlate with their absolute lung cancer risk [$\chi 2(2) = 2.915$, $p = 0.572$].

Conclusion
While willingness to undergo LDCT is high, potential barriers in our study population include stigma, logistic, and poor understanding of lung cancer presentation. Further results are anticipated with the conclusion of the study.

OP 5

MYOSITIS RELATED INTERSTITIAL LUNG DISEASE: RESPIRATORY PHYSICIAN EXPERIENCE

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Introduction

The evaluation of patient with interstitial lung disease (ILD) should be determined by thorough clinical assessment, imaging findings and serology test including measurement of myositis antibodies. We aim to describe the demographic, radiological and treatment received in patient with positive myositis antibodies presented with ILD.

Methods

A 3-year retrospective analysis of patients discovered with positive myositis antibodies after attending the ILD clinic in IPR. Demographic, radiological pattern, laboratory features, pulmonary function test and treatment were evaluated.

Result

20 out of 543 ILD patients have positive myositis antibodies. The median age was 52.9 years old, with predominant male (65%). Prior to being referred, 3 patients (15%) had a diagnosis other autoimmune disease(n=3) and the rest never diagnosed with myositis. Around 70% of patients with positive aminoacyl tRNA synthetase (ARS) which include anti-Jo1, anti-EJ, anti-OJ, anti PL7 and 15% with positive anti-MDA5(melanoma differentiation-associated gene 5). ILD preceded development of myositis in 90% patients, 2 with elevated creatinine kinase (CK) levels and 9 patient with cutaneous manifestations. The most common radiological pattern encountered around 70% were combination of non-specific interstitial pneumonia-organising pneumonia (NSIP-OP) and organising pneumonia (OP). Majority of patients demonstrated restrictive ventilatory defect on lung function test (n=18) at presentation. Majority patients (95%) received steroids, out of which 45% received azathioprine.

Conclusion

In our cohort, minority of patients presented with respiratory symptoms had signs and symptoms of myositis. It is utmost important to examine thoroughly and screen with a comprehensive autoantibody panel include myositis panel by respiratory physician.

POSTER PRESENTATIONS

PP1	**THE SPECTRUM AND CHARACTERISTICS OF COVID-19 INTERSTITIAL LUNG DISEASE IN MODERATE TO SEVERE POST COVID 19 PATIENTS PREVAILING AT 6 MONTHS** M. A. Ibrahim*1*, C. S. Chai*2*, B. Johari*1*, R. F. Abdul Kadir*1*, A. W. Zakaria*1*, A. R. Muttalif*3*, M. F. Abdul Rani*1* *1Faculty of Medicine, Universiti Teknologi MARA - Puncak Alam (Malaysia), 2Faculty of Medicine, Universiti Malaysia Sarawak - Kuching (Malaysia), 3Faculty of Medicine, MAHSA University – Bandar Saujana Putra (Malaysia)*	
PP2	**ANXIETY LEVEL, EXERCISE CAPACITY AND QUALITY OF LIFE POST MILD COVID-19 INFECTION: PRELIMINARY FINDINGS** **Mohd Nazeri Kamarudin[1]**, Muhammad Amin Ibrahim[1] & Fatim Tahirah Mirza[2] *[1]Hospital Al-Sultan Abdullah UiTM & [2]Centre for Physiotherapy Studies, Faculty Health Sciences, UiTM Puncak Alam, 42300 Puncak Alam, Selangor, Malaysia*	
PP3	**ONE YEAR RESPIRATORY AND FUNCTIONAL OUTCOMES AMONG SEVERE COVID-19 INFECTION SURVIVORS: A PROSPECTIVE OBSERVATIONAL STUDY** **Syazatul Syakirin Sirol Aflah[1]**, Maria Kamal[2], Normaszuhaila Abdul Hamid[3], Nurhayati Mohd Marzuki[1], Zamzurina Abu Bakar[1], Nabilah Salman Parasi @ Sulaiman[1], Noraishah Sulaiman[1], Aminuddin Baki Amran[1], Lui Sze Chiang[2], Karuthan Chinna[2], Asiah Kassim[2]. 1. *Institut Perubatan Respiratori, Kuala Lumpur, Malaysia* *Pusat Penyelidikan Klinikal, Hospital Tunku Azizah, Kuala Lumpur, Malaysia*	
PP4	**PULMONARY FUNCTION STATUS AMONG STAGE 4 AND 5 COVID-19 SURVIVORS IN KLANG VALLEY, MALAYSIA** **Syazatul Syakirin SA**[1], Sze Chiang L[2], Normaszuhaila AH[1], Asha M[1], Aaina S[1], Farah Ruwaida FR[1], Karuthan C[2], Maria K[2], Asiah K[2,8] *1. Institut Perubatan Respiratori, Kuala Lumpur, Malaysia* *2. Clinical Research Centre, Hospital Tunku Azizah, Kuala Lumpur, Malaysia* *3. Department of Paediatric. Hospital Tunku Azizah, Kuala Lumpur, Malaysia*.	
PP5	**ESTIMATING THE COST CONSEQUENCE OF GINA 2022 TREATMENT TRACK 1 IN MILD ASTHMA PATIENTS IN MALAYSIA: AN EXPLORATORY ANALYSIS OF SABINA III STUDY** **Andrea Ban Yu-Lin[1]**, Sri Wahyu Taher[2], Lalitha Pereirasamy[3], Syazatul Syakirin Sirol Aflah[4], Hisham Ahmed Farouk[5], Paul Miller[5], Jaime Arturo Solorzano Acuna[5], Andy Ballantyne[5], Chiam Sue Yin[6], Kitson Liew[6], Ashwini Saha[6]. *[1]UKM Medical Centre, Kuala Lumpur, Malaysia; [2]Klinik Kesihatan Simpang Kuala, Kedah, Malaysia; [3]Hospital Pulau Pinang, Penang, Malaysia; [4]Institut Perubatan Respiratori, Kuala Lumpur, Malaysia [5]AstraZeneca Limited, United Kingdom; [6]AstraZeneca Sdn Bhd, Selangor, Malaysia.*	
PP6	**LOCAL ANAESTHESIA IN FLEXIBLE BRONCHOSCOPY: A TIMELY REVISIT** **Kezreen Kaur Dhaliwal**, Arvindran Alaga *Respiratory Department, Hospital Sultanah Bahiyah, Kedah, Malaysia*	
PP7	**EARLY EXPERIENCE IN TELEMEDICINE GUIDED HOME INITIATION OF POSITIVE AIRWAY PRESSURE THERAPY** **Chun Ian Soo[1]**, Chee Kuan Wong[1], Swee Kim Chan[2], Sze Shyang Kho[2], Siew Teck Tie[2], Yong Kek Pang[1], Mei Ching Yong[2]. *1. Division of Respiratory medicine, University of Malaya Medical Center, Kuala Lumpur.* *2. Respiratory medicine unit, Sarawak general Hospital, Kuching*	
PP8	**TELEMONITORING AMONG PATIENTS ON HOME NON-INVASIVE VENTILATION (NIV) IN SARAWAK** **Mei Ching Yong[1]**, Rong Li Ho[1], Sze Shyang Kho[1], Swee Kim Chan[1], Siew Teck Tie[1] *[1] Division of Respiratory Medicine, Medical Department, Sarawak General Hospital, Kuching, Malaysia*	
PP9	**SLEEP DISORDERED BREATHING AMONG CHILDREN WITH PRADER-WILLI SYNDROME: A SINGLE CENTRE EXPERIENCE** Hasliza A Razak, Nor Diyana Ismail, Amanil 'Ula Hassan, Dayang Zuraini Sahadan *Paediatric Respiratory Unit, Hospital Serdang, Selangor, Malaysia*	
PP10	**RESPIRATORY OUTCOME IN CHILDREN WITH DUCHENNE MUSCULAR DYSTROPHY IN A REGIONAL REFERRAL CENTRE** Yee Yen Tan, Nicholas Lee Wen Chang, Rus Anida Awang. *Paediatric Department, Hospital Pulau Pinang, Penang, Malaysia.*	
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PP13	**SHORT-ACTING B_2-AGONIST PRESCRIPTION PATTERNS AND CLINICAL OUTCOMES IN MALAYSIA: A NATIONWIDE COHORT OF THE SABINA III STUDY** Andrea Yu-Lin Ban[1], **Syazatul Syakirin Sirol Aflah[2]**, Lalitha Pereirasamy[3], Sri Wahyu Taher[4], Paranthaman Vengdasalam[5]. *[1]UKM Medical Centre, Kuala Lumpur, Malaysia. [2]Institut Perubatan Respiratori, Kuala Lumpur, Malaysia. [3]Hospital Pulau Pinang, Penang, Malaysia. [4]Klinik Kesihatan Simpang Kuala, Kedah, Malaysia. [5]Klinik Kesihatan Greentown, Perak, Malaysia.* **on behalf of all SABINA Malaysia authors*	
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PP15	**EVALUATION OF THE PERFORMANCE OF SARS-CoV-2 ANTIGEN RAPID DIAGNOSTIC TEST IN CHILDREN WITH SEVERE ACUTE RESPIRATORY ILLNESS** Kah Peng Eg, Noorintan Liana binti Mohamed Sharif, Shih Ying H'ng, Anna Marie Nathan, Jessie Anne de Bruyne *University of Malaya Medical Centre, Kuala Lumpur, Malaysia.*	
PP16	**AN EVALUATION OF PEAK INSPIRATORY FLOW RATE (PIFR) AMONG ADULT ASTHMA PATIENTS USING DRY POWDER INHALERS (DPIS)** **[1]Nager Devi Vampanan**, [2]Jaya Muneswarao, [3]Nurhayati Marzuki, [4]Andrea Ban Yu Lin *Affiliations* *[1]Department of Pharmacy, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia* *[2]Department of Pharmacy, Hospital PulauPinang,Penang Malaysia* *[3]Respiratory Department, InstitutPerubatanRespiratori, Kuala Lumpur, Malaysia* [4]Respiratory Department, UniversitiKebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia	
PP17	**LUNG FUNCTION, MUSCLE FORCE AND EXERCISE CAPACITY DURING HOSPITALIZATION FOR AECOPD: A PRELIMINARY FINDINGS** **Nadhirah Noor[1]**, Mohd Zim,MA[2], Fatim Tahirah Mirza[1] *[1]Centre for Physiotherapy Studies, Faculty of Health Sciences, Universiti Teknologi MARA, Puncak Alam, & [2]Respiratory Unit, Department of Internal Medicine, Faculty of Medicine, Universiti Teknologi MARA, Sungai Buloh, Selangor, Malaysia*	
PP18	**PULMONOLOGIST-LEAD ULTRASOUND GUIDED LUNG BIOPSY SAFETY AND EFFICACY: A 4-YEARS EXPERIENCE FROM A TERTIARY CENTRE IN NORTHERN MALAYSIA** **Izzatul Nadzirah Ismail[1]**, Arvindran Alaga[1] *1. Respiratory Department, Hospital Sultanah Bahiyah, Kedah, Malaysia*	
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PP21	**PROCEDURAL SAFETY AND OUTCOME OF RIGID BRONCHOSCOPY IN MALIGNANT CENTRAL AIRWAY OBSTRUCTION** **Ho Rong Lih[1],** Kho Sze Shyang[1], Chai Chan Sin[1], Eng Shin Yee[1], Chan Swee Kim[1], Yong Mei Ching[1], Tie Siew Teck[1]	

	[1]*Division of Respiratory Medicine, Sarawak General Hospital, Kuching, Malaysia*	
PP22	**RETROSPECTIVE STUDY ON BRONCHIAL ARTERY EMBOLIZATION (BAE) FOR MANAGEMENT OF HAEMOPTYSIS** **HAEMOPTYSIS** **JL Lim**, KS Sim[2], Melisa Lim SY[2], HR Ahmad[1], Rinosyah P[1], Nor Izzah G[1], Zamzurina AB[1], Syazatul Syakirin SA[1] [1]*Institut Perubatan Respiratori (IPR), Hospital Kuala Lumpur* [2]*Radiology Department, Hospital Kuala Lumpur*	
PP23	**CONSERVATIVE MANAGEMENT OF COVID-19 RELATED PNEUMOTHORAX: A CASE SERIES** Muhammad Syakir Hasenan, Nor Anith Mohd Azhar, Muhammad Amin Ibrahim *[1] Cardiothoracic and Vascular Department, National Heart Institute, Kuala Lumpur, MALAYSIA. [2] Faculty of Medicine and Defence Health, National Defence University of Malaysia, Sg Besi, MALAYSIA. [3] Faculty of Medicine, Universiti Teknologi MARA, Puncak Alam, MALAYSIA* *Corresponding author* *Full name: Muhammad Amin Ibrahim* *Email:m_amin88@uitm.edu.my* *Full mailing address: Respiratory Unit, Internal Medicine Department, Faculty of Medicine, UiTM Cawangan Selangor, Kampus Puncak Alam Bandar Puncak Alam, 42300 Puncak Alam, Selangor* *Phone: 013-6029924*	
PP24	**TYROSINE KINASE INHIBITOR-RELATED ADVERSE EVENT: FRIEND OR FOE?** **Nga Hung Ngu**, Puteri Saerah A.S, Chan Sin Chai, Mohd Faizul A.S, Kumaresh Raj Lachmanan, Yoke Fong Lam *Department of Respiratory Medicine, Hospital Raja Permaisuri Bainun, Ipoh, Perak, Malaysia*	
PP25	**TOLERANCE TO NON-INVASIVE VENTILATION SUPPORT IN PATIENTS WITH AMYTROPHIC LATERAL SCLEROSIS: OUR EARLY EXPERIENCE** **Chun Ian Soo[1]**, Eu Way Pek[2], David Paul Capelle[3], Chee Kuan Wong[1], Ee Chin Loh[3], Nortina Shahrizaila[4] [1.] *Respiratory medicine unit, University of Malaya Medical Center, Kuala Lumpur* [2.] *Rehabilitation unit, University of Malaya Medical Center, Kuala Lumpur* [3.] *Palliative unit, University of Malaya Medical Center, Kuala Lumpur* [4.] *Neurology unit, University of Malaya Medical Center, Kuala Lumpur*	
PP26	**PREVALENCE OF PNEUMOMEDIASTINUM AND PNEUMOTHORAX AMONG COVID-19 PATIENTS ADMITTED TO ICU CARE IN A TERTIARY CARE CENTER.** Logaruban Aravan[1], **Teoh Sze Kye[1]**, Suzila Che Sayuti[1], Azza Omar[1], Mat Zuki Mat Zaeb[1] [1]*Respiratory Unit, Department of Internal Medicine, Hospital Raja Perempuan Zainab II, Kelantan.*	
PP27	**A RETROSPECTIVE OBSERVATIONAL STUDY (MERIT)- EVALUATING ASTHMA CONTR PATIENTS ON 'PRD FP/SAL' WITH A HISTORY OF UNCONTROLLED ASTHMA WITH 'ICS PRN' OR 'ICS WHENEVER SABA IS TAKEN': STUDY DESIGN AND METHODOLOGY** [1] IA Hyder Ali, [2]AI Ismail, [3]MA Mohd Zim,[4] A Ban ,[5] CK Wong, [6] LK Lem, [7] MA Ibrahim, [8] V Balakrish Gandhi [1]*Hospital Pulau Penang* [2, 3,7]*Hospital Al-Sultan Abdullah, Universiti Teknologi MARA* [4] *Hospital University Kebangsaan Malaysia* [5]*University of Malaya Medical Centre* [6] *Island Hospital, Penang* [8,9]*GSK Pharmaceuticals, Malaysia*	
PP28	**GOODBYE MR STREP. AND HELLO MRS MORAX.** Yeoh Geok Hong1, Anna Marie Nathan1,2, Hng Shih Ying 1,2, Noorintan Liana1, Eg Kah Peng1,2, Chua Yi Cheau 1 , Jamal I-Ching Sam3, Jessie Anne de Bruyne1,2 *1Department of Paediatrics, University Malaya, 50603 Kuala Lumpur, Malaysia.* *2Child Health Research Group, University Malaya, 50603 Kuala Lumpur, Malaysia.* *3 Department of Medical Microbiology, University Malaya, 50603 Kuala Lumpur, Malaysia.*	

PP1

THE SPECTRUM AND CHARACTERISTICS OF COVID-19 INTERSTITIAL LUNG DISEASE IN MODERATE TO SEVERE POST COVID 19 PATIENTS PREVAILING AT 6 MONTHS

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Abstract

Introduction: COVID-19 infection could lead to a variety of lung manifestations and may persist even at 6 months. We aimed to elucidate this further by looking at the records of our moderate to severe category COVID-19 patients at 6 months who attended our outpatient clinic review. Methods: A total of 382 patients from our post COVID-19 outpatient register were included. The chest radiograph, computed tomographic scan and spirometry were collected including all relevant clinical characteristics. The chest images were independently reported by our two resident thoracic radiologists. Results: Patients' mean age was 51 (13) years and they were predominantly male (60%). Majority were in category severe (n=212, 56%), critical (n=107, 28%) and moderate (n=52, 14%). Time intervals between date of chest radiograph and CT thorax to the hospital discharge were 166 days and 189 days respectively. Abnormal chest radiograph was reported in 34% (n= 131) and was more likely in patients with abnormal spirometry (FVC<80%), had oxygen desaturation > 4% during 6-minute-walk-test and symptomatic (mMRC dyspnoea scale > 2); odd ratio of 3.6 (2.2-5.6), 1.4 (0.8-2.5) and 1.5 (0.9-2.4) respectively. The common abnormal chest radiograph findings were ground glass changes (26%), reticulation (10%) and consolidation (4%). CT thorax findings in 128 patients showed ground glass patterns (88%), fibrotic-like features (82%) and organizing pneumonia (44%). Conclusion: Abnormal chest radiograph was common among survivors of moderate to severe COVID-19 infection and these patients should be assessed for possibility of COVID-19 interstitial lung disease

PP2

ANXIETY LEVEL, EXERCISE CAPACITY AND QUALITY OF LIFE POST MILD COVID-19 INFECTION: PRELIMINARY FINDINGS

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Introduction: Mild COVID-19 patients were self-managed at community level due to its mild symptoms. Unfortunately, a proportion of these patients do suffer post COVID-19 syndrome. Due to lack of designated follow-up assessments and awareness, majority of then suffered in silence and alone. Furthermore, there are limited information regarding COVID-19 sequelae in this group. **Objective:** To describe post-acute COVID-19 sequalae of mild COVID-19 patients. **Methodology:** A cohort of UiTM healthcare staffs with mild Covid-19 infection were enrolled during home quarantine and followed-up upon returning to work with following assessments; measurements of anxiety level (GAD-7), fatigue (FACIT-F), exercise capacity (6MWT and 1 min STS) and quality of life (EQ-5D-5L). **Results:** 30 individuals with female majority (73%), age (Mean ±SD) 34±7 years and BMI of 27±7 kg/m^2 were recruited on 11±2 days post COVID-19 symptom onset. None of them have pre-existing medical illness. Common symptoms were cough (50%), sputum production (47%) and runny nose (27%). More than half (53%) of the total participants described mMRC dyspnoea scale $\geq$1. Regarding fatigue symptom, 9 (30%) scored < 30 on FACIT-F indicating severe fatigue. Their 1 min STS and 6MWD were 20±6 repetitions (45±13%pred) and 348±59m (58±10%pred), respectively. Significant desaturation was observed during both 1 min STST (27%) and 6MWT (40%). As high as 70% of the participants have anxiety with a GAD-7 score between 1 (minimal) to 14 (moderate). Six (20%) reported between slight and moderate problem performing daily activities and health status was rated at 82±13 with 33% felt their health to be between 50 and 75 on a 0-100 scale in EQ-5D-5L. **Conclusion:** A significant proportion of mild COVID-19 patients remained symptomatic and experienced functional impairment post-acute infection. These important findings need to be deliberated in larger and prospective studies.

PP3

ONE YEAR RESPIRATORY AND FUNCTIONAL OUTCOMES AMONG SEVERE COVID-19 INFECTION SURVIVORS: A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction

Post COVID-19 complications may lead to a major long-term impact on communities and health care systems. Patients who survived severe Coronavirus disease 2019 (COVID-19) have reported persistent functional limitations.

Objectives

To determine the one year respiratory and functional outcomes in adult survivors of severe COVID-19 infection.

Methodology

In this prospective observational study, we enrolled Malaysians above 18 years old who had severe COVID-19 infection via consecutive sampling from the post-COVID-19 clinic and followed up for one year. Patients answered the post-COVID-19 functional status (PCFS) scale, performed 6-minute walk test (6MWT) and standard spirometry.

Results

We had 102 patients total, with a median age of 57 (range, 24-86), and 57 (55.9%) of them were men. Twenty patients, or 19.6%, required invasive ventilation. Twenty-seven (71.1%) of the thirty-eight (37.3%) patients who ceased follow-up had PCFS 0 at their most recent review. From 18 individuals who initially had a PCFS score of > 1, 16 (88.9%) showed improvement over time ($p < 0.05$). The median difference in distance covered among 25 people who completed two consecutive 6MWTs was 30m (min -50m, max 248m). 47 individuals underwent spirometry; 30 (63.8%) had a restricted pattern, and 16 (34%) had a normal pattern.

Conclusions

Patients with severe COVID-19, including those who stopped being followed up, gradually regained their functional status. To determine the best therapeutic strategies for patients with abnormal spirometry results, more tests are required.

PP4

PULMONARY FUNCTION STATUS AMONG STAGE 4 AND 5 COVID-19 SURVIVORS IN KLANG VALLEY, MALAYSIA

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Introduction:

Though COVID-19 is associated with persistent symptoms and affects the respiratory system, the exact effect on pulmonary function among the Malaysian population remains unknown.

Objectives:

We aimed to determine the pulmonary functional status of severe (stage 4 and 5) COVID-19 survivals in Klang Valley.

Methodology:

Retrospective cohort study included COVID-19 categories 4 and 5 survivors who were referred to Institut Perubatan Respiratori. The respiratory symptoms, 6-minute walking tests, and spirometry results were collected from the case notes.

Results:

Total of 314 patients, with a mean age of 54.9, 56.4% men and 60.8% were Malay. Stage 4 diseases were present in 55% of cases, and stage 5 diseases in 45%. 60% of patients experienced symptoms at the time of referral, including 18.2% cough, 23.9% fatigue, 20.1% weak physical strength, and 35.4% chronic dyspnea. From 215 spirometry examined, 177 were performed within the first three months after discharge (70.1% normal, 28.2% restrictive, and 1.7% obstructive), and 38 were performed over the next four to twelve months (47.4% normal, 52.6% restrictive). 68.4% of the abnormal spirometry had normalized in 23 individuals who had repeated spirometry. Parameters such as DLCO (64.8 vs 72.8), end-exercise oxygen saturation (92.8 vs 94.1), and FEV1 (75.9 vs 81.7) were all lower in patients with persistent dyspnea at referral. The restrictive spirometry patterns were observed which linked with male gender (OR 2.36, 95% CI 1.243-4.466). At referral and six-month follow-up, there were improvements in FVC (66.3 vs 77.5), FEV1 (70.0 vs 79.5), and 6-minute walk test distance (370 vs 440m).

Conclusion:

Follow-up of the COVID-19 survivals showed significant improvement in pulmonary functions.

PP5

ESTIMATING THE COST CONSEQUENCE OF GINA 2022 TREATMENT TRACK 1 IN MILD ASTHMA PATIENTS IN MALAYSIA: AN EXPLORATORY ANALYSIS OF SABINA III STUDY

Andrea Ban Yu-Lin[1], Sri Wahyu Taher[2], Lalitha Pereirasamy[3], Syazatul Syakirin Sirol Aflah[4], Hisham Ahmed Farouk[5], Paul Miller[5], Jaime Arturo Solorzano Acuna[5], Andy Ballantyne[5], Chiam Sue Yin[6], Kitson Liew[6], Ashwini Saha[6].

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Introduction:
Recent SABINA III study highlighted that SABA over-prescription occurs in almost half of Malaysian asthma population. This issue is alarming since SABA over-reliance is a major risk factor for poor asthma control and severe exacerbation. GINA 2022 recommends the use of ICS-Formoterol as the preferred reliever (Track 1) across all asthma severities instead of SABA. Access to ICS-Formoterol among mild asthma patients in Malaysia however, remains limited given its relatively higher cost and lower reimbursement rate versus SABA.

Objective:
Given its favorable clinical evidence and GINA's preferred recommendation, this analysis aims to explore the cost and clinical impact of ICS-Formoterol in managing uncontrolled asthma among Malaysian mild asthma patients (Step 1 – 2)

Methodology:
An Excel-based Cost Consequence (CC) model was employed in this analysis using data that were derived from SABINA III study, published RCTs (i.e NOVEL START and PRACTICAL), latest Malaysian resources and an expert panel. The number and cost of severe exacerbation management under current real-world practice (based on SABINA III) and GINA 2022 Treatment Track 1 with ICS-Formoterol were estimated.

Results and Conclusions:
As compared to the current real-world practice in Malaysia, it is estimated that GINA Track 1 practice with ICS-Formoterol could result in a saving of between RM 41,298 to RM 45,188 while decreasing up to 144 episodes of severe exacerbations annually among local mild asthma population. GINA 2022 Treatment Track 1 may represent a more cost-effective intervention versus the current practice while improving the outcomes of local mild asthma patients.

PP6

LOCAL ANAESTHESIA IN FLEXIBLE BRONCHOSCOPY: A TIMELY REVISIT

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Introduction: The choice of anesthesia has been debated since the early phase of flexible bronchoscopy. Initially, local anesthesia (LA) was thought to be safer, but subsequent trials concluded that using conscious sedation improved patient satisfaction and procedural success. The question is, does one-size-fits-all? Sedation increases the risk of respiratory depression and cognitive impairment in the elderly and those with cardiopulmonary diseases.

Objective: The purpose of our study was to evaluate the effectiveness of LA in flexible bronchoscopy.

Methodology: This is a prospective study. Sixteen patients undergoing diagnostic flexible bronchoscopy at our center in June 2022 were recruited. Patients were alternatively chosen for LA or conscious sedation. All patients consented to the procedure and the type of anesthesia. The outcomes evaluated were duration of the procedure, patient tolerance, and procedure complications. The patients' tolerance was assessed using the patient and physician cough visual analog scale (VAS) and total aliquot.

Results: The mean procedure time for LA was significantly shorter (3.9 minutes) compared to conscious sedation (7.4 minutes) with p:0.010. Patients found both methods of anesthesia equally tolerable with a mean patient cough VAS of 1.0 in both groups. The mean physician cough VAS was higher in the conscious sedation group (1.5) than in the LA group (1.0) but was statistically insignificant(p:0.268). The total aliquot for both groups was equal and the average dose of lignocaine utilized was 6.07mg/kg which is within the recommended limit. There were no complications in the LA group. However, one patient receiving conscious sedation developed bronchospasm and required admission.

Conclusion: Local anesthesia is safe, tolerable, and requires a shorter procedure time. It is noninferior to conscious sedation and can be considered in patients with a high risk of complications with sedatives.

PP7

EARLY EXPERIENCE IN TELEMEDICINE GUIDED HOME INITIATION OF POSITIVE AIRWAY PRESSURE THERAPY

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Introduction

In southeast Asia, home initiation of positive airway pressure (PAP) therapy is uncommon, and telemedicine remains underutilized.

Objective

To analyse the outcome and patient compliance of home initiated (HI) versus in-hospital initiated (IHI) PAP therapy.

Methods

This is an early retrospective cross-sectional analysis performed for patients initiated on PAP therapy between January 2021 to June 2021 at two tertiary hospitals in Malaysia. PAP treatment of HI patients was monitored and managed daily through telemedicine, whereas the progress of IHI patients was monitored on scheduled outpatient visits.

Results

Thirty-three patients were analysed (22 HI PAP versus 11 IHI PAP). PAP therapy was initiated in 42.4% (14/33) patients with obstructive sleep apnea, 36.4% (12/33) with obstructive sleep apnea and hypoventilation, 9.1% (3/33), and 12% (4/33) with hypoventilation secondary to restrictive chest wall disorders and neuromuscular disorders. Comparing HI against IHI. The mean number of days required to finalise PAP settings was 23.95± 15.90 versus 24.09± 16.25 (P = 0.98). The overall patients' compliance rates were 86.9% versus 70.1%, 82.6% versus 78.7%, 86.3% versus 77.9%, and 90.9% versus 82.4% in the first, second, third, and six months post-initiation, respectively. For HI, 36.4% (8/22) patients required home visits for troubleshooting of PAP therapy (seven out of nine visits due to issue with interface). Mean outpatient follow-ups required were 2.5 (±1.29) times for IHI patients.

Conclusion

Incorporating telemedicine to HI of PAP therapy may improve patients' compliance and reduce the number of hospital visits, especially during pandemics.

PP8

TELEMONITORING AMONG PATIENTS ON HOME NON-INVASIVE VENTILATION (NIV) IN SARAWAK

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Introduction: Telemonitoring is defined as wireless transmission of physiological or non-invasive data. During the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, adoption of remote telemonitoring has increased for patients with chronic hypercapnic respiratory failure due to social distancing measures. Unfortunately, telemonitoring service remains limited in Malaysia.
Aim: To determine effectiveness of telemonitoring among patients on home NIV
Method: Patients whom home NIV were initiated between March 2020 to April 2022 were recruited and divided into two groups (telemonitoring versus without telemonitoring).
Results: Total 45 patients' data were reviewed, 19 with telemonitoring and 26 without. Majority of patients were diagnosed with obesity hypoventilation syndrome 24 (53%) and chronic obstructive pulmonary disease 10 (22.2%). Mean age was [56.8 □ 16.1 versus 61.6 □ 12.3 (p=0.114), BMI 36.4 ± 18.2 kg/m2 versus 35.5 ± 12.7 kg/m2 (p=0.034) and distance to hospital 71.9 ± 144.3 km versus 50.4 ± 60.0 km (p=0.179). The mean inspiratory positive airway pressure (IPAP) 18.7 ± 3.6 cmH2O versus 19.5 ± 3.71 cmH2O (p=0.964), expiratory positive airway pressure (EPAP) 9.8 ± 2.6 cmH2O versus 9.9 ± 2.4 cmH2O (p=0.417). The mean hours usage 6.2 versus 5.4 hours (p=0.117), tidal volume 658.8 versus 660.2 ml (p=0.942) and minute ventilation 10.7 vs 11.1 L/min (p=0.117). Adherence to NIV was better in TM group (84.2%) compared to those without 57.7% (p=0.000). Meanwhile mean decrease in daytime partial pressure of carbon dioxide PaCO2 was 8.8 versus 8.3 mmHg (p=0.197) and bicarbonate level 3.9 versus 3.8 mmol/L (p=0.982).
Conclusion: Telemonitoring maybe helpful in improving adherence to home NIV among patients with difficult access to healthcare service.

PP9

SLEEP DISORDERED BREATHING AMONG CHILDREN WITH PRADER-WILLI SYNDROME: A SINGLE CENTRE EXPERIENCE

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Introduction
Obstructive sleep apnoea (OSA) was reported in 44% to 100% of children with Prader-Willi syndrome (PWS). Sleep disordered breathing (SDB) among PWS children is likely underdiagnosed as polysomnography (PSG) is not readily available in all health centers in Malaysia.
Objective
To describe the demographic data and determine the severity of the SDB among children with PWS.
Methodology
This is a retrospective descriptive study of PWS children referred for PSG to Paediatric Respiratory Unit, Hospital Serdang from July 2020 to June 2022. Demographic and PSG data were collected from e-His system database.
Results
Fifteen children with PWS were referred in 2-years study period with the median age of 43.2 months old (range: 11-106 months old). All were Malays with 66.7% female (10/15) and 73.3% had tonsillar hypertrophy grade 2 (11/15). Thirteen patients (87%) referred for assessment prior to growth hormone commencement and 2 patients (13%) were due to OSA symptoms. All patients that aged more than 3 years old were overweight with BMI>2 standard deviations (6/15). The PSG confirmed OSA in all studied children with severity of mild (60%,9/15), moderate (26%, 4/15) and severe (13%, 2/15) respectively. Two patients were associated with hypoventilation. Eight parents (53%) did not report any SDB symptoms despite having PSG of mild OSA (40%,6/15) and moderate OSA (13.3%, 2/15). The symptoms described were snoring (40%, 6/15), obstructive breathing (20%, 3/15), hyperactive behaviour (20%, 3/15) and nocturnal enuresis (6.7%, 1/15).
Conclusion:
Prader-Willi syndrome is commonly associated with OSA despite symptoms not reported by the parents. High index of suspicion during follow up with prompt obesity management is crucial. Routine PSG should be considered when feasible.

PP10

RESPIRATORY OUTCOME IN CHILDREN WITH DUCHENNE MUSCULAR DYSTROPHY IN A REGIONAL REFERRAL CENTRE

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Introduction
DMD is an X-linked progressive neuromuscular disease. The optimal management of respiratory complications prolongs survival. Life expectancy of Malaysia children with DMD is generally lower compared to the developed countries.

Objective
This study aimed to characterize the respiratory outcome in children with DMD in a regional referral centre.

Methodology
This was a retrospective case note review of all patients with a diagnosis of DMD under the follow up of the Paediatric Respiratory Clinic Hospital Pulau Pinang over a 15-year duration from year 2006 to 2021.

Results
There was a total of 27 patients: 22 were still alive. The mean age of diagnosis was 6.5 years old (±1.80), the mean age of non-ambulation was 9.4 years old (±1.79) and the mean age of referral to Paediatric Respiratory service was 9.7 years old (±1.88). At the latest clinic visit, the mean age of this group of patients was 14.3 years old (±3.51). The most common respiratory complication was obstructive sleep apnoea (n=21, 78%), followed by restrictive lung disease (n=16, 59%) and pneumonia (n=5, 19%). The most common non-respiratory complication resulting in respiratory dysfunction was scoliosis (n=19, 70%), followed by underweight (n=13, 48%) and cardiomyopathy (n=8, 30%). 89% of patients (n=24) underwent objective evaluation with PSG and/or spirometry. Eleven patients (41%) were started on NIV at a mean age of 12.7 years old (±1.96). Of the 5 patients who died, their mean age of death was 15.1 years old (ranged 10.2 to 18.3): 4 of them had already been started on NIV, and the duration between NIV commencement and death ranged 0.3 to 3.5 years. Documented causes of death with certainty were pneumonia and respiratory failure. The oldest survivor in our cohort was 21 years old.

Conclusion
Respiratory dysfunction was being identified and NIV commenced when indicated. Strengthening the management of the other aspects of respiratory health may improve outcome.

PP11

INDEPENDENT PREDICTORS OF PULMONARY EMBOLISM (PE) IN SEVERE SARS-COV-2 PNEUMONIA

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Background and Aim:

COVID-19 have been a global pandemic since 2020. COVID-19 had many acute complications. PE is one of the main life-threatening complications. We aim to identify the risk factors associated with it.

Method:

This is a retrospective study of 194 severe COVID-19 patients who had CTPA done in 2 tertiary centers in 2020. Demographic and clinical data were recorded. Statistical analysis was done using SPSS.

Results:

Majority of the patients were male (67.5%), Malay race (70.6%) with a mean age of 55.1±14.5 years old. 41.8% were category 5. Mean absolute lymphocyte count 1.00±0.68x109/L, CRP 11.3±30.82, LDH 481.4±403.6U/L, ferritin 1159.0±1667.5ng/mL, D-dimer 5.2±14.8µg/mL and CT value 23.7±6.2. 30.4%. 6.8% were main pulmonary artery, 16.9% were lobar artery, 55.9% were segmental artery and 47.5% were subsegmental artery PE.

PE was associated with higher proportion in category 5, higher mean D-dimer and LDH level. In multiple logistic regression, only D-dimer and category 5 remained as significant predictors of PE (Table 1). Those in category 5 had more than 2 times risk of getting PE. Every increment of 1µg/ml of D-dimer will increase the risk of getting PE by 6.3%.

Conclusion:

This study highlights the importance of quantitative D-dimer level and identification of severity category as factors predicting PE.

Table 1

	No PE	With PE	Univariate p-value	Multiple Logistic Regression Odds Ratio (95% CI), p-value
Category 4 5	 87 (64.4%) 48 (35.6%)	 26 (44.1%) 33 (55.9%)	 0.08	 Ref 2.247 (1.161 – 4.350), p=0.016
LDH (U/L)	432.9±212.5	594.2±651.3	0.011	Not significant
D-dimer (µg/mL)	2.9±5.0	10.5±25.0	0.001	1.063 (1.010 – 1.119)

PP12

ULTRATHIN BRONCHOSCOPY WITH RADIAL ENDOBRONCHIAL ULTRASOUND NAVIGATED BY BRONCHIAL BRANCH READING TECHNIQUE IN DIAGNOSIS OF SOLITARY PULMONARY NODULE: AN INITIAL EXPERIENCE

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Introduction

Ultrathin bronchoscopy (UTB) in combination with radial endobronchial ultrasound (rEBUS) allow more peripheral access in guided bronchoscopy for solitary pulmonary nodule (SPN). Bronchial branch reading technique as a navigational tool driving UTB-rEBUS has yet to be extensively described in literature.

Objectives

To evaluate the navigation success and diagnostic yield of UTB-rEBUS in combination with bronchial branch reading technique.

Methodology

Retrospective, single institutional, review of consecutive UTB-rEBUS procedure (BF-MP190F & UM-S20-17S, Olympus, Japan) performed over six months.

Results

UTB was used in 43% (17/39) of rEBUS procedure. 17 patients were included with target measured 2.13 (range 0.71-3.61) cm. 88.2% were located in the upper lobe from 3rd to 8th airway generation. Endotracheal intubation was performed in 9 (52.9%) cases and fluoroscopy in 15 (88.2%) cases. Majority (88.2%, 15/17) of lesion was localised with high confidence – 12 (70.6%) shown within while 3 (17.6%) with adjacent rEBUS orientation. Biopsy was performed with forceps (n=15) and 1.1mm cryoprobe (n=2). Median aggregate specimen size was 6.0 (IQR 3.5-6.5) mm with diagnostic yield of 82.3% (14/17). The discrepancy between navigation success and diagnostic yield was 5.9%. Among the conclusive lesion, majority was malignant (n=9) and infective causes (n=4). Tissue was adequate for EGFR analysis in 87.5% of patient. No complication was encountered in all cases.

Conclusion

UTB-rEBUS in combination with bronchial branch reading technique is a reasonable combination for SPN access. Our centre anticipates further experiences with this technique in the future.

PP13

SHORT-ACTING B_2-AGONIST PRESCRIPTION PATTERNS AND CLINICAL OUTCOMES IN MALAYSIA: A NATIONWIDE COHORT OF THE SABINA III STUDY

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**on behalf of all SABINA Malaysia authors*

Introduction & Objectives:
SABINA III assessed short-acting β2-agonist (SABA) prescription patterns and their association with asthma-related outcomes, globally. Here, we examine SABA prescriptions and clinical outcomes in the Malaysian cohort of SABINA III.

Methodology:
In this observational, cross-sectional study, patients (≥12 years) were recruited between July–December 2019 at 15 centers (primary and specialty care) in Malaysia. Data were collected on prescribed asthma treatments and exacerbation history for 12 months prior and asthma symptom control during the study visit. Associations of SABA prescriptions with asthma control and severe exacerbations were analyzed using multivariable regression models.

Results:
731 patients (primary care, 265 [36.3%]; specialty care, 466 [63.7%]) were analysed. Overall, prevalence of SABA over prescription (≥3 SABA prescriptions/year) was 47.4% (primary care, 47.1%; specialty care, 47.6%), and 51.8% and 44.5% among patients with mild and moderate-to-severe asthma, respectively. A total of 9.0% (n=66) of patients purchased SABA without a prescription; among these, 43.9% (n=29) purchased ≥3 inhalers. Patients had a mean (SD) of 1.38 (2.76) severe asthma exacerbations, and 19.7% (n=144) had uncontrolled and 25.7% (n=188), partly controlled symptoms. Prescriptions of ≥3 SABA inhalers (vs 1–2) were associated with lower odds of at least partly controlled asthma (odds ratio [95% CI]: 0.42 [0.27–0.67]) and higher odds of having exacerbation(s) (odds ratio [95% CI]: 2.04 [1.44–2.89]).

Conclusion:
Our findings demonstrated high prevalence of SABA over prescription in Malaysia, regardless of prescriber type, emphasising the need for healthcare providers and policymakers to adopt latest evidence-based recommendations to address this public health concern.

PP14

THE EFFECT OF THE ADDITION OF DIFFERENT CONNECTORS ALONG THE VENTILATOR CIRCUIT TO THE DISPLAYED TIDAL VOLUME ON HOME-BASED VENTILATOR.

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Introduction
Displayed tidal volume (TV) on modern home-based bilevel positive pressure (BIPAP) ventilator is one of the parameters commonly used by clinicians to monitor the adequacy of ventilatory support. Many patients require additional connectors to the ventilator circuit for the purposes of humidification, infection control and oxygen supplementation. The effect of these additional connectors along the circuit to the delivered TV is not well studied.

Objective
This study aimed to study the effect of the addition of different connectors onto a single-limb vented circuit to the displayed TV on home-based BIPAP ventilator.

Methodology
A home-based BIPAP ventilator was used to ventilate a standardized test lung using a predetermined setting via a single-limb vented circuit, and the displayed TV was recorded. This reading served as the reference control. The step is repeated with the addition of different connectors to the circuit including HME, bacterial filter, oxygen port and combination. The displayed TV for each condition was recorded and compared. All steps were repeated using a second home-based BIPAP ventilator.

Results
The addition of either bacterial filter or HME to the single limb vented circuit resulted in a reduction in displayed TV. The reduction in TV was more marked when both bacterial filter and HME were added (-29% compared to reference control). The addition of oxygen port with bacterial filter and HME resulted in the most reduction in displayed TV (-50% compared to reference control).

Conclusion
The addition of connectors to ventilator circuit resulted in a reduction of displayed TV on home-based ventilators, with the reduction more marked when combination of connectors was used.

PP15

EVALUATION OF THE PERFORMANCE OF SARS-CoV-2 ANTIGEN RAPID DIAGNOSTIC TEST IN CHILDREN WITH SEVERE ACUTE RESPIRATORY ILLNESS

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Introduction: Resurgence of severe acute respiratory illness (SARI) in children after the COVID-19 pandemic has resulted in a significant increase in healthcare burden. Timely and accurate diagnosis of SARS-CoV-2 infection is crucial in limiting disease transmission. Antigen rapid diagnostic tests (Ag-RDTs) have been employed as point-of-care tests, but the reported sensitivity varied. Objective: This study aimed to evaluate the performance of the Ag-RDT used in hospital for first-line screening. Methodology: The study was performed between 27 June to 24 August 2022 in University of Malaya Medical Centre. Children admitted for SARI were screened for SARS-CoV-2 infection by a nasopharyngeal swab for Ag-RDT (SD Biosensor, Standard Q COVID-19 Ag). A second swab was sent for RT-PCR analysis. Sensitivity, specificity, positive predictive value and negative predictive value of the Ag-RDT were calculated using RT-PCR as the standard reference. Sensitivity was also evaluated according to Ct values using different cut-offs (high viral load: Ct<20 and Ct=20-25; low viral load: Ct=26-30 and Ct>30). Results: A total of 111 paired samples were collected. There were 10 and 14 children tested positive for SARS-CoV-2 by Ag-RDT and RT-PCR respectively. The overall sensitivity was 64.3%, specificity 99.0%, positive predictive value 0.90 and negative predictive value 0.95. The sensitivity was higher for samples with high viral loads, 100% for Ct<20 and 83.3% for Ct=20-25. The sensitivity was 0% for low viral load samples. Three out of four samples with high viral loads were detected to have other respiratory viruses from immunofluorescence assay. Conclusion: Ag-RDT is sensitive in detecting acute SARS-CoV-2 infection with high viral loads.

PP16

AN EVALUATION OF PEAK INSPIRATORY FLOW RATE (PIFR) AMONG ADULT ASTHMA PATIENTS USING DRY POWDER INHALERS (DPIS)

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INTRODUCTION: Peak inspiratory flow rate (PIFR) quantifies the ability of a patient to produce maximal inspiratory flow rate during an inspiratory manoeuvre. The PIFR is essential to achieve optimal drug lung deposition from a dry powder inhaler (DPI). Insufficient PIFR is associated with uncontrolled asthma while excessive PIFR increases drug oropharyngeal deposition and reduces lung depositions. Currently, there are no published studies in Malaysia that have assessed PIFR among asthma patients with controller DPIs.

OBJECTIVES: The present study aimed to assess PIFR among DPI users.

METHODOLOGY: This cross-sectional study was conducted from June 2018 to January 2020 among stable adult asthma patients that attended the respiratory clinics at the University Kebangsaan Malaysia Medical Centre (UKMMC) and Institut Perubatan Respiratori (IPR). Patients diagnosed with asthma (confirmed with spirometry) and prescribed at least a Turbuhaler or Accuhaler as controller medication were recruited. PIFR between 30 to 90L/min was regarded as clinically effective, while PIFR of 30L/min was defined as insufficient. The PIFR >90L/min was defined as excessive.

RESULTS: A total of 144 patients were recruited for the present study. The patients comprised 47 (32.6%) males and 97 (67.4%) females with a median age of 60 years old (IQR: 15). Six patients (4.2%) had insufficient PIFR (<30L/min). However, only 89 (61.8%) patients recorded PIFR within the clinically effective range. Twenty-nine patients (20.1 %) and 20 patients (13.9%) in Turbuhaler and Accuhaler groups respectively, inhaled with excessive PIFR (>90L/min).

CONCLUSIONS: The study highlighted that most stable asthma patients were able to achieve minimal PIFR (30L/min) from Turbuhaler or Accuhaler. However, approximately one in three patients inhaled with excessive PIFR (>90L/min) that requires attention from healthcare professionals.

PP17

LUNG FUNCTION, MUSCLE FORCE AND EXERCISE CAPACITY DURING HOSPITALIZATION FOR AECOPD: A PRELIMINARY FINDINGS

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Introduction: To date, although limited, studies suggested that lung function, muscle force and exercise capacity in people with COPD reduced significantly during exacerbation. However, it is not known whether the negative consequences of exacerbation on these three important outcomes recovers at discharge. Objective: To determine the difference in lung function, muscle force and exercise capacity at admission versus discharge in people hospitalized for an AECOPD. Methodology: Patients hospitalized for an acute exacerbation of COPD were screened for study eligibility.. Lung function (FEV1), quadriceps muscle force (kg) and exercise capacity (two-minute walk test [2MWT]) were measured twice (within 72 hours of admission and on the day of discharge). Results: A total of 25 participants (21 male [84%]) with Mean±SD age of 60±8 years were recruited. Their BMI, dyspnea status and symptoms score were 25.4±5.5kg/m2, MMRC 3.0±0.8 and CAT 21.7±7.1, respectively. The average length of hospital stay was 5±4 days. The participants lung function, quadriceps muscle force and exercise capacity were FEV1 1.10±0.59L (40±19%), 20±3kg (62±14%) and 74±35m (40±18%). When compared to the measurement taken on the day of discharge, there were no significant differences in lung function (MD; 95% CI [-0.05L; -0.11 to 0.013L]), quadriceps muscle force (-0.93kg; -2.48 to 0.63 kg) and exercise capacity (7.7m; -1.9 to 17.35m). Conclusion: Lung function, muscle force and exercise capacity impaired significantly during exacerbation and has not recovered at hospital discharge.

PP18

PULMONOLOGIST-LEAD ULTRASOUND GUIDED LUNG BIOPSY SAFETY AND EFFICACY: A 4-YEARS EXPERIENCE FROM A TERTIARY CENTRE IN NORTHERN MALAYSIA

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Introduction: Ultrasound (US) guided lung biopsy is a minimally invasive diagnostic tool with short examination time and real-time monitoring at the bedside to get the correct diagnosis in order to deliver the best treatment. However, it is not widely performed by pulmonologist. We aimed to clarify the efficacy and safety of US-guided lung biopsy lead by pulmonologist.

Objective: To assess safety and efficacy of ultrasound guided lung biopsy performed by pulmonologist in outpatient setting

Methodology: We retrospectively enrolled patients who underwent the procedure from January 2018 to April 2022. Under real time US, thoracic lesions adjacent to the chest wall were sampled with a full-core biopsy needle (Vigeo semi-automated 18G). Chest x-ray was performed 30 minutes post procedure ruling out pneumothorax. Patients were discharged home 1-2 hours post biopsy. Data was analyzed using Microsoft Excel and SPSS.

Results: 18 patients (14 males, 4 females) had US-guided biopsy for lung tumours. Biopsies were histologically deemed adequate with an overall diagnostic yield of 77.8% (14/18). 57% were positive for thoracic malignancy (21% squamous cell carcinoma, 21% adenocarcinoma, 15% small cell carcinoma) and another 43% were positive for extrathoracic malignancy (1 hepatocellular carcinoma, 2 DLBCL, 1 Hodgkin's lymphoma, 1 seminoma, 1 thymoma). 4 patients had inconclusive results but managed to get positive results from surgical or lymph node biopsy (thymoma and adenocarcinoma). Statistical analysis showed more than 2 passes are needed to achieve a positive HPE yield (p value <0.05). There were nil complications for all the cases done.

Conclusions: US guided lung biopsy can safely and effectively be performed by trained pulmonologist with excellent accuracy and very low complication rate in outpatients.

PP19

CLINICAL CHARACTERISTICS OF CHILDREN WITH OBSTRUCTIVE SLEEP APNEA SYNDROME (OSAS): HOSPITAL SULTANAH BAHIYAH EXPERIENCE

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Background
Pediatric OSAS has become a major health issue due to its high prevalence and multiple systemic complications. There is increasing number of cases identified in pediatric population in Kedah for the past decade that warrant attention.

Objectives
To review the demographic and clinical characteristics of children with OSAS symptoms.

Methodology
Database of 30 pediatrics patients who were newly reviewed with OSAS symptoms within 6 months duration from February till August 2022 in Hospital Sultanah Bahiyah were analyzed retrospectively.

Results
Mean age was 7.3 years old (range 4 to 12year). Twenty-two patients were male and eight patients were female. Half of them were obese patients (BMI more than 95th centile). The mean weight 34.5 kg (range 12 to 85 kg). 21 of 30 patients (70%) had adenotonsilar hypertrophy while 60% of the patients had allergic rhinitis. Patients who had concomitant obesity were investigated for metabolic syndrome. 20% of the obese patients had both dyslipidemia and borderline high HbA1c. One of them had left ventricular dysfunction grade 4 and another one had young hypertension. Twenty-five patients underwent polysomnography (PSG), 64% of them were categorized under mild OSA, while 20% and 16% were identified as moderate and severe OSAS respectively. Six (20%) patients underwent adenotonsillectomy and 6 more are planned for operation in future. Three (10%) of them benefited from nocturnal non-invasive ventilation (NIV).

Conclusions
OSAS is commonly seen in children with obesity, and adenotonsillar hypertrophy. Treatment available are adenotonsillectomy, medical therapy and NIV. Obese children should be evaluated for metabolic screening and baseline echocardiography to evaluate other serious complications. Timely diagnosis and effective intervention with this condition is extremely important in improving their prognosis.

PP20

THE PREVALENCE AND OUTCOME OF PRIMARY IMMUNODEFICIENCY DISEASES IN PAEDIATRIC RESPIRATORY SUPPORT TEAM PATIENTS IN SARAWAK GENERAL HOSPITAL FROM 2013-2021

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Introduction- Recurrent chest infections are the major initial presentation for patients with Primary Immunodeficiency Diseases (PID). Pulmonary complications in PID are associated with high morbidity and mortality rates. Early detection is the key to timely management in order to slow down the development and course of respiratory complications of PID.

Objectives- To study the prevalence and outcome of PID in Paediatric Respiratory Support Team (PREST) patients treated in Sarawak General Hospital.

Methodology- Retrospective review of Paediatric Respiratory Support team (PREST) Database of Sarawak General Hospital between January 2013 to December 2021.

Results- Total 29 PREST patients underwent PID screening in SGH, majority of the patients had bronchiolitis obliterans (76%), followed by bronchiectasis (24%). 79% of the patients are boys, 83% were diagnosed between 1 to 5 years old. 16 patients had abnormal PID screening result (55%). 9 patients had raised IgE level, 3 patients had low total B cells, 1 with low total T cells, and 1 had reduced number of both T cells and B cells. 1 patient had congenital neutropenia while another patient had mendelian susceptibility to mycobacterial disease on long term intravenous immunoglobulin replacement. Patients with abnormal PID screening result were commenced on prophylactic antibiotics. All the patients are alive and stable except for 1 patient who had passed away due to severe infection.

Conclusion- It is important to screen for PID in patients presenting with recurrent chest infections or severe infections as we observed the majority of patients screened had abnormal results.

PP21

PROCEDURAL SAFETY AND OUTCOME OF RIGID BRONCHOSCOPY IN MALIGNANT CENTRAL AIRWAY OBSTRUCTION

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Introduction Malignant central airway obstruction (CAO) occurs in ≈25% of patients with primary lung cancer. Rigid bronchoscopy (RB) is an effective palliative airway recanalization procedure to improve patient's quality of life.

Objective: We aim to assess the demographics, procedural safety and long term outcome of RB in malignant CAO.

Methods 57 patients with malignant CAO underwent RB between 2016-2022 were retrospectively reviewed.

Results Our cohort comprised of 43 male patients with overall median age of 60.0 (IQR 54.0-68.5) years-old. All procedures were performed in TIVA, median procedural time was 90 (IQR 60-135) minutes. 78.9% of cases were primary lung malignancy. A median of 2.0 (IQR 1.0-2.5) stenotic sites were reported. In patients with trachea involvement (12.2%), right and left main bronchus were affected in 50% and 41.7% respectively. 82.5% underwent tumour debulking in which 54.4% needed stenting. Tumour debulking was performed with rigid forceps (70.2%), electrocautery (64.9%), cryo-technology (54.4%), APC (31.6%) and balloon-tracheobronchoplasty (21.1%). SEMS and silicone airway stents were deployed in 15 and 16 cases respectively. Overall stent related complications were 15.9% which include stent migration and restenosis. For procedural safety, 27 (47%) had mild procedural related complications, only 3 patients had severe bleeding, airway injury or pneumothorax. For outcome assessment, 33 (57.9%) of patients were fit enough to receive further surveillance bronchoscopy. There were no statistical differences in term of fitness for undergoing surveillance bronchoscopy in median age, number of airway stenosis, stenting, trachea or main bronchi involvement.

Conclusion RB procedure is a safe procedure in patients with malignant CAO for effective palliation of symptoms.

PP22

RETROSPECTIVE STUDY ON BRONCHIAL ARTERY EMBOLIZATION (BAE) FOR MANAGEMENT OF HAEMOPTYSIS
HAEMOPTYSIS

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Introduction: Haemoptysis can present as a spectrum of non-life-threatening to fatal haemorrhage. Bronchial artery embolization is the first line of treatment for haemoptysis because of its rapid results and low rate of complications.

Objective: To determine the clinical characteristics and treatment outcomes in haemoptysis management with BAE.

Methodology: Retrospective study involving all patients in IPR who underwent BAE between 2018 to 2021.

Results: 29 patients underwent BAE; their ages ranged from 21 to 85. Men constitutes 69%.The most frequent cause of haemoptysis (n=17; 58.6%) was bronchiectasis, followed by active infection (31%) and aberrant vascularity (10.4%). All patients who undergoing BAE were stable hemodynamic. Polyvinyl Alcohol (PVA), the embolic agent was utilised in all cases. The bronchial arteries were the most often embolised artery followed by intercostal arteries (24%), intermammary arteries (14%), branches of the subclavian arteries (7%), broncho-intercostal trunks (7%) and inferior phrenic arteries (3%). Dilated and twisted vessels were the most frequent angiographic findings, followed by tiny aneurysms or pseudo-aneurysms and neovascularization of the vessels. Haemoptysis-free in 180 days post- BAE was 77% and the technical success rate was 100%. The history of prior tuberculosis infection is related to recurrence of haemoptysis (p=0.027). Flow limiting dissection and ICA perforation were the two complications reported following the operation in 2 patients (7%).

Conclusion: As the first choice of treatment for haemoptysis, BAE has a very low incidence of complications while achieving prompt bleeding control. However, the rate of recurrence is very large, necessitating post-procedure follow-up.

PP23

CONSERVATIVE MANAGEMENT OF COVID-19 RELATED PNEUMOTHORAX: A CASE SERIES

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ABSTRACT

Introduction: Spontaneous pneumothorax as a rare complication of COVID-19 infection and it could lead to fatal complications. The incidence of pneumothorax is low at 0.3% in hospitalized COVID-19 patients but increases to 12.8-23.8% in those requiring invasive mechanical ventilation with a high mortality rate up to 100%. [1] Here, we reported our institutional experience managing COVID-19 related pneumothorax. Methods: Retrospective data collection of medical records, laboratory findings, chest X-ray and CT images of 12 patients COVID-19 related pneumothorax admitted to Hospital UiTM Sungai Buloh between May to August 2021. Results: Patient age ranges were between 23 and 69 year-old, in which 7 of them were men and 5 were women. They were all in the category 4 to 5 of COVID-19. These group of patients had underlying comorbidities/risk factors such as diabetes mellitus, hypertension, respiratory illness (asthma and tuberculosis) as well as smoking history. Six of them developed bilateral pneumothorax and 4 of them on the right side, while the remaining patient had left sided pneumothorax. The commonest complications associated with pneumothorax are subcutaneous emphysema (5 patients), followed by pneumomediastinum (4 patients), and pneumopericardium (2 patients). Only 1 of them required surgical intervention due to persistent bullae while others are managed conservatively. Conclusion: The event of pneumothorax is one of rare complications following COVID-19 infection and not all cases of pneumothorax require surgical intervention. They are primarily managed conservatively except in particular cases where there is persistent bullae formation, persistent air leak or failure of lung expansion.
248 words

[1] W. H. Chong, B. K. Saha, K. Hu, and A. Chopra, “The incidence, clinical characteristics, and outcomes of pneumothorax in hospitalized COVID-19 patients: a systematic review,” *Heart Lung*, 2021

PP24

TYROSINE KINASE INHIBITOR-RELATED ADVERSE EVENT: FRIEND OR FOE?

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Background: Tyrosine kinase inhibitors (TKI) have had a major impact on the treatment of advanced non-small cell lung cancer (NSCLC) over the past decade. Some of the TKI-related adverse events, particularly skin toxicity seems to be related to better clinical outcomes and survival, but its potential prognostic value remained uncertain.

Objective: To investigate the TKI-related adverse events with its associated factors, and the overall survival outcome.

Methodology: This was a retrospective, observational study. The study population were patients who received TKI therapy for advanced NSCLC under Respiratory Department, HRPB, from July 2018 to June 2022. The relevant data were analyzed by using SPSS version 22.0.

Results: A total of twenty-two patients were recruited with mean age of 62.4 (SD=11.00) years old. Fifteen (68.2%) patients were life-long non-smoker. The most frequently used TKI agents were Gefitinib (59.1%) and Afatinib (18.2%). Sixteen (72.7%) patients developed at least one TKI-related adverse events (59.1% skin toxicity, 22.7% liver injury, and 18.2% gastro-intestinal intolerance). Majority (93.7%) of patients with adverse events received treatment in outpatient clinic. No serious adverse event was reported. Univariate analysis showed a significantly higher skin toxicity rate in life-long non-smokers (73.3% vs 28.6%, p=0.047). However, there was no significant association found between TKI treatment duration and the occurrence of adverse events. Kaplan-Meier survival analysis demonstrated a significantly higher overall survival among patients who developed TKI-related adverse event (median: 93 months vs 60 months, p=0.041).

Conclusion: In this study, the skin toxicity rate is higher among life-long non-smokers. Patients who developed TKI-related adverse event have a better survival outcome compared to patients without adverse event.

PP25

TOLERANCE TO NON-INVASIVE VENTILATION SUPPORT IN PATIENTS WITH AMYTROPHIC LATERAL SCLEROSIS: OUR EARLY EXPERIENCE

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Introduction

Alveolar hypoventilation is a well-recognized complication of amyotrophic lateral sclerosis (ALS). Non-invasive ventilation (NIV) remains the established treatment. It is recognized that the presence of bulbar palsy can impact patient's tolerance to NIV.

Objective

This retrospective study aims to determine factors influencing NIV tolerance in patients with ALS.

Methodology

We recruited symptomatic patients between January 2022 to May 2022. Patients were divided into two groups (Tolerated versus non-tolerated to NIV) for comparison.

Results

Data from ten patients were retrieved. Variables between patients who tolerated versus patients who failed to tolerate NIV were compared. These include partial pressure of carbon dioxide (PaCo2) [43.3□7.7 mmHg versus 44.7□7.3 mmHg (p=0.81)], bicarbonate level [28.0□3.2 mmol/L versus 27.4□3.4 mmol/L (p=0.81)], sniff nasal inspiratory pressure [21cmH20□7.5 versus 13.5cmH20□7.0 (p=0.09)], diaphragm excursion on ultrasound (quiet breathing) [11mm□5.4 versus 9.3mm□2.9 (p=0.59)] and diaphragm excursion on ultrasound (deep breathing) [21mm □12.8 versus 21.9 mm □6.3 (p=0.91)]. The average revised Amyotrophic Lateral Sclerosis Functional Rating Scale (ALSFRS-R) during initiation of NIV was 26 versus 31.5. Majority of patients in both groups unable to produce reliable results on spirometry. Five of the six patients who tolerated NIV did not have severe bulbar insufficiency (83%). In contrast, three out of four (75%) who failed NIV had bulbar insufficiency.

Conclusion

In a small cohort of patients, this study could not determine any contributing factors leading to poor tolerance to NIV. However, patients with bulbar insufficiency appear less tolerant to NIV, consistent with existing literature.

PP26

PREVALENCE OF PNEUMOMEDIASTINUM AND PNEUMOTHORAX AMONG COVID-19 PATIENTS ADMITTED TO ICU CARE IN A TERTIARY CARE CENTER.

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Introduction

Covid-19 infection is divided into three phases and complication of pneumothorax could be observed during Phase III (Day 8 to10) of the infection which caused by uncontrolled inflammation, fluid accumulation and progressive fibrosis. Meanwhile air leaking into mediastinum been attributed to sub-pleural alveolar rupture which defined as Macklin effect.

Objectives

Prevalence of pneumomediastinum and pneumothorax among Covid-19 patients admitted to critical care based on their demography, underlying illness, treatment options and their outcomes.

Methodology

Retrospective study among adult patients admitted with Covid-19 infections to ICU of Hospital Raja Perempuan Zainab II from 1st March 2021 to 30th September 2021 with Computed Topography (CT) scan evidence of pneumomediastinum and pneumothorax.

Results

Total COVID-19 patients admitted to ICU care involving during study period was 624 and 38 (6.1%) satisfied study criteria. These complications observed commonly among those aged more than 50 years old and with comorbidity such as Diabetes Mellitus (14 cases) and Hypertension (14 cases). Pneumomediastinum was more common seen (20 cases, 52.6%) compare to in combination with pneumothorax (14 cases, 36.8%) or pneumothorax alone (4 cases,10.5%). 34 patients required positive pressure ventilation either invasive or non invasive. These air leaking been captured on CT scan mostly after Day 10 of illness (36 cases, 94.7%). Commonest active intervention was chest tube insertions (14 cases). The mortality observed in study population was 21 cases (55.3%).

Conclusions

Early non-invasive mechanical ventilation among Covid-19 infected patients with reduction in the precipitating factor (vigorous cough and overwhelming inflammatory process) may result in favourable outcome in future.

PP27

A RETROSPECTIVE OBSERVATIONAL STUDY (MERIT)- EVALUATING ASTHMA CONTROL IN PATIENTS ON 'PRD FP/SAL' WITH A HISTORY OF UNCONTROLLED ASTHMA WITH 'ICS/FORM PRN' OR 'ICS WHENEVER SABA IS TAKEN': STUDY DESIGN AND METHODOLOGY

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Background:
Asthma is a chronic condition characterized by airway inflammation and hypersensitivity. Proactive regular dosing (PRD) and As-needed approach "Pro Re Nata" (PRN) are two different treatment modalities in the management of mild-moderate asthma. There is lack of data evaluating treatment step up from uncontrolled patients on PRN regime to PRD with Fluticasone Propionate/Salmeterol (FP/SAL).

Objectives:
This retrospective real world observational study aims to evaluate asthma control in patients having uncontrolled asthma with PRN treatment regime which is then stepped up to PRD with FP/SAL. The primary endpoint includes percentage of patients with ACT score ≥ 20 or improved ACT score ≥3 at the last follow-up visit (between 3-6 months after initiating PRD FP/SAL therapy). Secondary endpoints include percentage of participants with ADRs (Adverse Drug Reactions) and moderate to severe asthma exacerbation rates at time of follow-up.

Methodology:
This retrospective observational multicentre study (8 centres) aims to recruit 120 patients (≥ 18 years) taking FP/SAL PRD following uncontrolled asthma with ICS/Form PRN or ICS whenever SABA is taken. The results will be statistically evaluated.

Discussion/Conclusion:
This study is expected to complete by December 2022 and will be able to give valuable insights on the role of PRD treatment approach on uncontrolled PRN patients in the Malaysian landscape.

Authors declare no conflict of interest

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PP28

GOODBYE MR STREP. AND HELLO MRS MORAX.

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Introduction: The COVID pandemic saw a major drop in all-cause respiratory disease among children, due to the stay-at-home-policy. However, once the pandemic was over and children were back to school, a resurgence of respiratory infections were seen. Objectives. We aimed to evaluate the trend of respiratory tract infections over the past 10-month period, as well as determine the main aetiology of pneumonia in children, post-pandemic. Methods. This retrospective study included patients aged less than 18 years old who were admitted for severe pneumonia, from October 2021 till July 2022. Patients were included if they had symptoms and signs of pneumonia but were excluded if their chest radiograph was normal. Full blood counts, nasopharyngeal aspirates for viruses and bacteria and chest radiographs were collected. Results: There were 107 cases of pneumonia confirmed via CXRs. Majority were males (60%) and their median (IQR) age was 1.1(1,3) years old. Spike of cases were seen during the months of January 2022 and June-July 2022. Majority of infants were also vaccinated against pneumococcal. Viruses were found in 55% of samples sent with Respiratory Syncytial Virus being the commonest (45%, n=20/44). The commonest bacteria isolated was Moraxella catarrhalis with 20% of samples being positive. Streptococcus pneumoniae was isolated in only 4 (5.3%) children who were tested. Mixed infections were found in 7.5% of patients. CRP was not significantly higher in bacteria+ mixed infections versus undetermined + virus aetiology (z=1.3, p= 0.2) Conclusion: The resurgence of lower respiratory tract of infections was seen post the COVID pandemic. While RSV is still the commonest virus, Moraxella c. is now the commonest bacteria isolated.

CASE REPORTS

CR1	**UNCEASING BUGS: A BOLT FROM THE BLUE** **Haly Rozie Ahmad,** Normaszuhaila Abdul Hamid, Noraishah Sulaiman, Zamzurina Abu Bakar, Syazatul Syakirin Sirol Aflah *Institut Perubatan Respiratori, Kuala Lumpur, Malaysia*	
CR2	**IS HYALURONIC ACID DERMAL FILLER SAFE? FIRST CASE SERIES OF PULMONARY COMPLICATIONS POST HYALURONIC ACID INJECTION** **Sin Nee Tan[1]**, Aishah Ibrahim[1], Soon Hin How[2], Megat Razeem Abdul Razak[1], Chia Jia Wen[1], Tan Sheau Wei[1], Khairee Aqil Hairudin[2], Nizafaziasyida Fauzee Andylim[1], Muhammad Naimmuddin Abdul Azih[2] *1. Hospital Tengku Ampuan Afzan, Kuantan, Malaysia* *2. Kulliyyah of Medicine, International Islamic University Malaysia, Pahang, Malaysia*	
CR3	**VAPE-ASSOCIATED SPONTANEOUS PNEUMOTHORAX - A MID-YEAR SEASON CASE SERIES** **Mei Ching Yong[1],** Rong Li Ho[1], Sze Shyang Kho[1], Swee Kim Chan[1], Siew Teck Tie[1] *[1]Respiratory Medicine Unit, Medical Department, Sarawak General Hospital, Kuching, Malaysia*	
CR4	**GORHAM-STOUT DISEASE. A CASE REPORT FROM MALAYSIA.** Teoh Sze Kye1, Amirah Aziz1, Azza Omar1, Suzila Che Sayuti1, Aniza Hassan2, Mariana Daud3, Gerard Francis Lopez4, Noor Hasnita Ismail Mokhtar 5,Mat Zuki Mat Jaeb1 *1Respiratory Unit, Hospital Raja Perempuan Zainab II, Kota Bharu (HRPZ II)* *2Department of Pathology, HRPZ II* *3Department of Paediatrics, HRPZ II* *4Department of Cardiothoracic Surgery, HRPZ II* *5 Department of Radiology, HRPZ II*	
CR5	**TURKISH SWORD IN THE LUNG: A CASE REPORT OF SCIMITAR SYNDROME** Kamal Muniandy, Siew Choo Su *Hospital Tengku Ampuan Rahimah, Klang, Malaysia*	
CR 6	**REEXPANSION PULMONARY EDEMA POST MEDICAL THORACOSCOPY IN TUBERCULOUS PLEURAL EFFUSION** **Subramaniam Ponnuvelu**, Huan Nai Chein, Hema Yamini Ramarmuty, Kunji Kannan Sivaraman *Hospital Queen Elizabeth, Kota Kinabalu, Sabah, Malaysia*	
CR7	**CK IS MY MIDDLE NAME** Justin Yu Kuan Tan1,Nurul Majidah Abdul Razak1 Azlina Samsudin1, Ting Yoong Tee2, Khairul Azmi Ibrahim2, Zariah Abdul Aziz2 *1.Respiratory Unit, Hospital Sultanah Nur Zahirah, Kuala Terengganu, Malaysia* *2.Neurology Unit, Hospital Sultanah Nur Zahirah, Kuala Terengganu, Malaysia*	
CR8	**HEPATOPULMONARY SYNDROME (HPS) IN A PATIENT WITH CONGESTIVE HEPATOPATHY WITHOUT CIRRHOSIS CAUSING REFRACTORY HYPOXEMIA** **Affida Ahmad[1]**, Anas Mat Asis[2], Mohammed Fauzi Abdul Rani[1], Mohd Arif Mohd Zim[1], Muhammad Amin Ibrahim[1], Aisya Natasya Musa[1] *[1]Universiti Teknologi MARA, Sungai Buloh, Selangor, Malaysia* *[2]Ministry of Health, Malaysia*	
CR9	**MALABSORPTION: AN ATYPICAL CASE OF ABDOMINAL TB** **N.S MOHD ISA[1]**, Z.X KHOR[1] and V MUTHURAMAN[1] *[1]Hospital Segamat,Johor*	
CR10	**PATHOLOGICAL COMPLETE RESPONSE IN A STAGE IIIB NON-SMALL CELL LUNG PATIENT AFTER PREOPERATIVE NEOADJUVANT CHEMOTHERAPY WITH OSIMERTINIB** **Ka Kiat Chin**, Chun Ian Soo, Jun Liang Tan, Thian Chee Loh, Mau Ern Poh, Leng Cheng Sia, Husna Ibrahim, Vijayan Munusamy, Chee Kuan Wong, Yong Kek Pang, Chong Kin Liam. *Division of Respiratory medicine, University of Malaya Medical Center, Kuala Lumpur.*	
CR11	**PANUVEITIS PRESENTING AS INITIAL MANIFESTATION OF DISSEMINATED SARCOIDOSIS. A CASE REPORT.** **Teoh Sze Kye[1]**, Anis Alyani Abdullahilhai[1], Nur Illani Mohd Asri[2], Azza Omar[1], Suzila Che Sayuti[1], Mat Zuki Mat Jaeb[1] *[1]Respiratory Unit, Department of Internal Medicine, Hospital Raja Perempuan Zainab II, Kota Bharu.* *[2]Department of Pathology, Hospital Raja Perempuan Zainab II, Kota Bharu.*	
CR12	**TERTIARY CENTRE CASE SERIES ON THE DIAGNOSTIC AND MANAGEMENT CHALLENGES OF NTM-PD**	

	Kughanishah Jeyabalan, Arvindran Alaga *Respiratory Department, Hospital Sultanah Bahiyah, Kedah, Malaysia*	
CR13	**CATAMENIAL PNEUMOTHORAX – A REVIEW OF 2 CASES IN SABAH** JL Low[1], Sivaraman Kannan[1], Hema Ramarmuty[1] [1] *Respiratory Department, Queen Elizabeth Hospital, Kota Kinabalu, Sabah, Malaysia*	
CR14	**RECURRENT PULMONARY MELIODOSIS AFTER ERADICATION THERAPY** **Syahrin Samsuddin[1]**, Mohd Zhafran Zainal Abidin[1], Muhammad Amin Ibrahim[1] *[1]Universiti Teknologi Mara, Puncak Alam*	
CR15	**ELIMINATION OF CHRONIC ORAL CORTICOSTEROID USE AFTER THREE DOSES OF BENRALIZUMAB IN A CASE OF SEVERE EOSINOPHILIC ASTHMA** **Affida Ahmad[1]**, Mohd Zhafran Zainal Abidin[1], Mohammed Fauzi Abdul Rani[1] *[1]University Teknologi Mara, Sungai Buloh, Selangor, Malaysia*	
CR16	**SEVERE COVID-19: A CASE REPORT OF COMPLETE RESOLUTION OF LUNG FIBROSIS WITH INHALED BUDESONIDE/FORMOTEROL AT PRIMARY CARE SETTING.** Hazman Jalil1, Shazlin Sabaah@Sabanya1, Zuraini Ahmad2, Lee Ri An3. *1Klinik Nur Batu Pahat, Johor, Malaysia.* *2Klinik Kesihatan Batu Pahat, Johor, Malaysia.* *3Hospital Sultanah Nora Ismail Batu Pahat, Johor, Malaysia*	
CR17	**CASE REPORT OF A SUCCESSFUL AUTOLOGOUS BLOOD PATCH PLEURODESIS IN A CHILD WITH PERSISTENT AIR LEAK** Amanil 'Ula Hassan1, Arvindran Alaga2 *Paediatric Respiratory Unit, Hospital Sultanah Bahiyah, Kedah, Malaysia1* *CHEST department, Hospital Sultanah Bahiyah, Kedah, Malaysia2*	
CR18	**A CASE REPORT OF BRAIN-LUNG-THYROID SYNDROME IN A MALAYSIAN MALE BABY THAT INVOLVED THE MUTATION OF NKX2-1 GENE.** Jian An Boo1 *1Department of Paediatrics, Hospital Sultanah Bahiyah, Alor Setar, Malaysia*	
CR19	**DUAL AETIOLOGIES OF RECURRENT PNEUMOTHORAX DUE TO PULMONARY ENDOMETRIOSIS AND TUBERCULOSIS** **Nur Adilah Bokti**, Nurul Husna Hashim, Nurashikin Mohammad *Universiti Sains Malaysia, Kelantan, Malaysia*	
CR20	**MULTIPLE PRIMARY MALIGNANT TUMOURS OF LUNG AND COLORECTAL ADENOCARCINOMA: A CASE REPORT** Muhammad Amin Ibrahim,[1] Nuruliman Dashuki,[1] Norizal Mohd Noor,[1] Siti Mayuha Rusli.[1] *[1]Faculty of Medicine, Universiti Teknologi MARA, Puncak Alam, MALAYSIA*	
CR21	**ORGANIZING PNEUMONIA OF THE LUNG AS PART OF MANIFESTATION FOR MARGINAL ZONE B CELL LYMPHOMA** **Mohd Zhafran Zainal Abidin[1]**, Tan HX[1], Wong YS[1], Affida A[1], Aisya Natasya M[1], Arif MZ[1] *[1]Faculty of Medicine, Universiti Teknologi MARA(UiTM), Sungai Buloh, Malaysia*	
CR22	**RAPID ONSET OF EFFECT OF BENRALIZUMAB IN A SEVERE EOSINOPHILIC & ALLERGIC ASTHMA PATIENT WITH ABPA** **Mohd Khairll Ashraf Muhd Fisal**, Nurul Hana Din Khan, Arvindran Alaga *Respiratory Department, Hospital Sultanah Bahiyah, Alor Setar, Malaysia*	
CR23	**LOCALISED BRONCHIECTASIS: RULE OUT ENDOBRONCHIAL DISEASE** **Hanafiah Semat**, Nai-Chien Huan, Hema Ramarmuty, Kunjikannan Sivaraman *Hospital Queen Elizabeth, Kota Kinabalu, Malaysia*	
CR24	**AMYLOIDOSIS PRESENTING AS PERSISTENT TRANSUDATIVE PLEURAL EFFUSION** **Indy Johny**, Hema Yamini Ramarmuty, Kunji Kannan Sivaraman *Hospital Queen Elizabeth, Kota Kinabalu, Sabah, Malaysia*	
CR25	**COUGH-ASSIST IN ACUTE ATELECTASIS: THE SARAWAK EXPERIENCE** **Ioanna Ting Yung Sim** [1] , Mei Ching Yong[1], Rong Li Ho[1], Sze Shyang Kho[1], Swee Kim Chan[1], Siew Teck Tie[1] *[1]Respiratory Medicine Unit, Medical Department, Sarawak General Hospital, Kuching, Malaysia*	
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CR1

UNCEASING BUGS: A BOLT FROM THE BLUE

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Introduction: Cystic Fibrosis has a wide disease spectrum and those diagnosed during adulthood is known to have milder symptoms with normal pancreatic function.

Case Report: We are reporting a case of a- 27 year old lady who was referred to us for progressive bronchiectasis with Non Tuberculous Mycobacterium Pulmonary Disease. She had chronic cough since the age of 8 and recurrent chest infection at 15 years old. She denied any gastrointestinal symptoms or other family members with similar problem. Her other medical and development history were unremarkable. Her sputum MTB C&S repeatedly grew Mycobacterium Fortuitum and Mycobacterium Abscessus. Her NTM PD treatment commenced since April 2019. Her antibiotic regimens were revised multiple times due to adverse reaction. Her clinical symptoms and thoracic imaging continue to deteriorate. Her Immunoglobulin levels, Antinuclear antibody and alpha 1 antitrypsin were all normal. However her sweat tests were positive which brings us to the diagnosis of Cystic Fibrosis. Following a multidisciplinary discussion and counselling session, a new regime was started. She was started on IV imipenem , tab clofazimine , tab azithromycin and tab linezolid. She has completed her intensive phase currently in her maintainence phase. Her 1st sputum MTB culture after 1 month of treatment has no growth. She is planned for 12 months of treatment from her 1st negative culture with 3 consecutive negative culture. She has gained weight and her symptoms have improved. She is referred for genetic testing and counselling as well as to the fertility medicine specialist.

Discussion: It is vital to obtain correct diagnosis in patients with unexplained bronchiectasis and recurrent chest infection. Other than focusing solely on antibiotic therapy, a correct diagnosis may help us outlining a comprehensive treatment strategy which includes optimizing airway clearance, treatment of infection as well as long term immunomodulators in order to achieve better symptoms, less exacerbation and stabilization of lung function. Our patient was investigated for years before she was diagnosed with Cystic Fibrosis. Breaking the news of this inherited disease in adulthood can be challenging. The discussion entailed not only on her respiratory symptoms but expanded to the possibility of lung transplant and subfertility.

Conclusion: Cystic Fibrosis affects multiple organs such as the respiratory, reproductive and gastrointestinal system. Early diagnosis plays a role in achieving optimal care being delivered by all the subspecialities involved.

CR2

IS HYALURONIC ACID DERMAL FILLER SAFE? FIRST CASE SERIES OF PULMONARY COMPLICATIONS POST HYALURONIC ACID INJECTION

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Introduction

Hyaluronic acid (HA) filler is one of the most widely used synthetic filler worldwide. There were only 7 case reports of HA injection-associated pulmonary complications published up to year 2020.

Case 1

A 30 year old woman, presented with acute breathlessness and chest tightness during HA breast filling procedure. She was in respiratory distress with prominent hypoxemia. A HRCT reported as substance induced pneumonitis. A transbronchial lung biopsy showed lipogranuloma. She was treated with oxygen, antibiotic, steroid and anticoagulant.

Case 2

A 32-year-old woman presented with 1-week cough, fever and breathlessness. Her oxygen saturation was 85%. CT thorax showed diffuse periphery wedge-shaped ground-glass opacities and bilateral lobulated breast lesions. She had history of bilateral breast HA filling one month ago. She was treated conservatively with antibiotics and corticosteroid with good clinical response.

Case 3

A 37-years-old presented with cough, worsening breathlessness for past 1-week after receiving HA breast filler injection by an unauthorized practitioner. Her oxygen saturation of 88%. She was treated as bacterial pneumonia. CTPA showed wedge-shaped peripheral air-space densities and ground glass densities, represent pulmonary haemorrhage with pulmonary infarction. She was managed conservatively with oxygen, antibiotic and steroid.

Case 4

A 25-year-old transgender male presented with acute dyspnea after HA filler injection at multiple sites 3-days ago. He was severely hypoxemic and warranted an tracheal intubation. Urgent CTPA showed multiple wedged shape infarcts suggestive of non-thrombotic pulmonary embolism. Despite of high setting of ventilation and sedation, he had succumbed to death after 7 hours.

Conclusion

Severe pulmonary complications post HA injection may be under reported.Physicians must be vigilant for the possible risk of systemic complications post HA injection.

CR3

VAPE-ASSOCIATED SPONTANEOUS PNEUMOTHORAX - A MID-YEAR SEASON CASE SERIES

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Background: National Health and Morbidity Survey (NHMS) 2019 estimated 1.1 million or 5% of Malaysians used e-cigarettes, commonly referred to locally simply as vape. Vape aerosol exposure is associated with worsening of respiratory symptoms in patients with airway diseases. However, the impact of vaping in healthy individuals, including the risk of spontaneous pneumothorax, is not well established.
Case Presentations: We present a case series of 3 primary spontaneous pneumothoraces, associated with vaping. All cases in our series were male with no pre-existing medical conditions, and all admitted within a 2 month period of each other in May to June 2022. Two patients were dual users of cigarettes and vape. Chest radiographs showed large pneumothorax in all 3 cases. High resolution computer tomography (HRCT) thorax demonstrated bilateral bullae and subpleural blebs in one case, left-sided subpleural blebs in the second case, while no bullae or blebs were reported in the third case. All required chest tube drainage for the initial treatment of pneumothorax, and further underwent video assisted thoracoscopic surgery (VATS) for definitive treatment. Histopathology examination showed bullae in all 3 patients.
Conclusion: Patients presenting with vape-associated spontaneous pneumothorax seem to have increased risk of requiring surgical intervention. Along with smoking status, vape use should be routinely asked after, and clinicians should be conversant in vaping history-taking and counseling cessation to reduce pneumothorax recurrence risk.

CR4

GORHAM-STOUT DISEASE. A CASE REPORT FROM MALAYSIA.

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Introduction:

Gorham-stout disease is a rare condition characterized by massive osteolysis and angiomatosis. Its presentation is usually sporadic and develop in males or females of any age and race. The symptoms at presentation are variable, depending on the number and sites of lesions. Mostly reported to have pain but some may present with pleural effusion. Up till date, no treatment and follow-up procedures have established for this disease.

Objectives:

Our primary objective was to describe clinical presentation, complications and treatment response in patient receiving sirolimus.

Methodology:

We herein report a rare presentation of GSD in a 16-year-old male who suffered from chylothorax. Video-assisted thoracotomy was performed and chest wall, rib and pleura biopsy revealed diffuse proliferation of complex and dilated lymphatic channels lined by endothelial cells. Immunohistochemistry staining showed the proliferating lymphatic endothelial cells are positive for D2-40 and CD31.

Results:

The patient underwent treatment with sirolimus after excluded infection. Remission of disease achieved after 2 months of sirolimus with improving bone pain and absence of relapsed pleural effusion. The patient currently on sirolimus 1.5mg daily with monthly injection of zoledronic acid while waiting for next sirolimus level check.

Conclusions:

In spite of a wide range of therapeutic options (octreotide, bevacizumab, propranolol, interferon alfa-2b) for management of GSD described in literature, the efficacy of those available therapies is still not well established. In this particular case, sirolimus reveal a significant role in control of GSD.

CR5

TURKISH SWORD IN THE LUNG: A CASE REPORT OF SCIMITAR SYNDROME

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Introduction:

Infantile Scimitar syndrome is a rare congenital anomaly comprising of right lung hypoplasia, total or partial anomalous pulmonary venous return (PAVPD) of the right lung, heart dextroposition, and right pulmonary artery (RPA) hypoplasia. They may have recurrent pulmonary infections leading to chronic suppurative lung disease (CSLD) and bronchiectasis. However, the incidence of CSLD in Scimitar syndrome is not known.

Case Report:

We report a 1-year-7-month old boy with Scimitar syndrome with recurrent pulmonary infections (3, 14 and 15 months old) and chronic wet cough since 3 months old after severe respiratory syncytial virus pneumonia. He has worsening wet cough and tachypnoea on exertion. Physical examination revealed finger clubbing, baseline subcostal recessions, and reduced breath sound over the right middle and lower zones. His heart sounds and apex beat were on the right side of chest, with ejection systolic murmur grade 3/6. Chest radiograph showed dextroposition of heart with scimitar sign (opacity over right middle and lower lobes). A contrast enhanced computed tomography of the thorax at 1 year old, showed hypoplastic right lung and RPA supplying the right upper lobe, abdominal aorta supplying the remaining right lung, which drains into the inferior vena cava, and TAPVD of right lung, with no radiological evidence of bronchiectasis. Echocardiography revealed a small atrial septal secundum, with no pulmonary hypertension (pHPT). He is diagnosed with CSLD as he fulfils the clinical symptoms of bronchiectasis without the radiological evidence. He is managed aggressively with antibiotics and airway clearance techniques during exacerbations.

Conclusion:

Infantile Scimitar syndrome in comparison with the adult form, has higher comorbidities and mortality, usually secondary to severe pHPT. They also frequently present with recurrent pulmonary infections leading to bronchiectasis.

CR6

REEXPANSION PULMONARY EDEMA POST MEDICAL THORACOSCOPY IN TUBERCULOUS PLEURAL EFFUSION

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Introduction: Reexpansion pulmonary oedema is a rare and often fatal complication following reexpansion of the lung after rapid removal of air or fluid from the pleural space by either thoracocentesis or chest drainage.

Case Report: We report a case of a 34-year-old female patient presented to us with left-sided massive pleural effusion. We performed medical thoracoscopy drained 1.3L pleural fluid; however, half an hour after procedure, she started having cough and increased breathlessness. Chest radiograph showed left-sided homogeneous opacity in the left mid and lower zone consistent with unilateral pulmonary oedema. She was attempted manage conservatively along with bi-level positive airway pressure non-invasive ventilator support, however become more tachypnoeic and need intubation. Her condition improved gradually and was discharged successfully after 5 days.

Discussion: Reexpansion pulmonary oedema is a rare but serious complication of draining pleural effusions or pneumothoraces; it is reported to occur in <1% of cases, but mortality can be high as 20%. Reexpansion pulmonary oedema usually presented with dyspnoea, coughing and chest discomfort, which starts within 24 h and 64% of patients having onset within 1–2 h after lung reexpansion. The risk factors are age between 20 and 40 years, female gender, duration of collapse greater than 72 h, application of high negative pressures during thoracic drainage (>20 cm H_2O) and rapid lung expansion with drainage of large volumes of pleural fluid (>1.5 L). In our case, the patient developed reexpansion pulmonary oedema 30minutes after thoracoscopy and responsible factor could be age, female gender, duration of collapse and rapid lung expansion.

CR7

CK IS MY MIDDLE NAME

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Objective: To highlight the rare presentation of myasthenia gravis with isolated respiratory failure in a young female that presented with respiratory acidosis and mildly raised creatinine kinase.

Description: We herein report a 28-year-old waitress who presented with dyspnea and orthopnea for 4 months. She denied symptoms of weakness, fatiguability, changes of voice and double vision. On assessment she was an overweight lady with BMI of 28, STOP BANG score was 1. The examination was unremarkable and the neurological assessment was normal with no fatiguability demonstrated. Baseline investigation electrocardiogram (ECG) showed sinus rhythm with P pulmonale, arterial blood gas under room air showed pH 7.40, PCO2 58, P02 71, SaO2 96 HCO3 33.8 which is a partially compensated respiratory acidosis with normal A-a gradient. Creatinine Kinase(CK) was raised 399 U/L. With these findings, we proceeded to investigate the causes of hypoventilation. Full Polysomnography showed apnea-hypopnea index of 9.8 with desaturation, bedside ultrasound showed left diaphragmatic paresis, basic spirometry showed a restrictive ventilatory defect FEV1/FVC ratio 96% FVC 40% and FEV1 44%, nerve conduction study (NCS), repetitive nerve study (RNS), electromyography (EMG) were normal. ECHO showed an ejection fraction of 61% mild tricuspid regurgitation and indeterminate diastolic dysfunction. Computer tomography pulmonary angiogram (CTPA) showed no pulmonary embolism but left posterior basal segment plate atelectasis was seen. Magnetic resonance imaging of the brain showed no evidence of demyelinating disease. In view of the raised CK, a myositis panel was done showing anti PL-7 positive, and anti NXP2/MJ was borderline. She was given an initial provisional diagnosis of overlap myositis. The case was discussed with a national neuromuscular multidisciplinary discussion and concluded that she has myasthenia gravis presenting with isolated respiratory failure. Serum acetylcholine receptor antibody was positive with a very high titer of > 8.4 nmol/l. She was started with nocturnal continuous positive airway pressure ventilation and tab prednisolone 0.5mg/kg. On clinic review, her orthopnea has resolved but she still has occasional nocturnal apnea, repeated ABG showed normalized PCO2.

Conclusion: Myasthenia gravis can present with isolated respiratory failure despite not demonstrating neurological manifestation. Basic investigations such as CK and ABG can give a guided differentiated diagnosis and with the appropriate supportive investigation, a final diagnosis can make.

Keywords: respiratory acidosis, Creatinine Kinase, Myasthenia gravis

CR8

HEPATOPULMONARY SYNDROME (HPS) IN A PATIENT WITH CONGESTIVE HEPATOPATHY WITHOUT CIRRHOSIS CAUSING REFRACTORY HYPOXEMIA

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Background

HPS is defined as an arterial oxygenation defect induced by intrapulmonary vascular dilatations (IPVD) associated with hepatic disease. The most common hepatic disorder leading to HPS is liver cirrhosis, irrespective of aetiology, although it has also been observed in many other hepatic conditions which may be acute or chronic in the absence of cirrhosis.

Case presentation

A 53-year-old female with history of patent foramen ovale closure, aortic valve replacement, hypertension, and end-stage renal failure, presented with refractory hypoxemia during a hospital admission for parapneumonic effusion. She had platypnoea and her oxygen saturation remained at 90% on room air despite being clinically euvolemic and improved septic parameters. CT pulmonary and bronchial artery angiogram showed no evidence of pulmonary embolism or arteriovenous malformation, and echocardiogram showed no acute changes to her baseline cardiac function. Hepatomegaly was noted during assessment, which was shown to be distended liver with no signs of cirrhosis or portal hypertension on abdominal ultrasound scan. Liver function test was slightly deranged and coagulation study was unremarkable. The diagnosis of hepatopulmonary syndrome was confirmed with a contrast-enhanced transthoracic echocardiography by the presence of intrapulmonary vasodilatation. Our patient has been discharged home on long-term oxygen therapy and had a further assessment for liver transplantation.

Conclusion

HPS as one of the causes of breathlessness in patients with any cause of liver disease irrespective of chronicity should be entertained in the presence of persistent and severe hypoxemia. As liver transplantation is the only treatment so far that has been proven to have a survival benefit, timely diagnosis and thus early assessment for liver transplantation is of priority to improve patient outcome.

CR9

MALABSORPTION: AN ATYPICAL CASE OF ABDOMINAL TB

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Introduction

Abdominal tuberculosis constitutes about 10% of extra-pulmonary TB. Its atypical presentation poses significant diagnostic challenge to clinicians. The tendency to mimic other abdominal pathologies led to high rates of misdiagnosis even in TB-endemic countries. A high index of suspicion is crucial in aiding early diagnosis, as clinical findings and imaging largely are non-specific. Microbiological and histopathological confirmation should be sought promptly.

Case description

We report a case of missed diagnosis of intestinal TB in an adolescent who presented with malabsorptive syndrome. This case aims to highlight the eccentric presentation which causes delayed diagnosis and subsequent morbidity and mortality.

A 17-year-old cachectic lady (BMI of 14kg/m2) presented with foul-smelling stools, lower-limb oedema and skin feature suggestive of pellagra with a history of Right femur fracture after a trivial fall.

A clinical diagnosis of malabsorption was made given the biochemical evidence of iron-deficiency anaemia, hypoalbuminemia and osteomalacia. A psychiatric assessment ruled out eating disorders. She was treated with appropriate nutrition replacement and eventually started on parenteral feeding.

A colonoscopy and abdominal imaging revealed thickened terminal ileum, with inconclusive histopathological results. Patient unfortunately deteriorated and succumbed to multi-organ failure and hospital-acquired sepsis. Retrospectively, peritoneal fluid PCR test (MTB PCR) from an earlier diagnostic paracentesis was found positive revealing the likelihood of intestinal TB.

Discussion

This case illustrates the complexity of clinical diagnosis of intestinal TB and fatal implication of delayed diagnosis. Although the histopathogical results were equivocal, repeat biopsy should have been sought to improve diagnostic accuracy and allow for the sample to be run for MTB C&S or MTB PCR.

Recognition of this diagnostic challenge is crucial. Clinicians should judiciously weigh clinical findings and optimized investigation tools. Benefits of therapeutic diagnosis may be considered when a definite diagnosis is unattainable.

CR10

PATHOLOGICAL COMPLETE RESPONSE IN A STAGE IIIB NON-SMALL CELL LUNG PATIENT AFTER PREOPERATIVE NEOADJUVANT CHEMOTHERAPY WITH OSIMERTINIB

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Introduction

In the treatment of non-small cell lung carcinoma (NSLC), the role of pre-operative neoadjuvant chemotherapy remains obscure.

Case history

A 67-year-old lady with bronchial asthma experienced intermittent cough and mild wheezing for four months. Her symptoms were temporary relieved with the use of Budesonide/Formeterol inhaler. A thorough respiratory pathogen screening panel was negative, and a computed tomography thorax was ordered following her persistent symptoms and a normal chest radiograph. She had a left hilar lung mass (measuring 5 x 5.1 x 7 cm) and a subcarinal lymphadenopathy (LN). A diagnosis of stage IIIB (cT3N2M0) eGFR +ve Exxon 19 deletion lung Adenocarcinoma was clinched through the use of endobronchial ultrasound guided fine needle aspiration (FNA) cytology of station 7 LN followed by an endoscopic-endobronchial ultrasound guided FNA sampling of the left lung mass. The patient was commenced on neoadjuvant chemotherapy (NAC) using Osimertinib 80mg daily. Subsequent re-imaging at 3 months (cT2bN2M0) and 6 months demonstrated tumor downstaging (stage IIIa) but a surgical resection was inappropriate in view of the absent of demarcation plane between the descending aorta and the mass. At 9 months of NAC, the primary lesion shrunk further and there was resolution of the subcarinal LN (staging cT1cN0M0). She underwent a left lower lobe lobectomy with mediastinal lymph nodes dissection (station 7,9 and 10). The histology examination demonstrated no evidence of residual malignant cells seen on all surgical samples with clear surgical margins. Post-surgery, the patient recovered well and was continued on her Osimertinib.

Conclusion

Pre-operative neoadjuvant chemotherapy could improve survival and reduce recurrence in NSLC.

CR11

PANUVEITIS PRESENTING AS INITIAL MANIFESTATION OF DISSEMINATED SARCOIDOSIS. A CASE REPORT.

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Introduction:

Sarcoidosis is a systemic inflammatory disease characterized by non-caseating granuloma formation with unknown etiology. The incidence of sarcoidosis among Asian population is extremely low, with a prevalence of 0.02% (3-4 per 100,000).

Objectives:

Our primary objective was to describe clinical presentation, complications and treatment response in sarcoidosis patient receiving steroid.

Methodology:

We herein report the case of a 37-year-old gentleman who suffered from blurring of vision. He was under Ophthalmology treating for pan uveitis with possible masquerade syndrome. His condition deteriorated with prolonged fever, macular rashes on trunk and limbs, polyarthritis, cough, abdominal discomfort and weight loss of 20kg.

Results:

CT scan showed lung fibrosis with traction bronchiectasis, multiple nodes with right pleural thickening, multiple nodes intraabdominally with hepatosplenomegaly. Broncho-alveolar lavage cytology showed multiple epithelioid and lymphomononuclear cells. Lymph node biopsy reported as non-caseating granulomatous lymphadenitis with asteroid body. Calcium level and serum ACE are within normal range. Other extensive investigations showed no evidence of malignancy or infection. Overall, results favour towards disseminated sarcoidosis. He was started on high dose prednisolone (1mg/kg). After 3 months of tapering prednisolone, he reported to have marked improvement both clinically and radiographically.

Conclusions:

Low reported incidence with atypical manifestation in sarcoidosis among Asian population are diagnostically challenging. Serum ACE are neither diagnostic nor marker of disease severity, yet they may be useful in monitoring disease progression. As for now, the mainstay of first-line treatment in sarcoidosis is still steroid.

CR12

TERTIARY CENTRE CASE SERIES ON THE DIAGNOSTIC AND MANAGEMENT CHALLENGES OF NTM-PD

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Introduction
Nontuberculous Mycobacteria (NTM) is a bacteria commonly found in the environment, and usually does not cause illness. Nontuberculous Mycobacteria Pulmonary Disease (NTM-PD) usually affects those with underlying lung diseases. It is diagnosed by an integration of clinical, radiological and microbiological criteria. The treatment regimes are based on the identified species. Multiple antibiotics are required for a prolonged duration and so there often are many complications encountered, especially in elderly patients.

Objectives
To describe the demographic profile, clinical data, predisposing premorbid conditions, diagnostic challenges, treatment regimens and complications encountered in treating NTM-PD in a tertiary centre.

Methodology
We present a case series of 4 patients of NTM-PD, confirmed by culture isolates, in this review. Data of patients over a period of 1 year (July 2021-June 2022) were analysed.

Results
All 4 were female patients, with a higher prevalence in the elderly (mean age 70 years). 50% of the patients had history of previous PTB and only 1 patient had pulmonary comorbid condition (cystic bronchiectasis). All 4 patients cultures grew M. abscessus. The initial phase intravenous and oral antibiotics was given for 4 weeks through different combinations, including amikacin, imipenem, cefepime and clarithromycin, which was tolerated well. For the continuation phase, medications chosen included levofloxacin, bactrim, doxycycline, linezolid, clofazimine, and ciprofloxacin.
The most common complications were transaminitis, which resolved, and unable to tolerate some of the oral medications. All 4 patients are still undergoing treatment and tolerated the current medications well. Repeated cultures are so far negative.

Conclusions
NTM-PD is a challenging infection, especially in countries where PTB is also prevalent. Management is also complex and need to be tailored to suit patient preferences.

CR13

CATAMENIAL PNEUMOTHORAX – A REVIEW OF 2 CASES IN SABAH

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Catamenial pneumothorax is defined as recurrent pneumothorax that occurs within 72 hours before or after the onset of menstruation in women of child-bearing age. The commonest proposed pathogenesis is thoracic endometriosis, whereby the endometrium lining the uterus travels into the pleural cavity via diaphragmatic defects. Alternatively, some models hypothesises that the elevation of prostaglandin F2 during ovulation causes bronchioles to constrict, causing alveoli to rupture and air to become trapped.

We hereby discuss two cases of recurrent right-sided spontaneous pneumothorax in two women of child-bearing age requiring chest tube insertion on at least one occasion. Computed tomography of the thorax revealed no significant pathology in both cases. In the first case, pneumothorax resolved upon resolution of menses and surgical pleurodesis was performed electively as outpatient. However, she was not started on hormonal therapy and was found to have suffered a recurrence in pneumothorax 2 months post-operation. In the second case, the patient had persistent air leak requiring inpatient referral and transfer to cardiothoracic surgery for inpatient surgical intervention. She was already on treatment for endometriosis and oral dienogest was continued post-operatively. At th3.e time of this writing, she is still under review for recurrence.

CR14

RECURRENT PULMONARY MELIODOSIS AFTER ERADICATION THERAPY

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Melioidosis is an ancient tropical disease caused by gram negative bacilli, Burkholderia pseudomallei which is endemic in Malaysia. It can present as acute pneumonia or can mimic tuberculosis or malignancy.

A 71-year-old gentleman, a chronic smoker, presented with prolonged cough and fever in May 2021 with history of gastric cancer which currently in remission, and close contact to pulmonary tuberculosis patient. Chest radiograph showed pneumonia and blood cultures grew *Burkholderia pseudomallei*. He received four weeks of intravenous ceftazidime 2g three times daily and followed by three months of oral sulfamethoxazole-trimethoprim. Subsequent follow-ups showed improvement in both symptoms and imaging. However, 1-year after, symptoms reoccurred and repeat chest radiograph showed pneumonia. CT thorax showed lung consolidation. BAL showed fully sensitive *Burkholderia pseudomallei* with negative AFB smear and GeneXpert. Trans-bronchial lung biopsy showed organizing pneumonia and no malignant cells. Following these findings, second eradication therapy was commenced.

Recurrent *Burkholderia pseudomallei* after the initial eradication therapy may indicate inadequate antibiotic dosing. There were various recommendations for optimal antibiotic dosing. Darwin et al in 2014 suggested the dose of Ceftazidime 2g four times daily while How et al 2017 suggested dosage of 2g three times daily in uncomplicated cases. The optimum duration of antibiotic was yet to be determined from at least 2 months until up to one year. In this case, intensive therapy of intravenous Ceftazidime 2g four times a day was intended for six weeks duration and followed by longer duration of maintenance therapy of which the duration is yet to be determined based on clinical and radiological response.

This case highlighted the dilemma in choosing the guideline of initiating the treatment and treating recurrent pulmonary melioidosis following failure of initial eradication therapy.

CR15

ELIMINATION OF CHRONIC ORAL CORTICOSTEROID USE AFTER THREE DOSES OF BENRALIZUMAB IN A CASE OF SEVERE EOSINOPHILIC ASTHMA

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There is good evidence that the use of oral corticosteroid (OCS) in asthmatics is harmful in the long-term. The threshold is lower than previously thought to just a lifetime cumulative dose of 1 gram. Patients with severe asthma are more at risk and many needed OCS because of repeated exacerbations. Some required maintenance OCS to control symptoms and reduce exacerbations. Precision medicine in biologics use has been successful in stopping OCS or reduction to minimal dose. We present a case of severe eosinophilic asthma on maintenance OCS who was successfully weaned off OCS after the 3rd dose of Benralizumab.

A 66-year-old asthmatic was referred for uncontrolled asthma. He had multiple comorbidities: hypertension, diabetes mellitus, reflux esophagitis and chronic rhinosinusitis. Asthma control history: average of four yearly exacerbations needing OCS, low (45% expected) Forced Expiratory Volume in 1 second (FEV1) and low Asthma Control Test (ACT) score of 14. He was on GINA step 5 treatment including Tiotropium Respimat, additional steroid inhaler and daily OCS dose of 10 mg for the last 6 months. Phenotyping confirmed type 2 high asthma with Absolute Eosinophil of 700 and 500 with IgE level 550. Other screening tests confirmed mild basal bronchiectasis. Benralizumab was started on January 2022 and after the third dose, OCS was successfully stopped. FEV1 improved by 180 ml, ACT improved to 21. He began light gardening at fourth month. Treatment was maintained at Step 5 without daily OCS. The plan is to cautiously wean other maintenance inhalers.

The case report highlighted the efficacy of Benralizumab in eliminating maintenance OCS in a severe eosinophilic asthma.

CR16

SEVERE COVID-19: A CASE REPORT OF COMPLETE RESOLUTION OF LUNG FIBROSIS WITH INHALED BUDESONIDE/FORMOTEROL AT PRIMARY CARE SETTING.

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Abstract:

Coronavirus Disease (COVID-19) has infected more than half billion people worldwide with fifteen-percent of the cases are categorized under severe infection. They experienced the clinical symptoms of pneumonia with respiratory distress sign. We reported a case of complete resolution of COVID-19 pneumonia in a middle-age women with severe COVID-19 infection. A 43-years old lady presented to general practitioner with cough, shortness of breath, and reduce effort tolerance of only 10 meters walking distance, since diagnosed with COVID-19 two weeks prior to presentation. Initial chest radiography showed more than 50% lung involvement with organizing pneumonia features seen in Computed Tomography of Thorax. She was started with a course of inhaled Budesonide/Formoterol (pMDI Symbicort 160/4.5 mcg with aero-chamber) every 3 hourly, N-Acetylcysteine (Fluimucil) 600 mg BD, Montelukast (Singulair) 10mg OD and probiotics (ProbiDefendum) 1billion CFU OD for 4 weeks duration. An interval chest radiography and CT Thorax at 4 weeks showed a significant improvement of air opacities and consolidation that only occupied less than 25% of the lungs. A dose adjustment for Symbicort to TDS with continuation of remaining regime for another 4 weeks was done. A complete resolution of pneumonia on chest radiography and normal spirometry recorded at eight weeks post treatment with inhaled Budesonide/Formoterol, N-Acetylcysteine, Montelukast and probiotics. A trial for these regimes should be conducted, as to date, no treatment available for post covid lung fibrosis.

Keywords: Severe COVID-19 infection, Symbicort, N-Acetylcystein, Montelukast, Probiotics

CR17

CASE REPORT OF A SUCCESSFUL AUTOLOGOUS BLOOD PATCH PLEURODESIS IN A CHILD WITH PERSISTENT AIR LEAK

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Persistent air leak (PAL) is defined as one that lasts more than 5 days. The possible causes are pulmonary bleb rupture, pulmonary disease, or post-thoracic surgery. Chemical pleurodesis is a well described treatment for PAL. Experience with autologous blood patch (ABP) pleurodesis for PAL in paediatric is limited. This report aims to describe the experience in managing a child who underwent ABP in a single tertiary centre.

We report a-13-year-old-boy, who has underlying complex cyanotic heart disease which was decided for conservative treatment. He presented with 1-week history of dyspnea, and chest pain. Clinical findings and radio-imaging confirmed the right tension pneumothorax. Chest drain was inserted and he required oxygen supplementation. However, after a week, the air leak was incompletely resolved even with low pressure suctioning. Serial chest radiographs were in keeping with persistent right lung pneumothorax and bilateral apical bullae. The parents refused for CT thorax and surgical intervention. In view of the prolonged dependency on chest drain, ABP was offered. The procedure was done bedside. Blood was withdrawn and instilled immediately through the right chest drain. The chest tube was then clamped for 4 hours. The following day, right air leak improved, and chest tube successfully removed. The repeated chest drain after 1 and 2 weeks later showed complete resolution of air leak.

ABP offers an inexpensive, safe, and this easy technique avoids the use of toxic chemicals for pleurodesis and therefore should be considered in the paediatrics with PAL. Further studies are required to evaluate the long-term effects of ABP in children and to compare these outcomes to other treatment modalities.

CR18

A CASE REPORT OF BRAIN-LUNG-THYROID SYNDROME IN A MALAYSIAN MALE BABY THAT INVOLVED THE MUTATION OF NKX2-1 GENE.

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Introduction

Brain-Lung-Thyroid syndrome is a rare movement disorder that inherited via autosomal dominant. It involved the NKX2-1 gene in chromosome 14q13 mutation. The prognosis of the syndrome depends on the symptoms that vary from each individual.

Methodology: Descriptive study: Case report

Results

This was an 8 months old Malay boy who born term via spontaneous vertex delivery. He was the third child from a non-consanguineous marriage. He had a stormy neonatal period that needed him to ventilate for 2 weeks and subsequently on prolonged non-invasive ventilation (NIV) support. His serial chest x-ray showed worsening bilateral ground glass opacities associated with low lung volume that warranted contrast enhanced computed tomography (CECT) scan for further evaluation. His CECT revealed diffuse ground glass opacities seen in both lung fields, predominantly at bilateral upper lobes with basal segment of bilateral lower lobes shows mild fibrotic changes with the overall features could represent primary surfactant deficiency with the differential diagnosis of alveolar proteinosis.

In view of persistent on NIV, he was intubated for direct laryngoscopy and bronchoscopy . The procedure findings were normal however he was unable to extubate and required high ventilator setting due to concomitant recurrent episodes of nosocomial pneumonia.

Since birth, he was also diagnosed of congenital hypothyroidism and grade 3 gastroesophageal reflux disease(GERD) with pyloric spasm. In view of the multiple abnormality, he was been referred to Genetic team and Whole Exon Sequencing(WES) was sent and result revealed as NKX2-1 mutation.

Unfortunately, he was succumbed after 1 year old of stay in hospital in view of recurrent infection.

Conclusion

Brain-Lung-Thyroid syndrome is a rare disorder where till now there was only 50 cases been reported in literatures. A high index of suspicious is need for timely diagnosis and treatment.

CR19

DUAL AETIOLOGIES OF RECURRENT PNEUMOTHORAX DUE TO PULMONARY ENDOMETRIOSIS AND TUBERCULOSIS

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Introduction:

Pulmonary endometriosis is a rare but life-threatening condition characterized by the presence of active endometrial tissue in the lung. In this case report, we present a case of pulmonary endometriosis with concomitant tuberculosis causing recurrent pneumothorax.

Case Report:

We report a case of pulmonary endometriosis complicated with pneumothorax and pulmonary tuberculosis. A 35-year-old was diagnosed with pulmonary endometriosis in 2014 when she presented with sudden onset of shortness of breath and chest pain. Chest radiograph showed right pneumothorax and chest tube was inserted. Subsequently, she had recurrent pneumothorax monthly which related to menstruations. Computed tomography of thorax suggestive of pulmonary endometriosis. She underwent surgical pleurodesis and was well until 2019. She came back in 2022 with recurrent large symptomatic pneumothorax which was subsequently complicated with persistent air leak. Her recent chest radiograph was suspicious of severe tuberculosis changes with cavities and sputum revealed AFB smear of 3+. Of note, the CT images in 2014 already had tree-in-buds changes and small cavities. A repeated CT did not show bronchopulmonary fistula but possible a rupture cavity causing pneumothorax. She was treated with anti-tuberculous regime and was on chest drain with Hemlich valve during the period of illness. She had spontaneous resolution of air leak and chest drain was successfully removed. She reported resolution of symptoms and was well upon follow up.

Discussion:

Pulmonary endometriosis is a benign gynaecological disorder that is common in the pelvis but rare in the lungs. The endometriotic deposits can be found in the pleura causing pneumothorax as seen in this case. This case is being reported to alert clinicians to the fact that pulmonary tuberculosis can always co-exist with other disease.

CR20

MULTIPLE PRIMARY MALIGNANT TUMOURS OF LUNG AND COLORECTAL ADENOCARCINOMA: A CASE REPORT

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Introduction: Multiple primary malignant tumours (MPMT) of lung and colorectal incidence were extremely rare and in most cases, diagnosed incidentally. Most physicians consider pulmonary lesions were found in patients with a history of colorectal cancer as lung metastases. To avoid misdiagnosis and treatment delays, it is critical to properly screen and explore for possible metastasis or the occurrence of a second primary tumour after a primary cancer has been diagnosed. Case Report: A 72-year-old woman presented with rectal bleeding with altered bowel movement. Rectal biopsy revealed colon adenocarcinoma and subsequent CT scan showed sigmoid colon mass and right lower lobe lung mass with multiple mediastinal lymphadenopathy. Biopsies of the mediastinal lymph nodes also showed adenocarcinoma. Discussion: Synchronous MPMTs lung and colorectal cancer were commonly observed among elderly patients and those who smoke. CT findings of solitary lung nodule with mediastinal lymph node enlargement in the setting of elderly patients or smoker were more likely to be primary lung cancer. Extensive immunohistology studies showed multiple primary malignant tumours of lung and colorectal adenocarcinoma; mediastinal lymph node immunohistochemistry was positive for CK7, TTF-1 and Napsin-A, and negative for CK20, CDX2, CK5/6, p40 and MUC2. Rectal biopsy showed positive for CDX2, but negative for CK7 and TTF-1. Standardised uptake values (SUVs) on FDG-PET images can be used to distinguish between a metastatic lesion and a primary tumour; a metastatic lesion will have SUVs that are identical to the primary tumour whilst large differences in SUVs could suggest the presence of a second primary tumour, in this case, colon mass of SUVmax 29.6 versus lung mass of SUVmax 6.8. Conclusion: Extensive immunohistology studies and CT/PET scan would facilitate the diagnostic approach for MPMT.

CR21

ORGANIZING PNEUMONIA OF THE LUNG AS PART OF MANIFESTATION FOR MARGINAL ZONE B CELL LYMPHOMA

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Marginal Zone B Cell Lymphoma is a low grade non Hodgkin lymphoma that developed in mucosa related lymphoid tissue.The presence of MALT in lung tissue was first reported in 1973 by Bienenstock and colleagues.

We reported a complicated case of marginal zone B cell lymphoma that was found during covid pneumonia infection in a 64 years old lady. During the covid infection she was treated with dexamenthasone 8mg for 10days. Her CT pulmonary artery revealed no features of Pulmonary Embolism, with organizing pnuemonia changes, tree in bud appearance, and presence of new ground grass opacities in right upper lobe. Repeated ct-scan showed persistent lung consolidation with features of active lung infections and incidental finding of right renal mass with adjacent enlarged lymph nodes. Full blood picture showed Rouleau formation with serum and urine protein electrophoresis suggestive of Multiple Myeloma. Serum electrophoresis showed presence of triclonal paraproteins; Ig M Kappa 18.4g/L, Ig G Kappa and Ig G Lamba of total quantitation 12.2g/L with Immune Paresis. transbronchial lung biopsy showed lymphoid aggregates with diffuse positive of CD 20, BCL 2 and patchy positivity of CD21. ultrasound guided Renal Mass biopsy and diagnosis of MALT (Marginal Zone B Cell Lymphoma of associated Lymph Tissue) was made.

She is currently under treatment and showed radiological improvement. This case serves a reminder the broad spectrum of presentation for marginal zone B cell Lymphoma in a patient.

CR22

RAPID ONSET OF EFFECT OF BENRALIZUMAB IN A SEVERE EOSINOPHILIC & ALLERGIC ASTHMA PATIENT WITH ABPA

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Background: There is limited data available from clinical trials on the use of benralizumab, anti-IL-5Rα monoclonal antibody, in treating patients with severe asthma who have allergic bronchopulmonary aspergillosis (ABPA). We report a case of a patient with combined severe eosinophilic and allergic asthma, who was newly diagnosed with ABPA. She was treated with benralizumab and experienced rapid clinical improvements after 1st dose

Case Presentation: A 65 year–old woman affected by severe eosinophilic and allergic asthma presented with refractory respiratory symptoms. Hyper-eosinophilia and high IgE values were present at the blood test, and the ACT score was steadily poor, despite the maximal dose of inhalation therapy. Upon further investigations, the patient was also diagnosed with having concomitant ABPA. Her symptoms still persist despite treatment with oral prednisolone and itraconazole. Thus, patient was started with subcutaneous omalizumab, and was switched to benralizumab after developing a severe allergic reaction. The patient later experienced the rapid onset of effect of benralizumab subcutaneous injection in reducing patient's symptoms and determining a steroid sparing effect. A fast and stable reduction of peripheral eosinophilia associated with an increase in ACT score were also documented after the first dose of benralizumab.

Conclusion: This case study suggests that the use of benralizumab may be effective in treating severe asthma among patients who have concomitant ABPA, and further studies are warranted.

CR23

LOCALISED BRONCHIECTASIS: RULE OUT ENDOBRONCHIAL DISEASE

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Introduction: Bronchiectasis is a chronic condition characterised by dilated and thickened airways secondary to infection and inflammation. Occasionally, patients can present with localised bronchiectasis, which should prompt further assessment and investigation to rule out focal endobronchial disease. Hereby, we present 2 patients with localised bronchiectasis due to different pathologies.

Case 1: A 55-year-old teacher with underlying bronchial asthma presented with chronic productive cough for 3 years. Multiple courses of antibiotics only provided temporary relieve. Contrast enhanced computed tomography (CT) thorax demonstrated right middle lobe bronchiectasis and a calcified, linear density within the right main bronchus extending in to the right bronchus intermedius (RBI). Flexible bronchoscopy revealed a foreign body lodged at the right main bronchus, with copious amount of purulent secretion surrounding it. The foreign body, subsequently noted to be of bony consistently, was then removed with rigid forceps under rigid bronchoscopy. Post procedure, patient was discharged well.

Case 2: A 64-year-old lady with hypertension presented with recurrent small-volume haemoptysis and recurrent episodes of pneumonia for 6 months. Chest radiograph and CT thorax revealed localised left lower lobe bronchiectasis. Flexible bronchoscopy revealed a small nodule at the entrance of left basal airway segments. The nodule was removed via cryotherapy. Histopathology showed a pulmonary fibroleiomyomatous harmatoma, a rare form of harmatoma. She was discharged well post procedure with no recurrence of haemoptysis and/or pneumonia during follow-ups.

Discussion: These cases demonstrate that bronchiectasis was caused by an endobronchial obstruction.

Conclusion: A high degree of suspicion is required in patients with recurrent pneumonia and localised bronchiectasis. A thorough evaluation with CT and bronchoscopy is vital to rule out an endobronchial obstruction due to tumour, stenosis or foreign body aspiration. Early detection and intervention can lead to complete resolution, whereas delayed treatment can lead to permanent airway damage and recurrent infection.

CR24

AMYLOIDOSIS PRESENTING AS PERSISTENT TRANSUDATIVE PLEURAL EFFUSION

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Introduction: Amyloidosis is characterized by the extracellular deposition of amyloid substance. It can affect many organ systems but less commonly found in the lung. Pleural effusions secondary to amyloidosis are rare and sparsely reported in the literature.

Case Report: We report a case of a 54-year-old lady with underlying hypertension and cardiac failure who presented with shortness of breath for 1 week and constitutional symptoms for 1 year. Chest radiograph showed moderate right sided pleural effusion. Thoracentesis revealed a straw coloured, transudative effusion (pleural fluid: serum ratio less than 0.5, cytology negative). Despite adequate diuresis, patient had persistent right sided effusion. We then performed a medical thoracoscopy which showed a hyperaemic parietal pleura with no evidence of nodules. Random biopsies were taken from the parietal pleura and histopathological examination showed amyloidosis. Her urine protein electrophoresis was raised and serum protein electrophoresis was reported as IgA lambda paraproteinemia with overlapping beta region. She was subsequently referred to haematology team for further management.

Discussion: The underlying cause for this patient's heart failure could also be explained by amyloidosis. Pleural effusion caused by amyloidosis can be unilateral or bilateral and can be exudate or transudate. Although pleural amyloidosis in rare, in patients with recurrent or persistent pleural effusion, we should consider the possibility of amyloidosis and proceed with a pleural biopsy based on clinical judgement.

CR25

COUGH-ASSIST IN ACUTE ATELECTASIS: THE SARAWAK EXPERIENCE

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Background: Mechanical insufflation-exsufflation (MI-E) or Cough-Assist is a non-invasive method of airway clearance which simulates natural coughing. Many studies have demonstrated the effectiveness of MI-E for airway clearance in patients with neuromuscular disease and invasive mechanical ventilation. Unfortunately, the availability of Cough-Assist is limited in Malaysia, and thus has been under-explored.

Case presentation: We present a diverse group of patients treated with MI-E for acute atelectasis.

Case 1 was a 32-year-old man admitted for traumatic spinal cord injury complicated by multiple bouts of ventilator-associated pneumonia (VAP) on tracheostomy. He had developed recurrent atelectasis persisting despite aggressive chest physiotherapy and multiple bronchoscopies. MI-E was applied via tracheostomy, and successfully resolved and staved off recurrent atelectasis.

Case 2 was a 69-year-old lady with locked-in syndrome, who developed nosocomial pneumonia with left lung collapse. She was initially referred for bronchoscopy, but deemed too high risk on high flow nasal canula. Instead, MI-E was initiated for airway clearance, successfully re-expanding the left lung allowing weaning of oxygen requirement.

Case 3 was a 78-year-old man suffering from post-operative advanced gallbladder cancer with right lung collapse in ICU. With MI-E and aggressive rehabilitation, he was finally weaned off oxygen.

Case 4 was a 50-year-old man who developed right lung collapse during admission for decompensated liver cirrhosis. One single session of MI-E with nocturnal continuous positive airway pressure therapy led to dramatic re-expansion of the lung.

Conclusion: Cough-Assist is a rewarding and cost-effective non-invasive therapy for patients with acute atelectasis, and is a particularly useful alternative for patients in whom invasive procedures would not be feasible or suitable.

CR26

REFRACTORY CHYLOTHORAX IN CONGESTIVE HEART FAILURE

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Background: Chylothorax is the accumulation of triglycerides within the pleural space due to chylomicron. The occurrence of chylothorax in heart failure is rare and the mechanism is not completely understood.

Case summary: We report a case of chylothorax in heart failure with reduced ejection fraction (HFrEF). A 54-year-old male with underlying atrial fibrillation and triple vessel disease (EF 20%) on implantable cardioverter-defibrillator, presented with sudden onset of shortness of breath, associated with orthopnea. As chest radiograph revealed right massive pleural effusion, a diagnostic paracentesis was performed and drained 1 litre of cloudy milky fluid. Pleural fluid analysis showed exudative picture with triglyceride level of 3.08 mmol/L. Therapeutic chest drain was inserted for the rapid re-accumulation of effusion. The patient had persistent high chest drain output of average 2 litres per day despite the optimization of heart failure treatment, medium-chain triglyceride diet, and somatostatin analogue octreotide. Furthermore, contrast-enhanced computerized tomography of thorax, lymphoscintigraphy and oesophagogastroduodenoscopy (OGDS) failed to identify the site of leakage. Considering the cardiac comorbidities and facilities limitation, the options of thoracic duct ligation and thoracic duct embolization were declined. We initiated continuous positive airway pressure (CPAP) for 12 days before and 1 day after talc pleurodesis. Subsequently, chylothorax resolved and the patient was discharged home well.

Discussion: Explanatory hypotheses postulate that central venous hypertension and increased capillary filtration in heart failure could lead to excessive lymph formation. Meanwhile, CPAP has been shown to improve cardiac function and reabsorption of pleural fluid by increasing the transpulmonary pressure.

Conclusion: This case illustrated a successful resolution of refractory heart failure-related chylothorax with CPAP ventilation and talc pleurodesis.

CR27

LUNG ADENOCARCINOMA PRESENTING WITH PLEURAL HYPERAMYLASEMIA

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34 years old lady at 26 weeks gestation, presented with progressively worsening dyspnoea and poor weight gain. On presentation, she appeared to be breathless and hypoxic. Chest radiograph showed right pleural effusion with mediastinal shift to left. Ultrasonography confirmed pleural effusion. Chest drained inserted and pleural fluid investigated for infection, tuberculosis and malignancy.

Pleural fluid was exudative with significantly raised pleural fluid amylase at 2946 U/L, LDH 1512 U/L and glucose 1.2 mmol/L.

Due to raised pleural fluid amylase and right side effusion, subsequent workup of pancreatitis was done which showed normal serum amylase level and ultrasound abdomen was normal.

Pleural fluid cytology revealed adenocarcinoma with Immunohistochemical staining positive for TTF-1. Cell block for EGFR study showed exon-21 deletion.

She was diagnosed with stage 4A lung adenocarcinoma with malignant effusion. She went into premature labour during admission.

She was then referred to oncologist and treated with tyrosine kinase inhibitor.

Discussion:

Pleural fluid amylase levels are elevated if the pleural fluid/serum ratio is >1.0 where possible etiologies include acute pancreatitis, pancreatic pseudocyst, rupture of the oesophagus, ruptured ectopic pregnancy or pleural malignancy (especially adenocarcinoma). The incidence of high amylase level in malignant pleural effusion was estimated to be 10% to 14%. Salivary amylase is secreted ectopically by tumours into the pleural space, commonest being lung adenocarcinoma. Pleural fluid hyperamylasemia should raise the suspicion of malignancy, mainly adenocarcinoma of lung and ovarian tumours, after ruled out benign causes such as pancreatitis and oesophageal rupture. Isoenzyme analysis is useful where salivary amylase suggests oesophageal rupture or malignancy whereas pancreatic amylase is associated with pancreatic disease.

CR28

BATTLING AN ORPHAN DISEASE: MY YOUNG PATIENT WITH BRONCHIECTASIS IN COMMON VARIABLE IMMUNODEFICIENCY (CVID)

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Introduction:
Bronchiectasis, previously termed an 'orphan disease', has diverse etiologies and is now increasingly recognised. Common variable immunodeficiency disorder (CVID) is an uncommon cause of bronchiectasis. It usually manifests as recurrent respiratory infections that lead to bronchiectasis. I report here a case of a 17-year-old male diagnosed with CVID who presented with bronchiectasis and empyema thoracis.

Case Report:
A 17-year-old male presented with a 3-day history of productive cough and fever. He reported a history of primary immunodeficiency disorders (PIDs) complicated with recurrent pneumonia and bronchiectasis, pending PIDs workups under an immunologist. Auscultation revealed reduced breath sound over right lower zone. CXR showed consolidation with bronchiectasis at right middle zone, and right loculated pleural effusion. Ultrasound right hemithorax confirmed multi-loculated effusion. He was started on antibiotic for acute exacerbation of bronchiectasis secondary to community acquired pneumonia with right parapneumonic effusion. USG-guided pleural tapping was delayed due to Covid co-infection, where serous exudative pleural fluid aspirated, pus cells, AFB, culture, and ADA were negative. His blood culture isolated Haemophilus influenzae. His CECT thorax confirmed pneumonia with right empyema thoracis and bilateral bronchiectasis. All his IgG, A, M levels were significantly reduced. The patient was reviewed in immunology clinic, where a diagnosis of CVID was made. He was started on human immunoglobulin replacement therapy (500 mg/kg), resulting in rapid clinical and radiological improvement. A multi-disciplinary discussion concluded that there's no role for decortication of empyema thoracis, and to administer human immunoglobulin three weekly to targeted IgG level.

Conclusion:
CVID associated with bronchiectasis is a rare entity. However, early recognition, diagnosis, and prompt treatment can significantly lower morbidity and complications and improve quality of life.

CR29

COEXISTENCE OF LUNG CANCER AND IDIOPATHIC PULMONARY FIBROSIS: A CASE REPORT

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Background

Idiopathic Pulmonary Fibrosis (IPF) increases risk of lung cancer to approximately five times that seen in the general population. Management of lung cancer in this group is a dilemma as treatment modalities such as surgical resection and palliative chemotherapy poses high likelihood of acute exacerbation of IPF within 1 month of treatment.

Case History

A 68 years old male, ex-police officer with a smoking history of 40pack years presented with progressive dyspnoea over 6 months duration. Examination revealed bibasal crepitations but otherwise unremarkable. Upon imaging, definite usual interstitial pattern was seen together with a cavitating lung mass in the right lower lobe. Tissue biopsy was obtained via CT-guided biopsy that confirms non small cell carcinoma, favouring squamous cell type in the immunohistochemistry. The disease was characterised as T3N2M1, based on PET scan which was in contrast to the prior CT that showed no metastasis or nodal involvement. His Eastern Cooperative Oncology Group performance score was 2 with significantly reduced 6 minute walking distance of less than 100m. Following discussion regarding risks and benefits of chemotherapy, patient opted for best supportive care alongside antifibrotic agent, Nintedanib, which is postulated to have antineoplastic properties as well.

Conclusion

Evidence to support antifibrotics doubling as antineoplastic agents are limited, and no platinum based systemic chemotherapy is considered safest and optimal in treating patients with advanced lung cancer in IPF. Management needs to be individualised, aligning with patient’s expectations on treatment outcome and quality of life.

CR30

NOT ALL HOOFBEATS ARE OF HORSES': A CASE OF PULMONARY TUBERCULOSIS MISDIAGNOSIS

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We report a case of a 70-year-old diabetic who presented with chronic dry cough and reduced effort tolerance for five years. Her physical examination findings were unremarkable. Her chest radiograph, Forced Expiratory Volume in 1 second (FEV1), Forced Vital Capacity (FVC) and echocardiography findings were normal. Antituberculosis drugs were initiated based on risk factors and positive sputum MTB culture. However, the treatment was stopped after two weeks due to intractable vomiting, diarrhoea and rashes. High-resolution computed tomography (HRCT) thorax, which was carried out to assess features of tuberculosis, incidentally, revealed a retrosternal goitre with tracheal narrowing. Spirometry with inspiratory flow-volume loop showed features of extrathoracic airway obstruction. The positive MTB culture grew nontuberculous mycobacterium: Runyon Group IV (M. fortuitum chelonae complex).

Conclusion: HRCT thorax and spirometry flow-volume loop help to identify pulmonary and extrapulmonary causes of chronic cough. TB diagnosis should be accurate, especially in smear-negative cases and elderly patients.

CR31

ACHIEVING CLINICAL REMISSION IN SEVERE ASTHMA: A SUPER RESPONDER WITH BENRALIZUMAB THERAPY

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The treatment of severe asthma has been revolutionized by biologics. Out of 6 approved for use, 4 biologics are available locally. Which biologic to use depends on comorbidities, asthma phenotype and cost. Mandatory clinical assessment must include diagnosis confirmation, compliance, inhaler technique and addressing risks including triggers. The objective of biologic therapy is now being refined to clinical or disease remission in those who have super response. We present a case of a type 2 high (T2H) severe asthma who achieved clinical remission on treatment with Benralizumab.

A 47-year-old gentleman with adult-onset severe asthma was referred to our clinic. His comorbidities were nasal polyposis and chronic rhinosinusitis. The summary of asthma control in the preceding 3 years: oral corticosteroid uses averaging 3 courses with one admission yearly, persistently low Asthma Control Test (ACT) score of 16, low (55% expected) Forced Expiratory Volume in 1 second (FEV1) and persistent GINA step 5 treatment. After compliance and technique issues were addressed, phenotyping confirmed T2H asthma. Absolute Eosinophils were 450 and 500, with serum IgE > 1200. Further imaging tests and specific IgEs excluded Allergic Bronchopulmonary Aspergillosis. Additional steroid inhaler, a macrolide trial and Tiotropium via Respimat all failed to improved symptoms. Benralizumab was commenced in June 2021. After 3 doses, ACT improved to 20, FEV1 normalized to 81% expected, and treatment was downgraded to GINA step 4. After 6 months he returned to playing badminton. At one year, the clinical parameters above were maintained, including treatment at step 4 without any exacerbation.

Some severe asthmatics achieve super response and leads to clinical disease remission. Early treatment with proper patient selection may make this possible.

CR32

TRIPLE APPROACH IN SIMULTANEOUS BILATERAL SPONTANEOUS PNEUMOTHORAX IN LYMPHANGIOLEIOMYOMATOSIS

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LAM is often associated with recurrent pneumothorax. We report a 35-year-old woman who presented with dyspnoea and chest pain for one week. Chest radiograph showed bilateral pneumothoraces and high resolution computed tomography thorax revealed bilateral pneumothoraces with diffuse lung cysts. Bilateral intercostal chest tubes were inserted, and there was persistent air leaks (PAL) bilaterally. We performed a successful autologous blood patch pleurodesis for the left PAL. She has subsequently been subjected to right video-assisted thoracic(VATS) surgery, wedge biopsy, and surgical pleurodesis for the right PAL. The left pneumothorax recurred and was treated with an indwelling pleural catheter (IPC) and atrium pneumostat chest drain valve. Histopathology examination of lung tissue confirmed the diagnosis of pulmonary lymphangioleiomyomatosis. The patient was initiated on Sirolimus 2 mg daily. Review 6 weeks later showed complete resolution of the left PAL. This case highlights the option of a consecutive triple approach; blood patch pleurodesis, VATS pleurodesis, and IPC with an ambulatory pneumothorax device in a patient with LAM with PAL.

CR33

SUCCESSFUL USE OF INTRAPLEURAL ALTEPLASE IN A CASE OF COMPLICATED HAEMOPNEUMOTHORAX

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A-49-year-old woman with ischaemic heart disease, diabetes mellitus with diabetic kidney disease presented with dyspnoea and heart failure symptoms for one week. Chest radiograph revealed a massive right pleural effusion. A 32F chest drain was inserted and drained 600 ml hemoserous fluid. Her hemoglobin level dropped from 10.1 to 6.2g/dL over 2 days and she required 2 pints packed cells transfusion. Ultrasound thorax showed multiseptated right hypoechoic collection. We proceeded with a contrast enhanced computed tomography (CECT) and computed tomography angiography (CTA) of thorax which revealed a right hemopneumothorax with no active arterial bleed or parenchymal injury. She was reviewed by the cardiothoracic team but was unfit for surgical intervention. We decided to proceed with non-surgical intrapleural fibrinolytic therapy. She was given 7 doses of 5 mg intrapleural alteplase (rTPA) which drained 4.2 litres in total. She remained hemodynamically stable. Repeat imaging with ultrasound and chest radiograph showed complete resolution of the haemopneumothorax at day 4. This highlights the usefulness and safety of intrapleural alteplase as an alternative therapy in hemopneumothorax.

CR34

ENCYSTED EFFUSION: A PRESENTATION OF HEART FAILURE

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Introduction: Encysted pleural effusion is an uncommon presentation of heart failure, with the commoner etiologies being pyogenic effusion or tuberculosis. There have been a few reports showing the relation between encysted effusion with heart failure[1], and a transudative fluid analysis should strongly raise suspicion of heart failure in this phenomenon[2].

Case report: We describe a 62-year-old male with underlying hypertension, diabetes and chronic kidney disease who was being treated as pleural tuberculosis at the time (HPE proven via left pleuroscopy). He presented to us with 2-days history of shortness of breath and pleuritic chest pain despite responding well to anti-tubercular therapy previously. Chest radiograph showed a new onset consolidation over right lung which was confirmed to be a loculated effusion on ultrasound. Thoracocentesis was performed and pleural fluid investigations sent revealed a transudative effusion. Patient was then started on frusemide. Subsequent imaging via ECHO confirmed the diagnosis of heart failure (Ejection fraction 28%, global hypokinesia). Follow up chest radiograph showed resolving effusion with frusemide therapy.

Discussion: Evaluation of pleural effusion is usually focused on establishing a primary diagnosis. However, it is important to keep in mind multifactorial causes in certain scenarios (multiple comorbids, recurrent or unresolving effusion, new onset effusion). A transudative pleural fluid analysis in loculated or encysted effusions is a strong indicator of heart failure warranting confirmation via ECHO and initiation of anti-diuretics. More studies should be undertaken to further establish the prevalence of heart failure in encysted effusions.

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CR35

A RARE CASE OF CHYLOTHORAX SECONDARY TO PLEURAL TB

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Tuberculous pleuritis with chylotorax is rare, with only 37 cases reported in medical literature so far. We present a case of chylothorax secondary to pleural tuberculosis diagnosed by pleuroscopy.

A 61-year-old lady with diabetes and hypertension presented with chronic cough for a month and dyspnoea for 3 days. She denied fever, constitutional symptoms or history of trauma to the chest wall. A large right sided pleural effusion was noted and chest tube was inserted revealing odourless milky yellowish fluid. Pleura fluid analysis showed high triglycerides (5.14 mmol/l) with low cholesterol (1.6mmol/l) levels and normal glucose and lactate dehydrogenase (LDH) levels suggestive of chylothorax. Computed tomography (CT) scan of the thorax showed centrilobular nodules at the lung parenchyma, enlarged mediastinal lymph nodes and large right pleural collection. Sputum Acid Fast Bacili and TB genXpert were negative. In view of the persistent unexplained chylothorax, medical pleuroscopy was done showing discrete nodules over the parietal pleural surface. Biopsy showed casseating granuloma with acid fast bacilli characteristic of pleural tuberculosis. Patient was started on antituberculor drugs.

Chylothorax is caused by lymphatic fluid leakage into the pleural space. Causes include trauma to the thoracic duct, haematologic malignancies, autoimmune diseases and infection like tuberculosis. Its important to send pleural triglycerides and cholesterol as part of pleural fluid analysis especially in whitish opaque appearing pleural fluid. Diagnosis of a chylothorax should prompt a thorough investigation of the underlying cause. Sometimes a pleural biopsy may be needed if initial investigations remain inconclusive.

CR36

MODIFIED INTERFACE FOR NON-INVASIVE VENTILATION IN A PATIENT WITH AMYOTROPHIC LATERAL SCLEROSIS WITH LIMITED UPPER LIMB FUNCTION

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Introduction

Hypoventilation is a recognized complication of amyotrophic lateral sclerosis (ALS). Non-invasive ventilation (NIV) remains the established treatment and when upper limb function is significantly affected, patients rely on others to put on the interface.

Case report

A 61-year-old male with ALS presented with progressive upper limb weakness and exertional dyspnea for eight months. On examination, there was upper limb muscle wasting and fasciculations. Muscle strength assessment was shoulder abduction (1/1), elbow flexion (2/3), elbow extension (2/2), wrist extension (3/3), finger extension (1/3), and poor hand grip. Deep tendon reflexes and sensory examination were intact. His Revised Amyotrophic Lateral Sclerosis Functional Rating Scale (ALSFRS-R) was 36. His partial pressure of carbon dioxide (PaCO2) of 47mmHg. The maximal inspiratory pressure was 15cmH20, sniff nasal inspiratory pressure was 16 cmH20, and diaphragm excursion of 16.9mm (deep inhalation). Taken together with his respiratory symptoms, NIV was indicated and prescribed. However, the patient was unable to fit the conventional oro-nasal interface independently, necessitating modifications. Elastic straps from an N95 respirator were tied to the sides of the mask, with foam strips added around the straps to provide cushioning for comfort. In a seated head-to-knee and forward bend position, the patient was able to slit the straps securely behind both ears, similar to putting on a surgical mask. Upon reviewing the compliance report, the elasticity of the straps enabled good fitting with minimal leakage.

Conclusion

simplified straps for interface could benefit individuals with limited upper limb function.

CR37

CASE REPORT: POTT'S DISEASE, A RARE ENTITY IN PREGNANCY

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INTRODUCTION: Tuberculous spondylitis or Pott's Disease was first described in the 18th century by the English surgeon, Percivall Pott. This extrapulmonary manifestation of TB spreads hematogenously from the lungs and commonly affects lower thoracic and upper lumbar vertebrae. We report a case of Pott's Disease in pregnancy.

CASE REPORT: A 25 year old primigravida presented at 33 weeks of gestation with complaints of progressively worsening bilateral lower limb weakness, numbness and difficulty walking since one week. Examination revealed no lymphadenopathy and clear lung fields. Bilateral lower limbs were hyperreflexic with upgoing plantars and power MRC grade 5. There was no sensory level and anal tone was intact. CXR showed a paravertebral fusiform opacity, suspicious of paravertebral abscess. MRI Spine revealed T6/T7 spondylodiscitis with a 5 x 7cm, multiseptated paravertebral abscess with posterior extradural extension, causing cord compression. Apical lung lesions and bilateral pleural effusion were also noted from the MRI. These findings were highly suggestive of tuberculosis, thus patient was empirically started on a standard four-drug antitb regime while awaiting surgical decompression of the spine. The fetus was delivered via caesarean section, following which the spine team proceeded with posterior spinal instrumentation and fusion over the T4-T9 and total laminectomy over the T6-7 vertebrae. GeneXpert MTB from pus and tissue obtained intraoperatively were positive for Mycobacterium Tuberculosis complex. Patient was discharged well following surgery with no neurological deficits.

CONCLUSION: Pott's Disease is an unusual cause of back pain in pregnancy, which not only makes the diagnosis challenging, but also highlights the importance of early spinal imaging in these cases. A multidisciplinary approach is crucial so that both mother and fetus are protected, and early intervention prevents complications like kyphosis, cold abscess and paraplegia.

CR38

CASE REPORT: AN UNUSUAL PRESENTATION OF A RARE PULMONARY CARCINOSARCOMA

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INTRODUCTION: Pulmonary carcinosarcomas are rare and highly malignant neoplasms accounting for <1% of all lung tumours. It usually affects men, are more common in smokers, and occur between the fifth and eighth decades of life. We report a case of pulmonary carcinosarcoma with an unusual presentation of lower limb paralysis in a never smoking woman.

CASE REPORT: A 46 year old never smoking woman presented to us with three weeks history of progressive bilateral lower limb weakness. She remarkably had no respiratory symptoms. Physical examination revealed Glasgow Coma Scale of 15/15, flaccid paralysis of bilateral lower limbs, areflexia and loss of anal tone. Chest x-ray showed bilateral cannonball opacities while computed tomography revealed a right upper lobe mass with metastases to both lung fields. We proceeded with an MRI which showed hemorrhagic metastases in the brain and cervical spinal cord. Bronchoscopy demonstrated endobronchial masses with abnormal mucosa and contact bleeding over the right upper and middle lobes. The masses were biopsied and revealed nests of malignant squamous cells juxtaposed with chondrosarcoma. A diagnosis of pulmonary carcinosarcoma was established with clinical stage IVb. The patient was referred to the oncology department for palliative radiotherapy to the spine.

CONCLUSION: The WHO classification defines carcinosarcomas as malignant tumors with biphasic histology consisting of non-small cell lung carcinoma and sarcoma-containing heterologous elements. They usually present as an advanced disease with aggressive metastases. There is no definitive treatment of carcinosarcomas other than surgical resection in localized disease. The role of chemotherapy and radiotherapy remains controversial. Prognosis is unfavourable with median survival time of 9-12 months after surgical resection.

CR39

CO-EXISTENT LUNG CANCER AND PULMONARY TUBERCULOSIS: A CASE-SERIES

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Introduction: Tuberculosis has been shown as an independent predictor of lung cancer risk. In reverse, cancer patients also have a higher incidence of pulmonary tuberculosis (PTB).

Objective: This case-series describes three cases that diagnosed concurrent tuberculosis and lung cancer in a tertiary state hospital in Malaysia between 2021-2022.

Case 1
A 65-year-old man, an active smoker, was diagnosed to have smear positive PTB. However, his chest X-ray also revealed left lung mass. Computed tomography (CT) showed large left upper lung mass with local infiltration and mediastinal lymphadenopathy, active PTB infection, and bone metastasis.

Case 2
A 69-year-old man, an active smoker, was admitted for acute exacerbation of COPD. Chest X-ray revealed left upper lobe consolidation with pleural effusion. CT thorax revealed left upper lobe mass associated with multiple lung nodules and mediastinal lymphadenopathy. CT-guided lung biopsy histopathology showed features favouring adenocarcinoma. Bronchoalveolar lavage (BAL) for TB geneXpert was positive and culture also revealed *Mycobacterium tuberculosis* complex.

Case 3
A 63-year-old lady, a non-smoker, had incidental finding of lung mass on chest X-ray during admission for COVID-19. CT thorax revealed heterogeneous left lung mass with local extension. Bronchoscopic biopsy revealed adenocarcinoma and tuberculous granulomatous inflammation with positive Ziehl-Neelsen staining. BAL for TB geneXpert was also positive.

Results: Two reached histopathological diagnosis and all were adenocarcinoma. All were advanced tumour stage III-IV. One completed antituberculosis treatment, one died, and one still receives ongoing treatment.

Conclusion: Lung cancer and pulmonary tuberculosis can be coexistent. The main challenge is its correct and timely diagnosis.

CR40

SUBMASSIVE PULMONARY EMBOLISM CASE SERIES- A SINGLE TERTIARY CENTRE EXPERIENCE

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Submassive pulmonary embolism (sPE) poses a conundrum due to discrepancies in definition & management across guidelines. Those with severe sPE may stand to benefit more from treatment intensification. We aim to provide some insight on the safety and efficacy of interventions made for submassive PE in our tertiary centre.

We present 6 patients with acute intermediate-high risk PE and right ventricular dysfunction with raised cardiac biomarkers. All 6 patients presented with dyspnea and amongst them 2 presented with hemoptysis. The identified risk factors amongst patients were recent Covid infections, malignancy, heart failure and immobility. 2 patients had saddle PE and 4 patients had thrombus involving either side of main pulmonary trunk. Upon presentation, 4 patients required mechanical ventilations whilst the other 2 needed oxygen supplementation only.

Treatment instituted were: 2 systemic thrombolysis, 1 thrombectomy, 1 catheter-directed thrombolysis, and 2 heparin-based treatment. Both systemic thrombolysis patients had complications. 1st patient had epistaxis and impending compartment syndrome from haematoma and 2nd patient died from obstructive shock. 5 patients were successfully discharged with oral anticoagulants (2 warfarin, 3 direct oral anticoagulants).

These case series suggest that patients with moderate to severe respiratory compromise would benefit from either systemic thrombolysis or endovascular therapy, with the latter giving a lower complication rate. The ‘wait and watch’ approach with heparin-based therapy may be suitable for those requiring lower supplemental oxygen. Further larger scale studies are needed in optimising treatment for sPE particularly in the selection of systemic thrombolysis and catheter-based interventions.

CR41

RIFAMPICIN INDUCED ACUTE INTERSTITIAL NEPHRITIS. A CASE REPORT.

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Introduction:
Rifampicin is known as the drug serving as backbone in anti-tuberculosis treatment. The common side effect is hepatotoxicity. However, renal toxicity with acute interstitial nephritis in histological finding worth consider as conspicuous adverse event.

Objectives:
Our primary objective was to describe clinical presentation and rare complication of acute interstitial nephritis in patient receiving rifampicin.

Methodology:
We herein report the case of a 23-year-old prisoner admitted for abdominal pain. CT-Thorax-abdomen-pelvis showed bilateral pleural effusion with multiple lung nodules and mediastinal lymphadenopathy, mesenteric lymphadenopathy, peritoneal thickening and complex ascites. His cervical lymph node biopsy reported as reactive lymphadenitis (Unable to proceed for MTB culture due to inadequate sample and patient refused to repeat another biopsy). He was treated as disseminated tuberculosis in consistent with the physical findings and close contact with few cell mates diagnosed with smear positive pulmonary tuberculosis. After 2-weeks of Akurit-4, he developed acute kidney injury (Urea: 3.8 mg/dL->14.8 mg/dL, Creatinine: 43mg/dL->353 mg/dL, 24h urine protein: 1.75g/day). CT-urography showed no evidence of obstruction and renal biopsy demonstrated acute interstitial nephritis, normal glomerular histology, effacement of glomerular epithelial cell foot processes.

Results:
Improvement in renal function and ceasing of proteinuria achieved after discontinuation of rifampicin (with continuation of Isoniazid, Ethambutol and Levofloxacin). 3 months after renal biopsy, serum creatinine had returned to pre-treatment values and remained static up till date.

Discussion:
The outcome of Rifampicin-induced acute interstitial nephritis is favourable if early detection with discontinuation of the drug. More data required in the use of corticosteroid to demonstrate the clinical benefit in hastening the process of recovery in rifampicin induced renal toxicity patients.

CR42

TRIPLE WHAMMY (BACTERIAL, FUNGAL AND VIRAL) INFECTIONS IN A CRITICALLY ILL PATIENT WITH COVID-19 PNEUMONIA

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Introduction

In the earlier phase of Covid-19 pandemic, high dose of steroid remained the only possible treatment for those critically ill. This increases the risk of these patients being more susceptible to secondary infections. We report an unfortunate case of severe Covid-19 infection with culture and biopsy-proven polymicrobial infections.

Case report

A 55-year-old man presented with a one-day history of shortness of breath. He did not have any known comorbidities and was not vaccinated against Covid-19. Upon presentation, he had severe diabetic ketoacidosis (DKA) and was treated accordingly. His rapid test for SARS CoV-2 from a nasopharyngeal swab was positive. He was initiated on intravenous Dexamethasne due to hypoxia with chest X-ray changes showing typical Covid-19 pneumonia. Unfortunately, no other antiviral or immunomodulator was available at the time in the local setting. He continued to deteriorate with increasing oxygen requirements. The CT pulmonary angiogram (CTPA) showed no evidence of pulmonary embolism although there was severe and extensive pneumonia. His blood culture grew both Pseudomonas aeruginosa and Candida grabata for which intravenous Tazocin and Anulafungin were initiated. Bronchoscopy revealed an endobronchial lesion with histopathology study suggestive of Cytomegalovirus (CMV). Despite multiple ongoing antimicrobial therapies, he succumbed to the illness.

Discussion

The standard treatment with steroids used in Covid-19 pneumonia is a double-edge sword therapy which requires diligent monitoring for prompt treatment of secondary infections. The mortality risk is extremely high, particularly in unvaccinated patients with underlying medical conditions as illustrated in this case.

CR43

A CASE OF PULMONARY TUBERCULOSIS FOLLOWING COVID-19 PNEUMONIA

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Background
The Covid-19 pandemic has not only set back the many years of global tuberculosis prevention initiatives but it has also been associated with the risk of TB infection or reactivation, particularly in the immunocompromised state. We report a case of a diabetic patient with pulmonary tuberculosis infection in the setting of past Covid-19 pneumonia.
Case Presentation
A 78-years-old woman with a history of type 2 diabetes mellitus, hypertension and Covid-19 pneumonia category 4b eleven months prior, presented with a two-week history of cough, fever and dyspnoea. There was no loss of weight, loss of appetite or night sweats. There was also no previous history of or known exposure to TB. During the Covid-19 admission, she was on tablet favipiravir, intravenous methylprednisolone for five days and tapering doses of intravenous dexamethasone. Her CT pulmonary angiogram showed bibasal severe organising pneumonia without pulmonary embolism, tree-in-buds changes or cavitation. She required further tapering doses of prednisolone and short-term oxygen therapy upon discharge. Follow-up in our centre two months after her discharge from the hospital found that her dyspnoea had improved, but was still in borderline type I respiratory failure under room air (pO2 79mmHg). She defaulted further follow-up until the new bouts of coughs occurred. Upon arrival in the emergency department, she was in respiratory distress requiring intubation for three days. Her chest X-ray during this second admission showed new pneumonia in the left upper and middle zones which were not present during the previous admission. Her tracheal aspirate was positive for acid-fast bacilli, with the culture pending at the time of writing. She was able to tolerate the fixed-dose combined tablets for pulmonary tuberculosis treatment after the extubation.
Conclusion
In areas with high incidence of latent TB, the risk of TB infection should be considered in view of the use of high doses of steroid as the mainstay therapy in moderate to severe Covid-19 pneumonia. The link between these two infections will need to be elucidated to enable a framework for new guidelines to prevent TB infection or reactivation.

CR44

A RARE CASE OF TRACHEA LIPOMATOUS HAMARTOMA

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Benign tracheobronchial tumors are rare and often misdiagnosed. Delays in diagnosis of tracheal or endobronchial tumors commonly occur because these tumors present with nonspecific signs and symptoms and chest radiographs are often unremarkable.

Here, we present a 51 years old female lady with underlying asthma and multinodular goiter, with initial complaint of fever, cough for 6 months, loss of appetite and loss of weight for 16 kg. For the past one year, she was frequently treated for asthma exacerbation. Upon presentation, she had an episode of desaturation from 96% to 70%, with inspiratory stridor which worsened on lying down and expiratory wheeze. She was treated for acute exacerbation of asthma secondary to pneumonia. CT thorax was performed showing an ovoid hypodense lesion (HU -70 to -90, fatty density) with calcification within, seen in the trachea, about 3.1cm cranial to the bifurcation , attached to the right posterolateral wall measuring 1.1 x 1.5 x 1.5cm causing focal luminal stenosis. Endobronchially, the tracheal mass obstructed 90% of the tracheal lumen, oscillating with stalk at the base of posterior tracheal wall.

She underwent emergency tumor debulking with rigid bronchoscopy, electrocautery snare and the mass was removed with cryoprobe. Histopathology revealed lipomatous/adipose- rich hamartoma. During surveillance scope one month later, the lipomatous hamartoma has recurred. She was then referred for tracheal resection with end to end anastomosis.

Recurrence of trachea lipoma is rarely reported and in this case, within one month. In selected cases, should the endoscopic treatment fails, tracheal resection and reconstruction is preferred.

CR45

A CASE STUDY ON PROACTIVE REGULAR DOSING IN MILD-MODERATE ADULT-ONSET ASTHMA

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Introduction:
Asthma is defined by chronic airway inflammation and hypersensitivity, thus achieving asthma control relies on effective management of the underlying inflammation. There are different treatment modalities in mild to moderate asthma, which includes the proactive regular dosing (PRD) regime that addresses this concern.

Objective: To understand the effects of PRD treatment in two mild-moderate uncontrolled asthma cases with co-morbidities.

Case presentations:
Patient 1: 60-year-old female was diagnosed with asthma 5 years ago with a history of intubation. Patient was referred from primary care due to uncontrolled symptoms and was relying only on rescue inhalers. Patient was then started on ICS/Formoterol as maintenance and reliever therapy (MART). Due to persisting symptoms at 2 months of follow up despite good adherence and satisfactory inhaler technique, the patient was switched to PRD Fluticasone propionate/Salmeterol.

Patient 2: 38-year-old female presented with acute exacerbation of asthma precipitated by upper respiratory tract infection (URTI) with concomitant panic attack, leading to excessive inhaler use. Patient was started on dry powder inhaler Budesonide/Formoterol prescribed-as-needed but took 6-7 inhalations a day. The patient visited the emergency department twice within one month, with complaints of wheezing, chest tightness and palpitation. Alongside the URTI and panic management, the patient was stepped up to PRD Fluticasone propionate/Salmeterol with short-acting beta-agonist as-needed. At follow-up, patient reported improvement in symptoms with an ACT score of 25, and after psychotherapy/peer support, the patient no longer required relievers for over a year.

Conclusion: Here we present clinical findings that help us to better understand the role of PRD in asthma management and to address the underlying inflammation. Additional clinical studies are needed to further validate these outcomes.

CR46

DISSEMINATED PULMONARY AND BONE MARROW TUBERCULOSIS IN NON-HIV PATIENT MIMICKING NEUTROPENIC SEPSIS

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Abstract

Introduction: Tuberculosis, a chronic infectious disease caused by Mycobacterium tuberculosis, may invade all organs but mainly affect the lungs. We report a case of disseminated pulmonary and bone marrow tuberculosis in non-HIV patient mimicking neutropenic sepsis. Case Report: A 71-year-old man presented with prolonged cough and fever associated with loss of appetite and weight for 3 months. Clinically patient was febrile and bronchial breathing was heard over left lung. A chest radiograph and CT thorax showed lung consolidation with cavity. Sputum was positive for acid fast bacilli. Blood investigations showed leucopoenia and neutropenia. Bone marrow blood culture and aspiration assessment showed positive acid fast bacilli. Blood indices showed improvement after initiation of TB medications. Discussion: Disseminated tuberculosis, also known as widespread tuberculosis, is a contagious infection in which a tuberculosis infection has spread from the lungs to other parts of the body, with multiple organs affected. Although disseminated tuberculosis is well documented in HIV-positive patients, the disease is poorly described and less expected in HIV-negative individuals. Extra-pulmonary tuberculosis is usually associated with atypical clinical manifestations. Diagnosis is often difficult as clinical manifestations are nonspecific and because it can mimic several other disorders. Definitive diagnosis of extrapulmonary TB can be very difficult; it relies on histological and/or bacteriological findings of the tissue obtained by biopsy. Conclusion: Clinical and imaging examination combined with histopathological features, a high index of clinical suspicion and improvement with TB medications were necessary to confirm a diagnosis, especially in the cases of extrapulmonary tuberculosis.

CR47

EARLY SURGERY FOR MASSIVE THYMOMA IN A RECENTLY RECOVERED COVID-19 PATIENT: A CASE REPORT AND DISCUSSION

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Abstract

Introduction: Since the outbreak of COVID-19 pandemic, chest computed tomography (CT) has been utilised to diagnose and monitor symptomatic patients. This also lead to incidental findings which necessitate further investigations and interventions. In this case, massive thymoma which required a major thoracic surgery in a recently recovered COVID-19 patient. Case report: We discussed a case of 35-year-old gentleman who had severe COVID-19 infection with organizing pneumonia and segmental pulmonary embolism with incidental finding of massive anterior mediastinal mass on CT scan. Subsequent CT guided biopsy of the mass revealed features of thymoma. He was planned for surgery at 5-week post COVID-19 infection. Pre-operative assessment findings were; FVC 54% predicted, FEV1 56% predicted, gas transfer 67% predicted, residual ground glass changes and resolved pulmonary embolism on repeat CT scan, and normal left ventricle ejection fraction. The tumour was completely resected via medial sternotomy with no complication. Intra-operative findings and pathological staging confirmed stage I thymoma. Outpatient clinic review at 6th week post-surgery showed a full recovery. Discussion: Thymic tumours are rare incidentaloma among COVID-19 patient however it requires definite surgical intervention. When it comes to elective major surgery, physicians are increasingly having to deal with the question of when patients with a current or recent COVID-19 infection can safely undergo elective major surgery. The risks of perioperative morbidity and mortality was higher in patients with COVID-19 as well as those who recently recover. Unfortunately there is insufficient evidence and standardized criteria on which patients would require pre-operative assessments which may include spirometry, full lung function test with gas transfer, CT thorax and echocardiogram. Conclusion: Timing and pre-op assessment of post COVID-19 patients planning for a major thoracic surgery should be individualized and in this present patient, he benefited from early intervention.

CR48

THE INTERTWINE BETWEEN PLEUROPARENCHYMAL FIBROELASTOSIS AND IDIOPATHIC PULMONARY FIBROSIS

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Pleuro-parenchymal fibroelastosis (PPFE) is characterised by extensive fibrosis of the visceral pleura and the adjacent lung parenchyma, with a conspicuous upper lobe predominance. PPFE has been linked to a number of distinct interstitial lung disease, including idiopathic pulmonary fibrosis (IPF). We report 5 case series of patients presented with this unique clinical entity, a rare combination of PPFE and IPF.

All of the patients were men, with a mean age of 63.8. One patient had past history of pulmonary tuberculosis, and four patients had never smoked. They had no history of severe exposure and no autoimmune disease. Four of them exhibited a moderately restrictive ventilatory abnormality at presentation, while one had normal lung function. Their body mass index on average was 18.0. Only one patient had a video assisted thoracoscopic (VAT) lung biopsy, and the histology results showed both PPFE and typical usual interstitial pneumonia (UIP) patterns. The remaining patients' diagnoses were made based on multidisciplinary consensus and were clinical and radiological pattern congruent with PPFE and UIP. Three of them received Nintedanib, an anti-fibrotic medication, for 14, 26, and 28 months with tolerable side effects. One patient with normal lung function is being monitored, and another patient is waiting for the funding approval of the medication. One patient received home oxygen therapy in addition to palliative care. Two of them experienced pneumothorax as a result of the illness and one of them passed away.

In conclusion, based on our observations, PPFE and IPF combined disease is more frequently observed in male patients who are older than 60 with lower BMI. Patients have higher risk of developing pneumothorax.

CR49

INCIDENTAL FINDING OF PARANEOPLASTIC HYPER-EOSINOPHILIA SECONDARY TO LUNG ADENOCARCINOMA IN A COVID-19 PATIENT.

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Introduction:
Hyper-eosinophilia often associated with hematological malignancies, allergic or atopic diseases, parasitic infections, vasculitis or idiopathic eosinophilic syndrome. The manifestation of hyper-eosinophilia in lung carcinoma as paraneoplastic syndrome is extremely rare.

Objectives:
Our primary objective was to describe clinical presentation and prognosis of hyper-eosinophilia in lung adenocarcinoma patient.

Methodology:
We herein report a rare presentation hyper-eosinophilia in a 66-year-old male smoker who presented with abrupt onset of breathlessness associated with wheezing. He was initially confirmed of COVID-19 with possible asthma-copd overlap syndrome.

Results:
Laboratory investigations showed leukocytes 53.18 x10^9/L, Hb 141g/L, Hct 43%, MCV 84.5, MCHC 32.8, PLT 300, Neutrophil 38.2 x10^9/L, Monocyte 3.04 x10^9/L, Eosinophil 11.5 x10^9/L. Renal profile and liver enzymes were within normal range. Serum IgE was 17ku/L (Normal <100ku/L). Other possible etiologies such as acute or chronic infectious diseases, collagen tissue diseases and vasculitis were excluded. CT scan revealed consolidative mass at superior segment of right lower lobe measuring 5.6cm x 4.9cm with multiple lung nodules in both lungs and bilateral apical pleural thickening. Lymph node biopsy confirmed adenocarcinoma primary from lung. In spite of a wide range of therapies (inhalers and high dose systemic steroid), he desaturated further requiring invasive ventilation and succumbed to death.

Conclusions:
The hyper-eosinophilia in lung cancer might partially explained by production of IL-5, which act as activating factor for eosinophils. Smoking also contributes as it is significantly associated with elevated white blood cell count including eosinophils. In conclusion, blood eosinophils count may be used as prognostic biomarker. Idea of monitoring its level in response to immunotherapy is also noteworthy.

CR50

DISSEMINATED MYCOBACTERIUM ABSCESSUS INFECTION: A CASE REPORT

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Introduction:

Mycobacterium abscessus is a rapid-growing mycobacterium found mostly related to patients with respiratory or skin diseases. It is characterized as notoriously difficult to treat and disseminated mycobacterium abscessus tend to occur in immunocompromised patients or associated with catheter use.

Objectives:

Our primary objective was to describe clinical presentation, complications and treatment response in patient diagnosed with mycobacterium abscessus.

Methodology:

We herein report a presentation of nontuberculous mycobacterium abscessus in a 37-year-old male with underlying ESRD who suffered from prolonged fever. Blood culture revealed positive acid-fast bacilli staining and he was started on Akurit-4 (Ethambutol, Isoniazid, Rifampicin, Pyrazinamide) immediately as treatment of disseminated mycobacterium tuberculosis infection. No improvement despite 1 month of anti-TB and repeated culture showed persistent acid-fast bacilli and new onset of chest symptoms with chest x-ray changes. He was later identified as mycobacterium abscessus on repeated culture.

Results:

The patient was started on Amikacin, Azithromycin and Clofazimine. Fever subsided within 48 hours after initiation of treatment with catheter removal. Chest symptoms and bacteremia resolved later and the patient was able to discharge home. He reported to have marked improvement both clinically and radiographically on subsequent follow up.

Conclusions:

There can be other acid-fast staining organisms despite mycobacterium tuberculosis remained the commonest. For NTM, the rapid-growing non-tuberculous mycobacteria can be identified within 7 days. Thus, clinicians are advised to follow-up closely if highly suspicious of NTM for prompt initiation of treatment while waiting for drug sensitivity available.

CR51

A DIAGNOSTIC CHALLENGE FOR PATIENT WITH REFRACTORY EFFUSION AND FEVER

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Case Report:

A previously well 8-year-old girl presented with fever, cough, lethargy, poor appetite for one week and acute onset rapid breathing that required intubation. Chest radiograph showed the presence of bilateral pleural effusion. History was not suggestive of tuberculosis (TB), autoimmune disease or primary immune disorder. Examination revealed a pale cachexic girl with reduced air entry in both lungs and dullness on percussion. There was no hepatosplenomegaly or lymphadenopathy. She was extubated after 6 days of invasive ventilation, but her pleural effusion and fever did not improve despite pigtail drainage and broad-spectrum antimicrobials coverage for bacteria, fungus and TB. All her cultures were negative, and her TB, autoimmune screen was negative. She underwent a video-assisted thoracoscopic biopsy of the pleura, but the histopathology results were inconclusive. During the 5th week of admission, she developed bluish skin nodules over her chest and abdominal wall. A skin biopsy confirmed her diagnosis of anaplastic large cell lymphoma. Her skin nodules, fever and pleural effusion, resolved after the initiation of chemotherapy.

Conclusion:

Lymphoma can present as a pleural effusion. Therefore, a high index of suspicion is needed when facing a refractory pleural effusion with fever.

CR52

UNUSUAL CASE OF SLEEPINESS IN A SEVEN-YEAR-OLD BOY: A CASE REPORT

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Abstract
Introduction: Narcolepsy is an uncommon sleep cycle disorder with a usual onset in adolescence. Unfortunately, it is often missed. It is a characterized by excessive daytime sleepiness, irresistible sleep attacks and partial or complete cataplexy. Many cases of obesity and precocious puberty have been reported in narcoleptic children, suggesting that the deficiency of hypocretin in narcolepsy could affect satiety.

Case Report: We report a case of an obese 7-year-old boy who presented with the cardinal symptoms of narcolepsy: excessive daytime sleepiness, irresistible sleep, hypnagogic hallucinations and partial cataplexy. In view of his obesity, the initial diagnosis of obstructive sleep apnea (OSA) was made. Adenotonsillectomy (AT) was done, but he did not show any improvement. Repeat polysomnography showed REM onset at 4.5min with no evidence of OSA. Narcolepsy was confirmed with positive multiple sleep latency test (MSLT) and he was positive for HLA DQB106:02. Once narcolepsy was confirmed by these tests, he was started on oral methylphenidate. While there is marked improvement in his ability to concentrate in school, he still suffers from hypnogogic hallucinations and impairment his quality of life.

Conclusion: Lack of clinical awareness as well as difficulty in treating narcolepsy can adversely affect the quality of life of children and adolescents. We discuss various issues regarding the diagnosis and management of narcolepsy in children and adolescents.

Keywords: Narcolepsy, obstructive sleep apnea, polysomnography

CR53

AN UNCOMMON DIAGNOSIS OF PULMONARY HEMORRHAGE IN DOWN SYNDROME

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Abstract

Introduction: Pulmonary hemorrhage is a rare disorder among children. Down syndrome (DS) comprises 20% of children, which is usually due to diffuse alveolar hemorrhage of unknown aetiology.

Case Report: SF is a 3-year-old boy with DS. He was diagnosed with a right middle lobe congenital pulmonary airway malformation (CPAM) post-delivery and underwent a thoracoscopic lobectomy of the right middle lobe and anterior segment of right upper lobe at 3-months-old. Other co-morbidities were a patent ductus arteriosus (PDA) and atrial septal defect, obstructive sleep apnoea and oropharyngeal dysphagia with recurrent aspiration pneumonia causing post infectious bronchiectasis. Unfortunately, SF defaulted treatment during the Covid-19 pandemic. At the age of 3-years, he developed severe acute respiratory distress with pulmonary haemorrhage which was treated as a pneumonia and this resolved spontaneously. Subsequently, had 2 more episodes of massive pulmonary haemorrhage. Extensive investigations including two Computer Tomography Pulmonary Angiogram failed to detect the cause. Bronchoscopy found focal bleeding from the right middle lobe (B4,5) and right upper lobe (B2). He underwent cardiac catheterisation which found fragile aberrant collaterals (aorta-pulmonary) coming from the descending aorta, supplying the right middle lobe, where the previous CPAM resection was. Coil embolization of the collaterals and PDA closure was performed. This successfully stopped the bleeding. SF has had no recurrence over the past 6 months.

Conclusion: Pulmonary hemorrhage secondary to aberrant aorta-pulmonary malformation is rare and difficult to diagnose. Cardiac catheterization is the best mode to detect these aberrant vessels.

CR54

NOT EVERYTHING IS AS IS SEEMS ……..

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Introduction:

Wheezing is a common presentation for any conditions that causes airway narrowing. Common paediatric diseases associated with wheezing includes asthma, lung infections (bronchiolitis), foreign body inhalation or anaphylaxis.

Result:

We report a 7 months old boy who presented with rapid breathing and lethargy for one day. He was mildly tachypnoeic with respiratory rate of 44 breaths/min and saturation of 97% on room air. Respiratory examination revealed generalized rhonchi with bilateral crepitation. He was treated for acute bronchiolitis. He had persistent wheezing which was not responsive to bronchodilators and was eventually intubated. Chest x-ray showed trachea deviation toward the right with no obvious mass, air leak or collapse. Echocardiogram did not demonstrate vascular ring. CT Neck and Thorax revealed a superior mediastinal cystic mass involving the posterior compartment causing severe luminal narrowing of the trachea. He underwent right thoracotomy and cyst excision. The cyst was confirmed pathologically to be a bronchogenic cyst. Subsequently, he recovered well with no residual respiratory symptoms.

Conclusion:

This report highlights one of the rare causes of wheezing in children. It emphasizes the importance of considering other differential diagnoses in children presenting with persistent wheezing symptoms. It is essential for early detection and management to avoid unnecessary treatment and complications.

CR55

BLOWN-UP LUNG IN A PREMIE: A RARE CASE OF CONGENITAL LOBAR OVERINFLATION WITH BRONCHOPULMONARY DYSPLASIA

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Introduction:
Congenital lobar overinflation (CLO), also known as congenital lobar emphysema (CLE) is a rare congenital disease with overinflation of one or more pulmonary lobes, usually involving the left upper lobe, followed by right upper and middle lobes. Incidence of CLO is 1 in 20,000 to 30,000 live births. However there are only a few cases of CLO reported in premature infants with bronchopulmonary dysplasia (BPD).

Case report:
We report a 6-month-old boy, born prematurely at 28 weeks' gestation, with birth weight of 1020 grams. He had severe respiratory distress syndrome, requiring two doses of surfactant. He had a stormy course and remained mechanically ventilated despite a course of postnatal corticosteroids at Day 24, and was diagnosed with severe BPD. He also had haemodynamically significant patent ductus arteriosus, requiring anti-failures and two courses of ibuprofen, His serial chest radiographs showed worsening and enlarging right middle lobe overinflation, left mediastinal shift and left lung collapse. His contrast enhanced computed tomography of the thorax showed right middle lobe CLO with bilateral lung collapse. He underwent right middle lobectomy at 4-months-old. Histopathological report confirmed the diagnosis of CLE. Post-operatively, he improved remarkably and was successfully extubated 8 days post-operatively, to non-invasive-ventilation for 8 days, and nasal prong oxygen for 15 days. He had good weight gain, tolerating feeding and had baseline recessions. He was discharged home at 5.5-months-old in room air.

Conclusion:
As there are few cases of extremely premature infants with BPD and CLO reported, the diagnosis and timely management of CLO with surgery may be delayed. Worsening overinflation of the lung on serial radiographs in these patients should raise the suspicion of possible CLO.

CR56

BRONCHOGENIC CYST INFECTED WITH ASPERGILLUS: A NINE-YEAR MYSTERY RESOLVED

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Introduction

We present a case of a boy who was followed up from neonatal period to the current age of 9 years old with different respiratory issues, but all could possibly be explained by a recently diagnosed bronchogenic cyst infected with Aspergillus fumigatus.

Case Description

This boy was first referred in the neonatal period for a persistent right middle lobe collapse on chest radiograph. He was investigated with bronchoscopy and CT thorax, and a right middle lobe stenosis was suspected. The radiographic abnormality resolved at 7 months old, and the initial suspicion was considered resolved. From 1 year old onwards, he was troubled with a difficult-to-control asthma, requiring controller therapy with ICS-LABA and LTRA. At age 9 years old, there was an incidental finding of a persistent right perihilar round shaped opacity on chest x-ray. He was again investigated with bronchoscopy and CT thorax, the main finding being a right perihilar mass causing significant compression to the right middle lobe bronchus. He underwent a right thoracotomy and the intra-operative finding was a right middle lobe cyst near the hilum filled with pus. The pus culture yielded Aspergillus fumigatus. Histopathology examination was consistent with bronchogenic cyst, no fungal body. The child was treated with a 6-week course of Voriconazole. At 3 months post-op, the child has no respiratory complaint.

Conclusion

The presentation of bronchogenic cyst is variable. In this case, we postulate that diagnosis may had been difficult in infancy due to its small size at the time, and only became apparent as the cyst grew over time and later superimposed with fungal infection.