Programme & Abstract Book

Organised by:

MALAYSIAN THORACIC SOCIETY

ANNUAL CONGRESS 2021

2ND – 5TH DECEMBER 2021

ONE WORLD HOTEL

MTS 2021 Congress Secretariat:
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WELCOME ADDRESS FROM PRESIDENT OF MALAYSIAN THORACIC SOCIETY

The world was stunned by the emergence of a novel virus, termed the SARS-CoV-2, at the end of 2019. It spread like wildfire in 2020 and has continued to devastate global citizens well into 2021.

Many human activities, including social and scientific meetings, have been significantly curtailed due to the requirement to avoid close contact. Although we eventually circumvented the limitations by taking these meetings online, we, as human beings, still yearned to meet each other face-to-face. This inner desire perhaps is deeply ingrained in our genes through millions of years of evolution.

Luckily for us, the COVID-19 pandemic appears to be easing towards the end of 2021! I believe many of us just can't wait any longer to live a life according to the previous norms. Acknowledging this preference, we have committed to organising a physical congress this year.

One important lesson learned from this pandemic is that the freedom to move around without restriction is something we should not take for granted and should cherish. In this regard, it reflects the crucial role played by efficient public health surveillance in preventing transmissible diseases. History has revealed that despite advances in modern medicine, many respiratory infections, e.g. tuberculosis, influenza, pneumonia etc., still defy human efforts to control or eliminate them.

Not everything is negative with the pandemic - there is at least one bright spot. We know digital technologies have become integral to modern life. However, their adoption in healthcare was slow in the pre-pandemic period. The outbreak has had a magical way of accelerating the adoption and innovations. During this interval, telemedicine, virtual meetings, webinar and e-learning have become the terms that are too familiar to us.

I believe this trend will not backtrack in the post-pandemic era. Instead, it will be enhanced, albeit with some modifications. The embracement of digital technologies will provide additional avenues for us to drive our Society's course. Through them, we will reach out to a wider audience and present them with richer and more interactive content.

Last but not least, I must express my gratitude to the Organising Committee, who have been working extra hard to ensure we have a highly educational and yet safe meeting as we continue to battle the virus in the background.

I hope you will enjoy the scientific as well as the social programme.

With warmest regards,

Associate Professor Dr Pang Yong Kek
President
Malaysian Thoracic Society

WELCOME ADDRESS FROM ORGANISING CHAIRMAN

Welcome to the Malaysian Thoracic Society Annual Congress 2021 (MTS 2021)! It is a great pleasure for me to welcome friends and colleagues to this year's annual congress from 2nd till 5th December 2021.

2020 was a difficult year. COVID-19 has transformed healthcare in various ways. Despite the COVID-19 pandemic, there have been many new developments and advances in the field of Respiratory Medicine. Therefore, our scientific committee has put together a remarkably programme to keep us up to date on the latest advances in Respiratory Medicine. With this, we hope that all delegates, including medical officers, general practitioners, and allied health professionals, will benefit from the programme.

Our programme will cover key topics in Respiratory Medicine, including Chronic Obstructive Pulmonary Disease, Bronchial Asthma, Pulmonary Infections (with special focus on COVID-19 and long COVID), Lung Cancer, Tuberculosis, Sleep Disordered Breathing, Interstitial Lung Disease and Pulmonary Vascular Disease. We have also included special symposia on Primary Care and Beyond the Lungs that would discuss on topics such as approach to chronic cough, management of allergic rhinitis and metabolic syndrome in patients with lung diseases. Our panel of international and local experts will also present the latest updates in scientific research and discussed on the latest hot topic of COVID-19. Besides that, we will have an interactive Multi-disciplinary case discussion on post-COVID care as well as an interesting debate on the current hot topic of COVID-19 vaccination. All delegates are encouraged to submit abstracts to MTS 2021 and participate in the Oral and Poster presentation sessions. The Best Oral/Poster presenters will be awarded during the exciting Congress Dinner on 4th December 2021.

I believe that MTS 2021 will provide ample opportunities to delegates to interact and network for future collaboration while updating themselves on the latest advances in Respiratory Medicine.

Once again, on the behalf of the MTS Executive Committee and Congress Organising Committee, I welcome you to our Malaysian Thoracic Society Annual Congress 2021 (MTS 2021). Looking forward to meeting all of you in person in December 2021!

Dr Tan Jiunn Liang
Organising Chairman, MTS 2021

PROGRAMME SUMMARY

* Subject to changes

Day 1: Thursday, 2nd December 2021	
Time	**Programme**
	CONGRESS WORKSHOP (Includes Lunch)
0830 - 1215	**Workshop 1**
	Pleural Disease
0830 - 1215	**Workshop 2**
	Sleep Scoring & Remote Monitoring
0800 - 1215	**Workshop 3**
	Home Respiratory Care in Children
1215 - 1300	**LUNCH SYMPOSIUM (ResMed Malaysia)**
1300 - 1400	**LUNCH**
1430 - 1700	**Workshop 1**
	Pleural Disease
1430 - 1730	**Workshop 2**
	Sleep Scoring & Remote Monitoring
1430 - 1720	**Workshop 3**
	Home Respiratory Care in Children
1800 – 1845	**SPONSORED SYMPOSIUM 1A (Sanofi Genzyme)**
1845 - 1935	**SPONSORED SYMPOSIUM 1B (Bayer)**

Day 2: Friday, 3rd December 2021	
Time	**Programme**
0700 – 0800	**REGISTRATION**
0800 – 0810	**WELCOME ADDRESS**
0810 – 0850	**PLENARY 1**
0850 – 1005	**SYMPOSIUM 1**
	S1A – Severe Asthma
	S1B – COPD
	S1C – Inherited Suppurative Lung Diseases
1005 – 1035	**COFFEE BREAK**
1035 – 1150	**SYMPOSIUM 2**
	S2A – TB
	S2B – M&M session (Mix and Match)
	S2C – Respiratory Manifestations in Immunocompromised Children
1150 – 1240	**SPONSORED SYMPOSIUM 2 (Pfizer (M) Sdn Bhd)**
1240 – 1430	**LUNCH AND FRIDAY PRAYERS**
1430 – 1600	**SYMPOSIUM 3**
	S3A – Interventional Pulmonology
	S3B – Beyond the Lungs
	S3C – Sleep Disordered Breathing: What's New?
1600 – 1650	**SPONSORED SYMPOSIUM 3A (AstraZeneca)**
	SPONSORED SYMPOSIUM 3B (Boehringer Ingelheim)
1650 - 1845	**MTS ANNUAL GENERAL MEETING & COFFEE BREAK**
1845 - 1935	**SPONSORED SYMPOSIUM 4A (Orient EuroPharma)**
	SPONSORED SYMPOSIUM 4B (GlaxoSmithKline)
1935 - 2200	**DINNER**

Day 3: Saturday, 4th December 2021	
Time	**Programme**
0800 – 0840	**PLENARY 2**
0840 – 1010	**SYMPOSIUM 4**
	S4A – Progressive Fibrosing ILD
	S4B – Lung Cancer
	S4C – An Update on Paediatric Asthma
1010 – 1040	**COFFEE BREAK**
1040 – 1210	**SYMPOSIUM 5**
	S5A – Sleep Disordered Breathing
	S5B – Pleural Disease
	S5C – Neonatal Lung Disease
1210 – 1300	**SPONSORED SYMPOSIUM 5 (Boehringer Ingelheim (Malaysia) Sdn Bhd)**
1300 – 1400	**LUNCH**
1400 - 1500	**SYMPOSIUM 6**
	S6A – Primary Care
1400 - 1500	**POSTER PRESENTATION – Poster Display**
	ORAL PRESENTATION
1500 – 1550	**SPONSORED SYMPOSIUM 6 (GlaxoSmithKline)**
1550 – 1640	**SPONSORED SYMPOSIUM 7A (Novartis)**
	SPONSORED SYMPOSIUM 7B (Merck Sharp & Dohme)
1640 – 1710	**COFFEE BREAK**
1930 – 2230	**GALA DINNER**

Day 4: Sunday, 5th December 2021

Time	Programme
0800 – 0840	**PLENARY 3**
0840 – 1010	**SYMPOSIUM 7**
	S7A – COVID-19: My Experiences
	S7B – COVID-19 in Children
1010 – 1040	**COFFEE BREAK**
1040 – 1130	**SPONSORED SYMPOSIUM 8 (Sanofi Pasteur)**
1130 – 1230	**SYMPOSIUM 8**
	S8A - Multi-Disciplinary Case Discussion Adult Case - Post COVID-19 Care **S8B - Multi-Disciplinary Case Discussion** Combined Case – Non COVID-19 Case **S8C- Multi-Disciplinary Case Discussion** Paediatric Case
1230 – 1315	**Debate –** Tackling the Next Pandemics - Public Health Measures vs. Vaccination
1315 – 1330	**CLOSING CEREMONY**
1330 – 1430	**LUNCH**

CONGRESS WORKSHOP

PLEURAL DISEASE

Thursday, 2nd December 2021

Chairpersons: Muhammad Redzwan S Rashid Ali & Mohamed Faisal Abdul Hamid/Ng Boon Hau

TIME	TOPIC	SPEAKER	VENUE
0800 – 0830	**REGISTRATION**		JUNIOR BALLROOM FOYER, LEVEL C
0830 - 0900	Anatomy and physiology and fluid diagnostics	*Ummi Nadira Daut, Malaysia*	CYPRESS ROOM LEVEL C
0900 – 0930	Advance pleural procedure - pleuroscopy	*Mohamed Faisal Abdul Hamid, Malaysia*	
0930 - 1000	Practical aspects of pneumothorax	*Arvindran Alaga, Malaysia*	
1000 – 1030	**COFFEE BREAK**		JUNIOR BALLROOM FOYER, LEVEL C
1030 - 1100	Practical aspects of malignant pleural effusion	*Muhammad Redzwan S Rashid Ali, Malaysia*	CYPRESS ROOM LEVEL C
1100 – 1130	Pleural infection	*Mohd Arif Mohd Zim, Malaysia*	
1130 – 1215	Physics, fundamentals & sonoanatomy of thorax	*Zuhanis Abdul Hamid, Malaysia*	
1215 - 1300	**LUNCH SYMPOSIUM** *Company:* ResMed Malaysia *Chairperson:* *Soo Chun Ian, Malaysia* *Speaker:* *Yong Mei Ching, Malaysia* Topic: Connecting Your Patient from Hospital to Home		CYPRESS ROOM LEVEL C
1300 - 1430	**LUNCH**		JUNIOR BALLROOM FOYER, LEVEL C
1430 - 1700	**HANDS-ON WORKSHOP**		
	Station 1: Lung ultrasound - normal patient	*Zuhanis Abdul Hamid, Malaysia*	MAPLE AND CYPRESS ROOM LEVEL C
	Station 2: Indwelling pleural catheter and seldinger chest drains	*Muhammad Redzwan S Rashid Ali, Malaysia*	
	Station 3: Indwelling pleural catheter, pneumostat and chest drains	*Mohd Arif Mohd Zim, Malaysia*	
	Station 4: Lung ultrasound - abnormal patient	*Hilmi Lockman, Malaysia*	
	Station 5: Ambulatory pneumothorax treatment	*Arvindran Alaga, Malaysia*	

CONGRESS WORKSHOP

SLEEP SCORING & REMOTE MONITORING

Thursday, 2nd December 2021

Chairpersons: Rozanah Abd Rahman & Rashidah Yasin

TIME	TOPIC	SPEAKER	VENUE
0800 – 0830	**REGISTRATION**		JUNIOR BALLROOM FOYER, LEVEL C
0830 - 0900	How to diagnose central sleep apnea (CSA)	*Rozanah Abd Rahman, Malaysia*	TULIP ROOM LEVEL C
0900 – 0930	Overview of CSA treatment	*Muventhiran A/L Ruthranesan, Malaysia*	
0930 - 1000	Obesity Hypoventilation Syndrome	*Naricha Chiralkawasan, Thailand*	
1000 – 1030	**COFFEE BREAK**		JUNIOR BALLROOM FOYER, LEVEL C
1030 - 1100	Remote Monitoring: New technologies in monitoring and interpreting virtual sleep studies	*Nurul Yaqeen Mohd Esa, Malaysia*	TULIP ROOM LEVEL C
1100 – 1130	Indications for home sleep test and reliability of new tools	*Megat Razeem bin Abdul Razak, Malaysia*	
1130 – 1215	Out of center sleep testing: Challenges and advances	*Lalitha Pereirasamy, Malaysia*	
1215 - 1300	**LUNCH SYMPOSIUM** *Company:* ResMed Malaysia *Chairperson:* *Soo Chun Ian, Malaysia* *Speaker:* *Yong Mei Ching, Malaysia* Topic: Connecting Your Patient from Hospital to Home		TULIP ROOM LEVEL C
1300 - 1430	**LUNCH**		JUNIOR BALLROOM FOYER, LEVEL C
1430 - 1530	Sleep scoring and hook-up of PSG	*Tripat Deep Singh, Singapore*	TULIP ROOM LEVEL C
1530 - 1630	Interpretation of PSG	*Tripat Deep Singh, Singapore*	
1630 - 1730	CPAP and BiPAP titration	*Amanda Piper, Australia*	

CONGRESS WORKSHOP

HOME RESPIRATORY CARE IN CHILDREN

Thursday, 2nd December 2021

Chairpersons: Dg Zuraini Sahadan, Mariana Daud & Su Siew Choo

TIME	TOPIC	SPEAKER	VENUE
0800 – 0830	**REGISTRATION**		JUNIOR BALLROOM FOYER, LEVEL C
0830 - 0900	Overview of home respiratory care in Malaysia	*Dg Zuraini Sahadan, Malaysia*	MAPLE ROOM LEVEL C
0900 – 0930	Assessment of patients on home respiratory care	*Hafizah Zainuddin, Malaysia*	
0930 - 1000	Home oxygen therapy in children	*Shangari Kunaseelan, Malaysia*	
1000 – 1030	**COFFEE BREAK**		JUNIOR BALLROOM FOYER, LEVEL C
1030 - 1055	Non-invasive respiratory support in OSA	*Hasniah Abdul Latif, Malaysia*	MAPLE ROOM LEVEL C
1055 – 1120	Non-invasive respiratory support in Neuromuscular disorders	*Aroonwan Preutthipan, Thailand*	
1120 – 1145	Non-invasive respiratory support in end-stage lung diseases	*Nicholas Chang Lee Wen, Malaysia*	
1145 - 1215	Acute conditions in patients on home respiratory support	*Anis Siham, Malaysia*	
1215 - 1300	**LUNCH SYMPOSIUM** *Company:* ResMed Malaysia *Chairperson:* *Soo Chun Ian, Malaysia* *Speaker:* *Yong Mei Ching, Malaysia* Topic: Connecting Your Patient from Hospital to Home		MAPLE ROOM LEVEL C
1300 - 1430	**LUNCH**		JUNIOR BALLROOM FOYER, LEVEL C
1430 - 1720	**HANDS-ON WORKSHOP**		
	Station 1: CPAP	*Shangari Kunaseelan/Dg Zuraini Sahadan, Malaysia*	JASMINE & ORCHID ROOM, LEVEL C
	Station 2: BiPAP	*Hafizah Zainuddin/ Hasniah Abdul Latif, Malaysia*	
	Station 3: Invasive ventilation	*Nicholas Chang Lee Wen/Anis Siham, Malaysia*	
	Station 4: Home oxygen	*Noor Ain Noor Affendi/N. Fafwati Faridatul Akmar Mohammad, Malaysia*	
	Station 5: Cough assist	*Su Siew Choo/ Mariana Daud, Malaysia*	

DAILY PROGRAMME

2nd December 2021, Thursday		
1800 - 1845	**SPONSORED SYMPOSIUM 1A (SS1A)** *Company: Sanofi Genzyme* *Chairperson*: *Helmy Haja Mydin, Malaysia* *Speaker: Ian Pavord, United Kingdom* *Topic*: Type 2 Inflammation in Asthma & Evolution of Treatment	MAPLE JUNIOR BALLROOM, LEVEL C
1845 - 1935	**SPONSORED SYMPOSIUM 1B (SS1B)** *Company: Bayer* *Chairperson*: *Hilmi Lockman, Malaysia* *Speaker: Wang-Huei Sheng, Taiwan* *Topic*: Patient Outcomes In CAP/AECB Management Using Fluoroquinolones: Clinical Case Sharing	MAPLE JUNIOR BALLROOM, LEVEL C

DAILY PROGRAMME		
3rd December 2021, Friday		
0800 – 0810	**WELCOME ADDRESS** • Pang Yong Kek, Malaysia *President, Malaysian Thoracic Society*	RUBY BALLROOM LEVEL G
0810 – 0850	**PLENARY 1 (P1)** *Chairpersons: Ahmad Izuanuddin Ismail* Disaster Management in Respiratory Pandemics *Mohd Arshil Moideen, Malaysia*	RUBY BALLROOM LEVEL G
0850 – 1005	**SYMPOSIUM 1 (S1)**	
	S1A – *Severe Asthma* *Chairpersons: Helmy Haja Mydin/Andrea Ban Yu-Lin* 1. Targeting Comorbidities in Severe Asthma *Mohammed Fauzi Abdul Rani, Malaysia* 2. Triple Therapy in Asthma: New Kid on the Block *Mat Zuki Mat Jaeb, Malaysia* 3. Biologics in Asthma: 2021 Updates *Stephanie Korn, Germany*	RUBY BALLROOM LEVEL G
	S1B – *COPD* *Chairpersons: Pang Yong Kek/Tengku Saifudin Tengku Ismail* 1. Telemedicine in COPD management - What's Available and What the Future Hold *Pang Yong Kek, Malaysia* 2. Initial Therapy for GOLD B *Hilmi Lockman, Malaysia* 3. 3-in 1 is Not Always Bad for you... *Antonio Anzueto, USA*	TOPAZ BALLROOM LEVEL G
	S1C – *Inherited Suppurative Lung Diseases* *Chairperson: Asiah Kassim/ Patrick Chan Wai Kiong* 1. Cystic Fibriosis, An Often Missed Diagnosis: How and When to Suspect? *N. Fafwati Faridatul Akmar Mohammad, Malaysia* 2. Respiratory Management of Cystic Fibrosis – What's Available in Our Local Setting? *Anna Marie Nathan, Malaysia* 3. An Update on Primary Ciliary Dyskinesia *Alison Ting, Malaysia*	CITRINE BALLROOM LEVEL G
1005 - 1035	**COFFEE BREAK**	IMPERIAL BALLROOM FOYER, LEVEL G
1035 – 1150	**SYMPOSIUM 2 (S2)**	
	S2A – *TB* *Chairpersons: Mat Zuki Mat Jaeb/ Azlina Samsudin* 1. Latent TB Treatment – New Updates *Zamzurina Abu Bakar, Malaysia* 2. TB among Health Care Workers – Is it A Real Problem? *Priya A/P Ragunath, Malaysia* 3. Current WHO MDR TB Regimen- Where do We Stand? *Khairul Taufiq Rosli, Malaysia*	RUBY BALLROOM LEVEL G
	S2B – *M&M session (Mix and Match)* *Chairpersons: Azza Omar/Tan Jiunn Liang* 1. Tracheostomy Care for Respi Physicians *Nor Eyzawiyah Hassan, Malaysia* 2. Ventilator Settings in COVID ARDS *Noor Hashida@ Juita Hassan, Malaysia* 3. Advanced Directive and End of Life Care *Richard Lim Boon Leong, Malaysia*	TOPAZ BALLROOM LEVEL G
	S2C – *Respiratory Manifestations in Immunocompromised Children* *Chairpersons: N. Fafwati Faridatul Akmar Mohammad/Hafizah Zainudin* 1. Primary Immunodeficiency Disease – The Importance of Early Diagnosis *Intan Hakimah Ismail, Malaysia* 2. Invasive Fungal Disease in Children *Thahira A. Jamal Mohamed, Malaysia* 3. Chronic Respiratory Manifestations of Immunocompromised Children	CITRINE BALLROOM LEVEL G

	Noor Ain Noor Affendi, Malaysia	
1150 – 1240	**SPONSORED SYMPOSIUM 2 (SS2)** *Company:* Pfizer (M) Sdn Bhd *Chairperson: Hilmi Lockman, Malaysia* *Speaker: Jan J. De Waele, Belgium* *Topic*: Exploring the Role of Ceftadizime-avibactam in the Management of Multi-drug Resistant Gram-negative Bacterial Infections in HAP/VAP	RUBY BALLROOM LEVEL G
1240 – 1430	**LUNCH AND FRIDAY PRAYERS**	IMPERIAL BALLROOM FOYER, LEVEL G
1430 – 1600	**SYMPOSIUM 3 (S3)**	
	S3A – *Interventional Pulmonology* *Chairpersons: Razul Md Nazri Md Kassim/K. Kannan Sivaraman Kannan* 1. Transbronchial Lung Biopsy for Peripheral Lung Lesions - Recent Advancement in Bronchoscopic Approach *Yuji Matsumoto, Japan* 2. Interventional Procedures for Asthma and COPD: What a Bronchoscopist can Offer *Rosmadi Ismail, Malaysia* 3. Recent Development of Transbronchial Lung Cryobiopsy for Diffuse Parenchymal Lung Disease *Venerino Poletti, Italy*	RUBY BALLROOM LEVEL G
	S3B – *Beyond the Lungs* *Chairpersons: Fauzi Mohd Anshar/Nabilah Salman Parasi@Sulaiman* 1. Understanding Breathing Dysfunction in Allergic Rhinitis *Jeevanan Jahendran, Malaysia* 2. Metabolic Syndrome *Norlaila Mustafa, Malaysia* 3. Heart Failure *Azmee Mohd Ghazi, Malaysia*	TOPAZ BALLROOM LEVEL G
	S3C – *Sleep Disordered Breathing in Children: What's New?* *Chairpersons: Alison Ting Yih Hua/Dg Zuraini Sahadan* 1. Coping with Residual Childhood OSA after Adenotonsillectomy *Aroonwan Preutthipan, Thailand* 2. Update on SMA Type 1 Therapies *Elizabeth Wraige, United Kingdom* 3. Respiratory Support in SMA Type 1: A Change in Paradigm? *Noor Zehan Abdul Rahim, United Kingdom*	CITRINE BALLROOM LEVEL G
1600 - 1650	**SPONSORED SYMPOSIUM 3A** *Company:* AstraZeneca *Chairperson: Liam Chong Kin, Malaysia* *Speaker: Ho Gwo Fuang, Malaysia* *Topic*: Durvalumab: Long-term Outcomes in Stage III Unresectable NSCLC and ES-SCLC with Real World Experience Sharing *Chairperson: Lalitha Pereirasamy, Malaysia* *Speaker: Mat Zuki Mat Jaeb, Malaysia* *Topic:* The Role of Benralizumab in Severe Asthma Management: Updated Clinical Data & Real-life Case	TOPAZ BALLROOM LEVEL G
	SPONOSRED SYMPOSIUM 3B *Company:* Boehringer Ingelheim *Chairperson: Syazatul Syakirin Sirol Aflah, Malaysia* *Speaker: Noorul Afidza Muhammad, Malaysia* Topic: Changing Disease Progression of Interstitial Lung Disease: Now and Next	RUBY BALLROOM LEVEL G
1650 - 1845	**MTS ANNUAL GENERAL MEETING & COFFEE BREAK**	CITRINE BALLROOM LEVEL G
1845 - 1935	**SPONSORED SYMPOSIUM 4A** *Company:* Orient EuroPharma *Chairperson: Fauzi Md Anshar, Malaysia* *Speaker: Mohd Arif Mohd Zim, Malaysia* *Topic*: COPD in Malaysia	TOPAZ BALLROOM LEVEL G

	Speaker: *Diana Yeh Yu Wung Yeh, Taiwan* *Topic*: The Novel, Fixed Extra-Fine Triple Combination for COPD: Real World Evidence from Taiwan	
	SPONSORED SYMPOSIUM 4B *Company:* GlaxoSmithKline *Chairperson:* *Pang Yong Kek, Malaysia* *Speaker:* *Norbert Berend, Australia* *Topic*: Personalising Treatment and Predicting Response: Exploring Targeted Treatment for Patients with Severe Asthma	RUBY BALLROOM LEVEL G
1935 - 2200	**DINNER**	
	SPONSORED SYMPOSIUM 4A (Orient EuroPharma)	MAPLE JUNIOR BALLROOM, LEVEL C
	SPONSORED SYMPOSIUM 4B (GlaxoSmithKline)	JASMINE JUNIOR BALLROOM, LEVEL C

DAILY PROGRAMME		
4th December 2021, Saturday		
0800 – 0840	**PLENARY 2 (P2)** *Chairperson: Rus Anida Awang* Critical Care Experience Caring for Paediatric Patients with COVID-19 in Paediatric Intensive Care Unit *Thianchai Bunnalai & Christopher Prince, USA*	RUBY BALLROOM LEVEL G
0840 – 1010	**SYMPOSIUM 4 (S4)**	
	S4A – Progressive Fibrosing ILD *Chairpersons: Syazatul Syakirin Sirol Aflah/Kho Sze Shyang* 1. ILD – Associated with Pulmonary Hypertension - Diagnosis and Treatment Challenges *Steven Nathan, USA* 2. Lung Imaging as a Tool to Connect the Clinical and Histology in ILD *Seth Kligerman, USA* 3. PF-ILD: A Challenging Phenotype with New Perspectives and Improvised Therapeutic Landscape *Kevin Flaherty, USA*	RUBY BALLROOM LEVEL G
	S4B – *Lung Cancer* *Chairpersons: How Soon Hin/Nurhayati Mohd Marzuki* 1. Emerging Biomarkers in NSCLC: Which Patients should we Test? Which Biomarkers? *Liam Chong Kin, Malaysia* 2. Approaches in Staging of NSCLC: Important Tips *James Ho Chung-man, Hong Kong* 3. How to Overcome Financial Toxicity of Lung Cancer Treatment? *How Soon Hin, Malaysia*	TOPAZ BALLROOM LEVEL G
	S4C – *An Update on Paediatric Asthma* *Chairpersons: Jessie Anne de Bruyne/Eg Kah Peng* 1. Asthma Phenotypes and Endotypes: What are Their Clinical Implications? *Peter Le Souëf, Australia* 2. Personalised Treatment in Severe Asthma: Role of Biologics *Mariana Daud, Malaysia* 3. Intermittent ICS in Mild Asthma? *Patrick Chan Wai Kiong, Malaysia* 4. New Inhaler Options in Asthma *Rus Anida Awang, Malaysia*	CITRINE BALLROOM LEVEL G
1010 - 1040	**COFFEE BREAK**	IMPERIAL BALLROOM FOYER, LEVEL G
1040 – 1210	**SYMPOSIUM 5 (S5)**	
	S5A – *Sleep Disordered Breathing* *Chairperson: Lalitha Pereirasamy/Yong Mei Ching*	RUBY BALLROOM LEVEL G

	1. The Future of Telemedicine in Diagnosing and Treatment of Sleep Disorder *Ahmad Izuanuddin Ismail, Malaysia* *2.* Obesity, Sleep Apnea and COVID-19: Relationship, Risk and Therapeutic Implications *Naricha Chirakalwasan, Thailand* 3. Sleep Apnea and the Risk of Neurodegeneration *Hamdi Najman Achok, Malaysia*	
	S5B – Pleural Disease *Chairpersons: Muhammad Redzwan S. Rashid Ali/Ng Boon Hau* *1.* Management of Persistent Air Leak in Pneumothorax *Rajesh Thomas, Australia* 2. Pleura and Systemic Diseases *Anantham Devanand, Singapore* 3. Updates on MPE *Najib M Rahman, United Kingdom*	TOPAZ BALLROOM LEVEL G
	S5C – *Neonatal Lung Disease* *Chairpersons: Anna Marie Nathan/Su Siew Choo* 1. Neonatal Presentation of chILD *Asiah Kassim, Malaysia* 2. BPD: Long Term Respiratory Outcome *Jessie Anne de Bruyne, Malaysia* 3. Congenital Lung Malformation *Andrew Bush, United Kingdom*	CITRINE BALLROOM LEVEL G
1210 - 1300	**SPONSORED SYMPOSIUM 5 (SS5)** *Company:* Boehringer Ingelheim (Malaysia) Sdn Bhd *Chairperson: Abdul Razak Abdul Muttalif, Malaysia* *Speaker: Andrea Ban Yu-Lin, Malaysia* *Topic*: When Two is Better Than One	RUBY BALLROOM LEVEL G
1300 - 1400	**LUNCH**	IMPERIAL BALLROOM FOYER, LEVEL G
1400 - 1500	**SYMPOSIUM 6 (S6)**	
	S6A – Primary Care *Chairpersons: Abdul Razak Abdul Muttalif/Azza Omar* 1. Inhalers and Nebulisers during Respiratory Pandemics *Tan Jiunn Liang, Malaysia* 2. Long COVID *Muhammad Amin Ibrahim, Malaysia*	RUBY BALLROOM LEVEL G
	POSTER PRESENTATION ***Judges (Adult Programme)*** *Ahmad Izuanuddin Ismail, Malaysia* *Tengku Saifudin Tengku Ismail, Malaysia* *Umadevi A Muthukumaru, Malaysia* *Ummi Nadira Daut, Malaysia* ***Judges (Paediatric Programme)*** *Patrick Chan Wai Kiong, Malaysia* *Anna Marie Nathan, Malaysia*	POSTER DISPLAY
	ORAL PRESENTATION ***Judges (Adult Programme)*** *Zainudin Md Zin, Malaysia* *Aziah Ahmad Mahayiddin, Malaysia* ***Judges (Paediatric Programme)*** *Azizi Omar, Malaysia* *Norzila Mohamed Zainuddin, Malaysia*	TOPAZ BALLROOM LEVEL G
1500 - 1550	**SPONSORED SYMPOSIUM 6 (SS6)** *Company: GlaxoSmithKline* *Chairperson: Fauzi Mohd Anshar, Malaysia* *Speaker: Emillio Pizzichini, Brazil* Topic: One for All or Tailored Treatment Approach?	RUBY BALLROOM LEVEL G

1550 - 1640	**SPONSORED SYMPOSIUM 7A (SS7A)** *Company: Novartis* *Chairperson: Pang Yong Kek, Malaysia* *Speaker: Helmy Haja Mydin, Malaysia* *Kai Michael Beeh, Germany* *Jaya Muneswarao A/L Ramadoo, Malaysia* Topic: Unlocking the Potential of New Inhaled Asthma Care	TOPAZ BALLROOM LEVEL G
	SPONSORED SYMPOSIUM 7B (SS7B) *Company: Merck Sharp & Dohme* *Chairperson: How Soon Hin, Malaysia* *Speaker: Shih Jin-Yuan, Taiwan* Topic: The State of Immunotherapy in Non-Small Cell Lung Carcinoma in 2021	CITRINE BALLROOM LEVEL G
1640 - 1710	**COFFEE BREAK**	IMPERIAL BALLROOM FOYER, LEVEL G
1930 - 1030	**GALA DINNER**	RUBY BALLROOM LEVEL G
DAILY PROGRAMME		
5th December 2021, Sunday		
0800 - 0840	**PLENARY 3 (P3)** *Chairperson: Ahmad Izuanuddin Ismail* COVID-19, 2years on – What More do we Know *Adeeba Kamarulzaman, Malaysia*	RUBY BALLROOM LEVEL G
0840 - 1010	**SYMPOISUM 7 (S7)**	
	S7A – COVID-19: My Experience *Chairpersons: Mohd Arif Mohd Zim/Andrea Ban Yu-Lin* 1. Special Forum *Zulkifli Abas, Malaysia* *Eddie Wong Fook Sem, Malaysia* 2. Special Forum *Siti Nasrina Yahaya, Malaysia* *Zainura Che Isa, Malaysia*	RUBY BALLROOM LEVEL G
	S7B – COVID-19 In Children *Chairpersons: Norzila Mohamed Zainuddin/Hasniah Abdul Latif* 1. Modified Techniques in Paediatric Respiratory Care during COVID-19 Pandemic *Aroonwan Preutthipan, Thailand* 2. COVID-19 in Children: Long Term Respiratory Sequelae *Eg Kah Peng, Malaysia* 3. COVID-19 Thoracic Radiology: From Acute to Long Term Changes *Faizah Mohd Zaki, Malaysia*	TOPAZ BALLROOM LEVEL G
1010 - 1040	**COFFEE BREAK**	IMPERIAL BALLROOM FOYER, LEVEL G
1040 - 1130	**SPONSORED SYMPOSIUM 8 (SS8)** *Company: Sanofi Pasteur* *Chairperson: Ahmad Izuanuddin Ismail, Malaysia* *Speaker: Nordiana Nordin, Malaysia* Topic: "Protecting Older Adults from Influenza"	RUBY BALLROOM LEVEL G
1130 - 1230	**SYMPOSIUM 8 (S8)**	
	S8A – Multi-Disciplinary Case Discussion: Adult Post COVID Care *Chairpersons: Zainudin Md Zin/Hooi Lai Ngoh* Case 1: Atypical COVID organising pneumonia - our experiences *Presenter: Ng Boon Hau, Malaysia* Case 2: Blood, Sweat and Tears *Presenter: Loh Thian Chee, Malaysia*	RUBY BALLROOM LEVEL G

	S8B – Multi-Disciplinary Case Discussion: Combined Non COVID Case *Chairpersons: Aziah Ahmad Mahayiddin/Ashari Yunus* Case 1: Complicated pleural effusion *Presenter: Mohd Zhafran Zainal Abidin, Malaysia* *Panelist: Roqiah Fatmawati Abdul Kadir, Malaysia* Case 2: Hidden in the MESH *Presenter: Gan Beng Jin @ Benjamin Gan, Malaysia* *Panelists: Zuhanis Abdul Hamid, Malaysia* *Teoh Chee Kiang, Malaysia* *Serena Diane Santhana Dass, Malaysia* *Prathepamalar A/P Yehgambaram, Malaysia*	TOPAZ BALLROOM LEVEL G
	S8C – Multi-Disciplinary Case Discussion: Paediatrics *Chairpersons: Mariana Daud/Ahmad Fadzil Abdullah* Case 1: Dilemma of COVID in an infant *Presenter: Tan Yee Yen, Malaysia* Case 2: Doctor, My Child is Persistently Wheezing?!! *Presenter: H'ng Shih Ying, Malaysia*	CITRINE BALLROOM LEVEL G
1230 - 1315	**DEBATE** *Chairperson: Roslina Abdul Manap* Tackling the Next Pandemics - Public Health Measures vs. Vaccination *Suhazeli Abdullah, Malaysia* *Suah Jing Lian, Malaysia*	RUBY BALLROOM LEVEL G
1315 - 1330	**CLOSING CEREMONY** *Organising Chairman: Tan Jiunn Liang*	RUBY BALLROOM LEVEL G
1330 - 1400	**LUNCH**	IMPERIAL BALLROOM FOYER, LEVEL G

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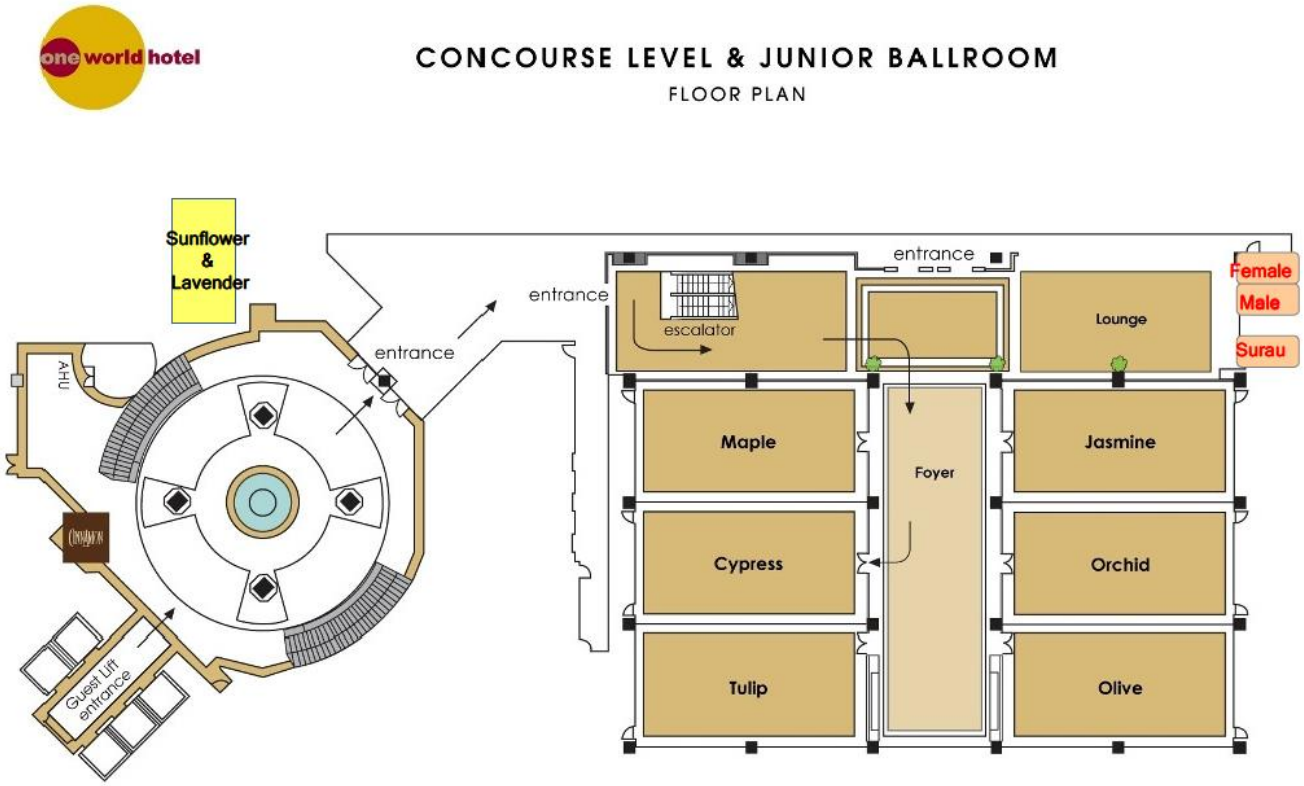
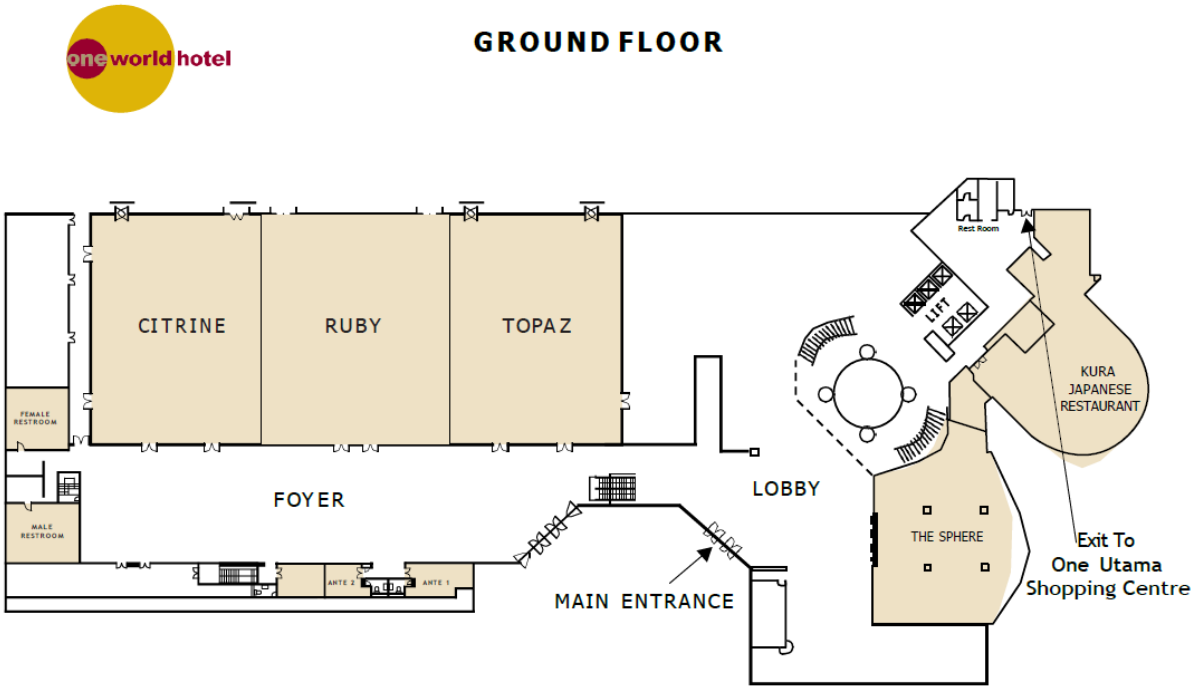
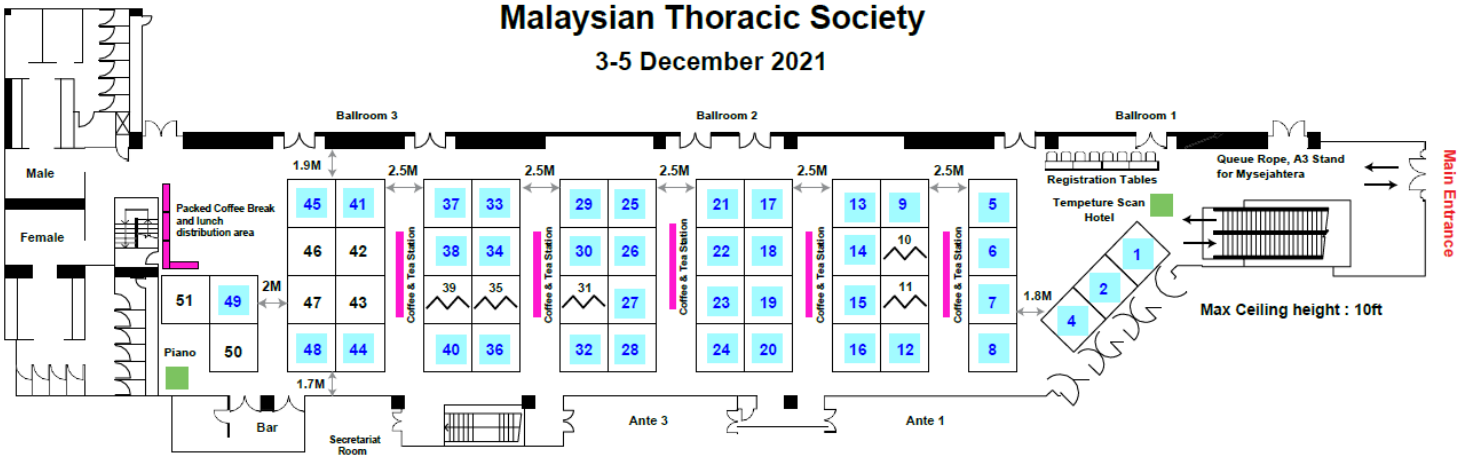


FLOOR PLAN & TRADE EXHIBITION



FLOOR PLAN & TRADE EXHIBITION

Imperial Ballroom Foyer, Level G
Malaysian Thoracic Society
3-5 December 2021



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36 : Compass Medical Sdn. Bhd.
38 : Viatris
40 : ResMed Malaysia
41 & 45 : Novartis Sdn. Bhd.
44 : Insan Bakti Sdn. Bhd.
48 : Danmedik Sdn. Bhd.
49 : The Air Station @ Easmed

Poster Board Display

10: CR12 - CR19
11: CR20 - CR27
31: CR28 - CR35
35: CR36 - CR44
39: CR45 - CR52

46, 42, 47, 43, 51, 50 : Queue pick up lunch box area

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Pleural Disease Workshop

ANATOMY, AND PHYSIOLOGY AND FLUID DIAGNOSTICS

Ummi Nadira Daut
University Putra Malaysia, Selangor, Malaysia

The pleura is a vital part of the respiratory tract whose role it is to cushion the lungs and reduce any friction which may develop between the lungs, rib cage, and chest cavity. The pleura consists of a two-layered membrane that covers each lung. The layers are separated by a small amount of viscous lubricant known as pleural fluid. Pleural effusion is the accumulation of excess fluid in the pleural space. Many pleural effusions will not have a clear aetiology, so interpretation of the PF results, in addition to clinical and radiological information, is essential in making a diagnosis. A standard panel of tests includes PF protein, glucose, pH, lactate dehydrogenase (LDH), cytology and microbiology.

Pleural Disease Workshop

ADVANCE PLEURAL PROCEDURE - PLEUROSCOPY

Mohamed Faisal Abdul Hamid
University Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia

Pleuroscopy or medical thoracoscopy is a minimally invasive procedure that allows access to the pleural space. It is indicated mainly for diagnosis of unexplained pleural effusion, but in selected cases may be used as therapeutic procedure; e.g talc poudrage pleurodesis.

In this lecture , we describe technique of performing pleurodesis (video) and examples of pleural diseases seen on pleuroscopy.

Pleural Disease Workshop

PRACTICAL ASPECTS OF PNEUMOTHORAX

Arvindran Alaga
Hospital Sultanah Bahiyah, Kedah, Malaysia

Pneumothorax (spontaneous) remains a significant global health problem, with an overall incidence of 18–28/100 000 per year and 1.2–6/100 000 per year for men and women respectively. The aim of the treatment is to re-expand the potentially collapsed lung to its original capacity and prevent recurrence. Patients can be treated observationally with or without supplemental oxygen, or interventionally with simple aspiration, chest tube placement, or one-way valve insertion. There are growing evidence of utilisation of ambulatory management of pneumothorax. Practical aspects of pneumothorax include medical pleurodesis, autologous blood patch and surgical management of pneumothorax or persistent air leak

Pleural Disease Workshop

PRACTICAL ASPECTS OF MALIGNANT PLEURAL EFFUSION

Muhammad Redzwan S. Rashid Ali
KPJ Johor Specialist Hospital, Johor Bahru, Malaysia

Malignant Pleural Effusion(MPE) is a common clinical scenario and referral to chest physician. The focus of treatment should be directed to personalizing therapy for these patients as the outcome is generally poor and of palliative intent. Advances in therapy for MPE includes optimizing drainage and prevention of fluid recurrence via pleurodesis or Indwelling Pleural catheter(IPC). The talks presented will summarize the practical approach to diagnosing MPE in our Malaysian healthcare setting and options available for patient afflicted with it.

The workshop on IPC and Seldinger Chest drain would focus on practical hands on approach on the indication, preparation, safety aspects and necessary clinical steps needed prior to performing these procedures. Attendees will be guided on the above steps by trainers experienced in the above pleural procedures.

Pleural Disease Workshop

PLEURAL INFECTION

Mohd Arif Mohd Zim
Universiti Teknologi MARA, Selangor, Malaysia

Pleural effusion can be categorized as transudative and exudative. Causes of exudative pleural effusion can be further divided into malignant and non-malignant. Pleural infection is an exudative pleural effusion and the majority is a complication from pneumonia. The term pleural infection encompasses complicated parapneumonic effusions and primary pleural infections, and includes but is not limited to empyema. The incidence of pleural infection in adults with comorbidities has been continuously increasing over the past 20 years. Management of pleural infections requires prolonged duration of hospitalization. The key components of managing pleural infections are appropriate antimicrobial therapy and chest tube drainage. In patients who fail medical therapy, surgical intervention or intrapleural fibrinolytic therapy are recommended.

Pleural Disease Workshop

PHYSICS, FUNDAMENTALS & SONOANATOMY OF THORAX

Zuhanis Abdul Hamid
National Cancer Institute, Putrajaya, Malaysia

Lung US is becoming increasingly more important in view of Pandemic COVID-19. The use of US does not involved ionising radiation making if much preferable compared to CT scan especially in maternity patient and peadiatrics age group. However, it is very operator dependant and quite different in interpretation comparing to other solid organ sonography techniques.

The usage of US for Lung pathology is basicly need the full understanding of its sonography physiology and lung parenchymal anatomy to enable proper interpretation and diagnosis making. US Lung rely more to the usage of sonography artifact and its interpretation.

The lecture will explain regarding the basic Physics, Fundamentals & Sonoanatomy of Thorax. Hence it can be use during Lung US hands on session. Correlation with lung alveolar and parenchymal disease will be explained in relation to the findings including the COVID-19 pneumonia.

Differences in wet and dry lung pathology will also need proper discrimination for the usage of Lung US in fluid replacement therapy.

Sleep Scoring & Remote Monitoring Workshop

HOW TO DIAGNOSE CENTRAL SLEEP APNEA (CSA)

Rozanah Abd Rahman
Hospital Sultanah Aminah, Johor, Malaysia

Identifying and treating central sleep apnea (CSA) is important to improve patient's quality of life and morbidity. CSA symptoms can be subtle and often overlap with other diseases such as chronic heart faliure, atrial fibrillation and stroke. CSA is diagnosed via polysomnogram where sleep apnea is detected and the primary type of apnea either CSA or obstructive sleep apnea (OSA) will be distinguished. Therapeutic choices for CSA depends on the type of respiratory disturbances, changes in blood gas and ventilatory control.

Sleep Scoring & Remote Monitoring Workshop

OVERVIEW OF CSA TREATMENT

Muventhiran Ruthranesan
Pantai Hospital Ayer Keroh, Melaka, Malaysia

Central sleep apnea is a condition defined by pauses in breathing[1] due to a lack of respiratory effort during sleep. Unlike obstructive sleep apnea, the pauses in breathing throughout the night are due to the lack of respiratory muscles activating or the brain failing to ask the respiratory muscles to activate. There are various causes of Central Sleep Apnea. Treatment is usually tailored according to the underlying cause of the problem. Various devices have been used in the treatment of CSA. Each device maybe beneficial in certain group of patients yet not so in others.

Sleep Scoring & Remote Monitoring Workshop

OBESITY HYPOVENTILATION SYNDROME

Naricha Chiralkawasan
Chulalongkorn University, Thailand

OHS is a combination of obesity and daytime hypercapnia after ruling out other disorders. [1] Pathophysiology includes alteration in respiratory mechanics, reduction in respiratory drive, and concomitant obstructive sleep apnea. [2] OSA prevalence was shown to be high in obese population undergoing bariatric surgery. [3] PAP is the main treatment option along with weight reduction of 25-30%. [4] CPAP should be considered first line in OHS with concomitant severe (+moderate) OSA. [4, 5] BPAP is recommended in OHS with isolated nocturnal hypoventilation. [2] Acutely decompensated obesity hypoventilation syndrome should be treated with BPAP and discharged home with BPAP. [4] Follow up PAP titration within the first 3 months after hospital discharge is recommended. [4]

Reference

1. International classification of sleep disorders Third edition, 2014
2. Masa JF, et al. Obesity hypoventilation syndrome. Eur Respir Rev. 2019;28(151):180097
3. Kositanurit W, Muntham D, Udomsawaengsup S, Chirakalwasan N. Prevalence and associated factors of obstructive sleep apnea in morbidly obese patients undergoing bariatric surgery. Sleep Breath 2018;22(1):251-6.
4. Mokhlesi B, Masa JF, Brozek JL, et al. Evaluation and Management of Obesity Hypoventilation Syndrome. An Official American Thoracic Society Clinical Practice Guideline. Am J Respir Crit Care Med. 2019 Aug 1;200(3):e6-e24.
5. Piper A, et al. Obesity Hypoventilation Syndrome: Choosing the Appropriate Treatment of a Heterogeneous Disorder. Sleep Med Clin. 2017;12(4):587-96.

Sleep Scoring & Remote Monitoring Workshop

REMOTE MONITORING: NEW TECHNOLOGIES IN MONITORING AND INTERPRETING VIRTUAL SLEEP STUDIES

Nurul Yaqeen Mohd Esa
Sunway Medical Centre Velocity, Kuala Lumpur, Malaysia

Although the concepts are broad, telemedicine and mobile health (mHealth) can be defined as a methodology to provide health care remotely and improve health services and outcomes using telecommunication tools. The widespread adoption of these technologies and current health care challenges, such as the aging population and increasing costs, has encouraged interest in the development of new strategies involving telemedicine. Focus on specific populations and their comorbidities are important, since customizing telemedicine approaches is paramount to ensure success. Obstructive sleep apnea is a highly prevalent chronic condition and the most common of sleep-breathing disorders, and telemedicine and mHealth could play a pivotal role in the different phases of its management. Using new devices capable of signal acquisition and analysis will refine obstructive sleep apnea diagnosis; even smartphones' built-in sensors could offer improved comfort and the possibility of home sleep monitoring. Continuous positive airway pressure titration could be performed with wireless devices, whose parameters can be changed remotely from sleep centers. Finally, the follow-up phase could be specially improved by telemedicine by using remote continuous positive airway-pressure data, self-management platforms, and mobile applications for patient feedback. Incorporating new procedures with novel technologies and sensors will change the process. Instead of replicating traditional visits, mHealth may provide shorter and more

frequent assessments; alarm systems on the patients' devices could alert physicians or mobile applications with simple questionnaires may help on follow-up. With telemedicine, patients will not be treated in the same way anymore.

Sleep Scoring & Remote Monitoring Workshop

INDICATIONS FOR HOME SLEEP TEST AND RELIABILITY OF NEW TOOLS

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

Obstructive sleep apnea (OSA) is a condition characterized by recurrent episodes of partial (hypopnea) or complete (apnea) obstruction of the respiratory passages during the sleep. The main complain of OSA include tiredness, excessive daytime sleepiness, difficulty sleeping (insomnia), morning headaches, but majority remain asymptomatic. A diagnosis for OSA is typically given when a patient has an apnea-hypopnea index (AHI) ≥ 15 events/h, or an AHI ≥ 5 associated with sleep symptoms or medical disorders (Kumar et al, 2017). OSA is a relatively common disorder, and it is one of the most commonly diagnosed problems in a sleep laboratory.

Overall, OSA in the general adult population (aged >18 y) measured as 5 events/h AHI ranged from 9% to 38%. In men this varied from 13% to 33%, and in women from 6% to 19%. (Senaratna et al, 2017). Due to the high prevalence of OSA, there is significant cost associated with evaluating all patients suspected of having OSA with polysomnography (currently considered the gold standard diagnostic test). Furthermore, there will be limited access to a proper laboratory in certain areas. Traditionally, polysomnography have been categorized as Type I, Type II, Type III or Type IV. Type III studies, which is also known as partial PSG or Home Sleep Apnea Test (HSAT), use devices that measure limited cardiopulmonary parameters; two respiratory variables (e.g., effort to breathe, airflow), oxygen saturation, and a cardiac variable (e.g., heart rate or electrocardiogram).

Eventhough HSAT has its limitations, it is still an alternative method in diagnosing OSA, with reduction in cost, manpower and logistic access. There are potential disadvantages to using HSAT, relative to Type I or II PSG, because of the differences in the physiologic parameters being collected and the availability of personnel to adjust sensors when needed (Kapur et al, 2017). Hence it is strongly recommended by American Academy of Sleep Medicine (AASM) that HSAT is to be used for the diagnosis of OSA in uncomplicated adult patients presenting with signs and symptoms that indicate an increased risk of moderate to severe OSA (Kapur et al, 2017). It is also strongly recommended that, if a single home sleep apnea test is negative, inconclusive or technically inadequate, polysomnography maybe performed for the diagnosis of OSA (Kapur et al, 2017). HSAT is less sensitive than PSG in detection of OSA and a false negative test could result in harm to the patient due to denial of a beneficial therapy.

Telemedicine is regarded as a method and as a tool being applied in medicine. The applications include the wireless recording of sleep and vital functions during sleep, wireless recording of respiration, wireless data transmission for recorded data, assessment of sleep and sleep apnea using smartphone technologies, and telemedicine monitoring of therapy compliance in treated patients with sleep apnea (Verbraeken, 2016). Other technologies that utilizing Bluetooth, electrostatic effects, electromagnectic wave reflections and utilizing smartphone/smartphones are in the development or in the market to aid in the diagnosis of sleep apnea (Penzel,2018). Despite the various tools available, only a few have been validated against polysomnography, and physicians need to be aware about about the potential usefulness and limitations of sleep apps or tools as they become available (Penzel, 2018)

Sleep Scoring & Remote Monitoring Workshop

OUT OF CENTER SLEEP TESTING: CHALLENGES AND ADVANCES

Lalitha Pereirasamy
Hospital Pulau Pinang, Pulau Pinang, Malaysia

Out of center sleep testing (OCST) can be used as an alternative to full, attended polysomnography (PSG) for the diagnosis of obstructive sleep apnea (OSA) in adult patients meeting clinical eligibility criteria with a pre-test probability of moderate to severe OSA. An OCST can also be used when attended in-center PSG is not possible or to monitor non-PAP treatments for sleep apnea, such as oral appliances.

There are several challenges when conducting an OCST. Firstly, there is a limited number of physiological recordings monitored during an OCST which includes airflow, respiratory effort, and blood oxygenation. Hence one of the major challenges arises when some comorbid medical conditions confound the interpretation of the data received. Second is the human factor. The technical skill and experience of a sleep technologist helps reduce the OCST failure rate. These are a few challenges amongst others for OCST. Nevertheless, development of information technology, software management and device technology has certainly reduced OCST failure rates and improved care.

This lecture aims to understand the basis for an OCST, its advantages, challenges and recent advances.

Sleep Scoring & Remote Monitoring Workshop

SLEEP SCORING AND HOOK-UP OF PSG

Tripat Deep Singh
Academy of Sleep Wake Science, Singapore

PSG is a technique to record various physiological parameters at night. PSG can be done in the hospital attended by the sleep technician (Level 1) or done outside the hospital not attended by the sleep technician (Level 2). We can do diagnostic PSG or therapeutic PSG which involves positive airway pressure (PAP) titration or combine diagnostic and therapeutic into a single night (Split night sleep study). During diagnostic PSG following signals are recorded- EEG, EOG, chin EMG, leg EMG, EKG, airflow, respiratory effort, snoring, oxygen saturation and body position. Gold cup electrodes are used to record EEG, EOG and chin/leg EMG. Airflow is recorded using thermal sensor and nasal pressure transducer during diagnostic PSG and from PAP device flow during therapeutic PSG. Respiratory effort is recorded using respiratory inductance plethysmography (RIP) belts placed on thorax (at nipple level) and abdomen (at umbilicus level). Snoring is recoded using microphone or nasal pressure transducer. Oxygen saturation is measured using finger pulse oximeter. Signal acquired from all these sensors goes through the differential amplifier which processes the signal and finally analog to digital converter (ADC) converts analog signal to digital signal to be displayed on the computer. We analyze signal for following- Sleep staging, arousals, respiratory events, movement events and cardiac events. We follow AASM scoring manual for analyzing the signal. The current version of the AASM scoring manual is v2.6. AASM scoring manual has recommended rules for sleep staging in adults, pediatric and infant patients and respiratory rules for adult and pediatric patient's separately. The rules for scoring arousals and movement events are same in adults and pediatric patients.

Sleep Scoring & Remote Monitoring Workshop

INTEPRETATION OF PSG

Tripat Deep Singh
Academy of Sleep Wake Science, Singapore

Report is generated after analyzing the PSG signal for Sleep staging, arousals, respiratory events, movement events and cardiac events. Following sleep parameters are reported which help us to understand sleep architecture and sleep quality- Lights off time, lights on time, total recording time (TRT), total sleep time (TST), sleep efficiency (SE), sleep onset time, sleep onset latency (SOL), REM latency, wake after sleep onset (WASO) and %age of different sleep stages. Drug history needs to be kept in mind as different class of drugs can affect the different sleep parameters. A good sleep quality is defined as SOL<30min, WASO<20min, SE >85% or 90% and number of awakenings lasting >5min equal to 0-1. Good sleep architecture is defined as NREM sleep occupying 75-80% of sleep time (N1: 3-8%, N2: 45-55% and N3: 15-20%) and REM sleep 20-25% of sleep time with short REM periods in the first half of night which increase in duration as night progresses with long periods (45-50min) towards later part of the night and first REM sleep period occurring only after 90-100min after sleep onset. Arousal index is reported which is a measure of sleep fragmentation. Higher arousal index means higher amount of sleep fragmentation. Try to take the following 9 step approach for analyzing the respiratory parameters- Step 1: look at AHI, Step 2: Look at individual respiratory events, Step 3: calculate proportion of apneas vs hypopneas, Step 4: Look at duration of respiratory events, Step 5: look at respiratory events by body position, Step 6: Look at NREM vs REM AHI, Step 7: Calculate AHI OF 2hrs duration when maximum respiratory events happened, Step 8: OSA Phenotyping and Step 9: look at oxygen desaturation index.

Sleep Scoring & Remote Monitoring Workshop

CIPAP AND BIPAP TITRATION

Amanda Piper
Woolcock Institute of Medical Research, Australia

Titration of positive airway pressure, either in the form of CPAP or bilevel therapy, has traditionally been performed in a sleep laboratory, with polysomnography (PSG) used to guide settings and ensure efficacy of therapy. While PSG is often touted to be the “gold standard” in the management of sleep disordered breathing, it is important to recognise the limitations of determining long term pressure settings based on a single night in an unfamiliar environment. Significant advances in PAP technology have occurred in recent years, enabling many patients to be treated effectively with autotitrating devices in their own homes. These devices are designed to monitor breathing on a breath-by-breath basis, adjusting pressure to maintain normalisation of breathing despite changes in body position, sleep stage, weight change, or disease progression. However, there are significant differences in the sensors and algorithms used by different manufacturers, and in how therapy data is displayed. Clinicians need to be well informed about how the devices they are prescribing work in order to interpret the data and ensure patients are appropriately selected for automated devices. Remote monitoring of therapy holds the potential to identify earlier problems with usage or efficacy of therapy, while reducing the need for in-lab review therapy studies through remote or auto-titration. However, more work is needed to determine the reliability and variability in the monitored variables and how such an approach impacts on longer term clinical and patient outcomes.

Home Respiratory Care in Children Workshop

OVERVIEW OF HOME RESPIRATORY CARE IN MALAYSIA

Dg Zuraini Sahadan
Hospital Serdang, Selangor, Malaysia

The development of new technology and advances in medical knowledge has made it possible to establish home respiratory care in paediatric respiratory centres in Malaysia. The paediatric respiratory home oxygen program was started in 1992 by Azizi in Universiti Kebangsaan Malaysia (UKM) for a group of respiratory patients who were oxygen dependent. Subsequently, children are being ventilated using various technological interventions ranging from supplemental oxygen to long-term ventilation.

Ventilations can be instituted through non-invasive method or invasively via tracheostomy. There is a broad range of medical conditions that require prolong ventilation. The indications are chronic hypoventilation with associated respiratory failure as indicated by hypoxia or hypercapnia. Chronic alveolar hypoventilation may occur in children with airway or parenchymal lung disease or in children with normal lungs. In children with normal lung, central nervous system dysfunction and peripheral abnormalities such as chest wall deformity are the main causes

There has been a growing realization that long-term institutional care is not the optimal environment for these children's emotional and intellectual growth. Along with the rising costs of hospital care, and the family's appropriate desire to care for these children within their own family environment, there has been greater demand for home respiratory care in children. It has been demonstrated that home care is the best option for children requiring long term ventilatory support to meet their medical and psychological needs and enhanced their quality of life.

Home Respiratory Care in Children Workshop

ASSESSMENT OF PATIENTS ON HOME RESPIRATORY CARE

Hafizah Zainuddin
University Teknologi MARA, Selangor, Malaysia

Home oxygen and ventilation therapies have grown tremendously and are used to treat children who has varying degrees of chronic respiratory insufficiency. The initiation of these therapies is quite challenging as it has to covers various angle of management including training the caretaker and home safety. The other crucial part of the therapies is monitoring and follow up. Regular follow up is mandatory to all patient on home respiratory care and reassessment should be done to look for any changes in respiratory status. One of the tools to monitor patient on home respiratory care is pulse oximetry. This is the primary method of monitoring SpO2 in the pediatric population as this is the non-invasive and the least painful procedure. Other tools for monitoring are often available in hospital setting but not readily available in outpatient setting such as capillary blood gas and transcutaneous CO2. Depending on the clinical scenario, a more definitive assessment with full sleep study may be necessary.

Home Respiratory Care in Children Workshop

HOME OXYGEN THERAPY IN CHILDREN

Shangari Kunaseelan
Hospital Tunku Azizah, Kuala Lumpur, Malaysia

The aim of home oxygen therapy in a child is to alleviate chronic hypoxemia in order to maintain target oxygen saturations in a setting outside the hospital. By providing this support to the child, it will help extend life, improve physiologic function, reduce morbidity and indirectly promote growth and development. Furthermore, psychosocial development and quality of life for both child and parent can be enhanced when home oxygen therapy is safely accomplished.

The main criteria to be met for safe delivery of home oxygen therapy are; the child needs to be medically stable, the willingness and ability of family caregivers to provide care in the home, the availability of a suitable home as well as equipment and accessibility to community resources.

Following decision for initiation of home oxygen therapy, it is best for an agreement to be drawn up with the caregiver and a home visit arranged to assess the suitability of the home. Regular follow-ups are required as repeated assessment of oxygen needs and changes in respiratory status should be evaluated. On going education to the caregivers and regular maintenance of the equipment is equally important to be addressed.

Improved care of critically ill neonates, infants and children is giving rise to increase in need for children to continue oxygen therapy in home settings. Therefore, it is the responsibility of paediatricians to identify those who are suitable for home oxygen therapy and pursue in managing them in a multidisciplinary manner with the collaboration of paediatric pulmonologists.

Home Respiratory Care in Children Workshop

NON-INVASIVE RESPIRATORY SUPPORT IN OSA

Hasniah Abdul Latif
Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia

Obstructive sleep apnoea (OSA) is defined as the recurrent, partial or complete upper airway obstruction (hypopneas, obstructive or mixed apneas) with disruption of normal oxygenation, ventilation and sleep pattern. Adenotonsillar hypertrophy is the most common cause of OSA in otherwise healthy children that usually resolved after adenotonsillectomy; they normally do not require long term non-invasive ventilation (NIV) support. However, children with other co-morbidities such as obesity, congenital craniofacial malformation or metabolic/endocrinology disorders tend to have more complex OSA, for which airway obstruction is often multifactorial, requiring an objective assessment and treatment of different abnormalities that contribute to OSA. This group of children likely tend to have persistent OSA that needed NIV support. Careful evaluation and objective assessment of NIV utilization are mandatory. The efficacy depends on treatment adherence and underlying disease severity. Checking of equipment and patient's or caregiver's education are of paramount importance to achieve an optimal NIV use.

Home Respiratory Care in Children Workshop

NON-INVASIVE RESPIRATORY SUPPORT IN NEUROMUSCULA DISORDERS

Aroonwan Preutthipan
Mahidol University, Thailand

Noninvasive ventilation (NIV) is a beneficial treatment for children with neuromuscular disorders. Instead of prolonged intubation and mechanical ventilation in the hospitals, the patients are able to go home and use noninvasive ventilation. Candidates for long term NIV due to neuromuscular disorders in children include those with spinal muscular atrophy, myopathy, myasthenia gravis and Guillain-Barre syndrome. Short-term effects of NIV include: relieving respiratory symptoms, reduced work of breathing, improvement in gas exchange and less atelectasis and recurrent lower respiratory tract infection. Long-term effects include improving sleep quality and duration as well as the quality of life. Enhancing functional status and prolonged survival have been demonstrated. Patients' cooperation is an essential component. Various interfaces and delivery devices specifically designed for children, which are now available in the markets, made the application of NIV in children easier than the past. BPAP or bi-level positive airway pressure is the most common mode of ventilation delivery. The setting of BPAP can be set up at bedside and confirmed later by titration under polysomnography with oxygen saturation and carbon dioxide monitoring. Complications associated with NIV include gastric distention, aspiration, pneumothorax and pressure ulcerations on the skin from mask compression. Caregivers should be trained and educated how to take care of these kind of patients at home. The success of NIV depends on selection of proper patients, interfaces, ventilators, mode and settings, the skill of clinicians, cooperation of the patient and the motivation and support of the family.

Home Respiratory Care in Children Workshop

NON-INVASIVE RESPIRATORY SUPPORT IN END-STAGE LUNG DISEASES

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

End stage lung disease is defined as hypercapnic respiratory failure with severe respiratory distress. Non-invasive respiratory support is commonly used as a bridge to lung transplantation in children with end stage lung disease. However, there are limited studies in children regarding the indications of non-invasive respiratory support use outside the realm of lung transplantation. In this lecture, we will explore evidences of the usage of non-invasive respiratory support in various paediatric end stage lung diseases. Apart from that, close collaboration with the palliative care team is needed for early recognition of end stage lung disease and appropriate timed referral to respective teams. Care needs to be individualized and extend beyond respiratory support in order to improve the quality of life of patients and their caretakers. Nevertheless, future studies are required to determine the criteria for non-invasive respiratory support use in end stage lung disease among children.

Home Respiratory Care in Children Workshop

ACUTE CONDITIONS IN PATIENTS ON HOME RESPIRATORY SUPPORT

Anis Siham
Hospital Selayang, Selangor, Malaysia

Advances in paediatric critical care and mechanical ventilation (MV) have resulted in an increased survival of critically ill patients, a number of whom require long-term ventilation as a means of life support. In addition, in recent years, increasing numbers of chronically ill children with acute illnesses or exacerbations with prolonged weaning are occasionally being admitted to PICUs worldwide, with a big impact on the family as well as healthcare professionals. The acute PICU admission in these group of patients set a major challenge not only to the management of the admitting illness but also to the staffing needs and cost especially when they concern palliative care patients.

Plenary 1

DISASTER MANAGEMENT IN RESPIRATORY PANDEMICS

Mohd Arshil Moideen
Markas Angkatan Tentera Malaysia, Kuala Lumpur, Malaysia

Malaysia began preparation for COVID-19 since Q4 2019 when nCOV cases first reported in Wuhan, China. When initial cases reached our shores in January, 2020 we were well prepared. Nonetheless, Malaysia upscaled its preparedness to manage 200 cases daily during the first half of 2020 and then 2,000 cases during second half of the 2020. Even then, we continue to enhance our capacity until we could manage 4,000 cases daily in the early part of 2021. Unfortunately, the cases accelerated by end of June and became worse in first week of July. Due to this, Klang Valley region was forced to adopt new strategies, and execute it in a timely manner. Greater Klang Valley Special Task Force was forced to implement contingency measures to increase the healthcare capacity to this new crisis level. By end of June, the ability of all the health facilities to manage Covid-19 positive patients has reached the maximum limit, and all Covid Assessment Centres (CAC) were overburdened and overcrowded with patients. Between 1st of July up until 20th July, all the Hospitals in Klang Valley were experiencing a total collapse in the ability to provide optimal response and care for Category 3 and above patients. This was evident in all the Emergency Departments in Klang Valley while all CACs were struggling to handle thousands of patients daily. The result of this was catastrophic. This lecture intends to shed some lights on the challenges, implemented solutions and lesson learnt from the management of the worst ever crisis of Covid-19 Pandemic in the Klang Valley region.

S1A Severe Asthma

TARGETING COMORBIDITIES IN SEVERE ASTHMA

Mohammed Fauzi Abdul Rani
Universiti Teknologi Mara, Sungai Buloh, Selangor, Malaysia

Asthma is uncontrolled when the control of symptoms is poor or there are frequent exacerbations with oral steroid or requiring hospitalization. A difficult-to-treat asthma is asthma that is uncontrolled on medium or high dose ICS with another controller (usually LABA) or with maintenance oral steroid, or that requires high dose treatment to maintain good symptom control and reduce the risk of exacerbations. A severe asthma is uncontrolled asthma despite adherence to maximal optimized high dose ICS-LABA and management of contributory factors, or that worsens when high dose treatment is decreased.

The prevalence of severe asthma is estimated to be between 5 to 10%. The goals of asthma management are attainment of good symptom control and the reduction of future risk of asthma-related mortality, exacerbations, and persistent airflow limitation. Patient's own treatment goals including any potential treatment side effects should also be considered. The causes of symptoms and exacerbations are many, incorrect inhaler technique and suboptimal adherence can be as high as 75%. Other factors include comorbidities and modifiable risk factors and triggers.

When assessing patient with asthma, treatment should be optimized by self-management education and inhaled controller medications. The next step is to identify and treat comorbidities and modifiable risk factors. Common comorbidities include allergic and non-allergic rhinitis, chronic rhinosinusitis, dysfunctional breathing, obesity, gastro-oesophageal reflux disease and obstructive sleep apnoea. Comorbidities are probably underdiagnosed. Some lead to poor asthma control, impaired quality of life, and are risk factors for exacerbations. Treatment of comorbidities is associated with improved asthma outcomes

The multitude of comorbidities to be considered during severe asthma evaluation is challenging. An unstructured approach is likely to miss several issues and overevaluation is unnecessary and costly. A reasonable option is a stratified approach, using screening and targeted clinical evaluation.

S1A Severe Asthma

TRIPLE THERAPY IN ASTHMA: NEW KID ON THE BLOCK

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

Previous studies have shown that the addition of tiotropium (long-acting antimuscarinic agent-LAMA) in separate devices in patients with poorly controlled asthma despite optimum use of inhaled glucocorticoids (ICS) and long-acting β2 adrenergic bronchodilators (LABAs), significantly increased the time to the first severe exacerbation and provided modest sustained bronchodilation. More recently, triple therapy (ICS/LABA/LAMA) formulations in a single-inhaler device have been studied in patients with uncontrolled asthma despite ICS/LABA treatment. TRIMARAN, TRIGGER, IRIDIUM, ARGON and CAPTAIN are among studies investigated triple therapy in uncontrolled asthma. The evidences support the clinical benefit of adding a LAMA to ICS/LABA in single inhaler as effective pharmacological strategies for symptom control and risk reduction as well as improve lung function in poorly controlled symptomatic patients, an effect of class not related to a specific antimuscarinic agent. Though there are some differences in the results obtained between the different combinations available today due to either the different pharmacologic agents, their combinations

and/or delivery systems, the overall favourable efficacy versus risk ratio has important implications in clinical practice, both for patients and prescribing physicians. Several important patient-related factors need to be considered carefully, and the optimum place for these treatments within existing treatment guidelines needs to be properly established.

In conclusion, triple therapy both ICS/LABA/LAMA FDC and free combination of tiotropium added to ICS/LABA FDC are effective and safe therapeutic strategies in patients suffering from uncontrolled asthma.

1. Kerstjens HAM, Engel M, Dahl R, et al. *N Engl J Med*. 2012;367(13):1198-1207
2. Rogliani P, Ritondo BL, Calzetta L et al. Eur Respir J 2021; 58: 2004233
3. Lee LA, Bailes Z, Barnes N, et al. Lancet Respir Med 2021; 9: 69–84.
4. Kerstjens HAM, Maspero J, Chapman KR, et al. Lancet Respir Med 2020; 8: 1000–1012.
5. Gessner C, Kornmann O, Maspero J, et al. Respir Med 2020; 170: 106021.
6. Virchow JC, Kuna P, Paggiaro P, et al. Lancet 2019; 394: 1737–1749.

S1A Severe Asthma

BIOLOGICS IN ASTHMA: 2021 UPDATES

Stephanie Korn

University Medical Centre Mainz, Germany

Asthma is a heterogeneous disease. About 5-10% of patients have severe uncontrolled asthma despite optimal and maximal inhaled therapy. Since some years there are additional therapeutic options for this patient population called biologics. They target different molecules that play significant roles in the asthma pathogenesis. Treatment with biologics can improve symptoms and reduce asthma attacks in people with severe asthma as well as reduce the need for systemic steroids.

This talk will focus on the different biologics covering anti-IgE-antibodies for patients with severe allergic asthma, anti-IL-5-(receptor)-antibodies for patients with severe eosinophilic asthma and anti-IL-4-receptor antagonists for patients with type-2-high asthma including patient cases and clinical approaches.

S1B COPD

TELEMEDICINE IN COPD MANAGEMENT - WHAT'S AVAILABLE AND WHAT THE FUTURE HOLD

Pang Yong Kek

University Malaya Medical Centre, Kuala Lumpur, Malaysia

Digital technologies have become integral to modern lives. With the outbreak of COVID-19, the adoption of these technologies has been accelerated. Telemedicine is the practice of medicine using digital technologies to deliver care at a distance. Prior to the pandemic, teleconsultation was almost non-existent in Malaysia. With the outbreak, it has found its niche as a perfect replacement for face-to-face consultations. Moving forward, the consultant behind the screen could be a robot - the “BOT”, to address simple questions posed by the patients or their carers.

The role of telemedicine will not be limited to remote consultation, I believe it will extend to the monitoring and treatment of COPD patients. In addition, artificial intelligence looks quite certain to present itself as a helpful assistant to clinicians to deal with their day to day work

S1C Inherited Suppurative Lung Diseases

CYSTIC FIBROSIS, AN OFTEN-MISSED DIAGNOSIS: HOW AND WHEN TO SUSPECT?

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

Cystic fibrosis (CF) is a chronic, poly-organ life threatening disease with variable clinical presentation. It is caused by a defect in the cystic fibrosis transmembrane conductance regulator (CFTR) gene located on the long arm of chromosome 7. CF is inherited in an autosomal recessive manner.

Children with CF may present with classical symptoms related to the overproduction of thick, viscous secretions in multiple organ systems. Pulmonary disease is the primary cause of morbidity and mortality as a result of repeated cycles of airways obstruction, chronic infection and airway inflammation. Non-pulmonary manifestations includes meconium ileus, exocrine pancreatic insufficiency with small bowel obstruction and infertility in males.

The gold standard for the diagnosis of CF is the sweat test chloride. There is considerable variability in the frequency and severity of clinical manifestations and complications. Successful care of the child with CF therefore requires a multidisciplinary team approach.

S1C Inherited Suppurative Lung Diseases

RESPIRATORY MANAGEMENT OF CYSTIC FIBROSIS – WHAT'S AVAILABLE IN OUR LOCAL SETTING?

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

Cystic Fibrosis (CF) is rare in Malaysia. However, the cost and burden of this disease is significant.
In this lecture I will be touching on how Malaysian children with cystic fibrosis can be managed.
While the task in treating CF can be foreboding, we are fortunate to have the Royal Brompton Children's guidelines(https://www.rbht.nhs.uk/childrencf) on treating CF. These guidelines are freely available and updated every 3 years.
The key aspects of treating CF will be summarized below:

(1) **Airway clearance techniques**: e.g. active cycle breathing technique (ACBT), postural drainage and percussion, Aerobika/Acapella and positive expiratory pressure (PEP) device. This should be done regularlyat least twice a day.
(2) **Mucolytics**: Hypertonic saline i.e. 7% or Pulmozyme. Both are available. Pulmozyme at 2.5 mgs EOD costs RM 2500/month.
(3) **Treating and preventing infections**: While Pseudomonas sp. is common and associated with negative outcomes, children with CF are also prone to many other infections e.g. aspergillus and non-tuberculous mycobacterium. The guidelines provide treatment options.
(4) **Nebulised antibiotics**: Available in Malaysia are only injectable forms of colistin, gentamycin/amikacin, meropenem, vancomycin, ceftazidime which can be used as nebulisers. Inhaled/injectable tobramycin is very expensive but still available, though it has to be imported.
(5) **Vigilance and early treatment:** Early recognition of exacerbations and aggressive treatment as well as close monitoring is key to good quality of life and prolonging their life.

S1C Inherited Suppurative Lung Diseases

AN UPDATE ON PRIMARY CILIARY DYSKINESIA

Alison Ting Yih Hua
Timberland Medical Centre, Sarawak, Malaysia

Primary Ciliary Dyskinesia (PCD) is a rare, predominantly autosomal recessive disorder of mucociliary clearance secondary to ciliary dysfunction. As mucociliary clearance represents an essential host defense mechanism, a disorder in ciliary function can impact the entire respiratory system resulting in recurrent and chronic upper and lower respiratory tract infection. It was first described in the early 1900s as a triad of chronic sinusitis, bronchiectasis and dextrocardia. In around 50% of cases there may be situs inversus, whilst some patients may have other organ laterality defects and heterotaxis. Estimated prevalence is approximately one in 10,000-40,000 live births, and diagnosis is usually made later in childhood or adulthood as a result of a combination of factors such as a lack of awareness about PCD where symptoms are often non specific, and a lack of a gold standard diagnostic test.

With its clinical and genetic heterogeneity, diagnosis of PCD is challenging and is usually made in a specialist centre. A combination of investigations is usually required to make a diagnosis. This rests mainly on the recognition of a suggestive phenotype and demonstration of a specific ultrastructural ciliary defect or evidence of abnormal ciliary function. Mutations that cause PCD have been reported in > 50 genes and genetic testing is increasingly important in diagnosis with new genes constantly being identified.

Early diagnosis is important to preserve lung function, optimise quality of life and expectancy. There remains a need for more diagnostic awareness and evidence based treatments to optimise the management of patients with Primary Ciliary Dyskinesia.

S2A TB

LATENT TB TREATMENT - NEW UPDATES

Zamzurina Abu Bakar
Institut Perubatan Respiratori Kuala Lumpur, Malaysia

Latent tuberculosis infection (LTBI) is a state of persistent immune response to stimulation by Mycobacterium tuberculosis antigens without evidence of clinically manifested active TB. Several studies have shown, on average, 5–10% of those infected will develop active TB disease over the course of their lives. World Health Organization has developed a global TB strategy aiming towards TB elimination by 2050. In order to fulfil this, we need to target not only active TB but also latent TB infection. So far, the efficacy of currently available TB preventive treatment ranges from 60% to 90%. Hence, more research is needed to find safer, shorter, better-tolerated TB preventive treatment regimens.

S2A TB

CURRENT WHO MDR TB REGIMEN- WHERE DO WE STAND?

Khairul Taufiq Rosli
Hospital Queen Elizabeth, Sabah, Malaysia

DR TB treatment has undergone many changes in it's management especially in the last few years. This is mainly with the introduction of the newer all oral anti TB medications such as Bedaquiline and Delamanid. This medications have proven to be highly effective in the treatment of MDR TB. However in view of the high cost of these drugs, it can be quite a challenge to implement it across the board. Management of Isoniazid resistant TB has also been updated. The purpose of this talk is to see how to properly come up with a treatment strategy to tackle DR TB utilizing all the drugs we have at our disposal that balances between the evidence, research and cost .

S2B M&M session (Mix and Match)

TRACHEOSTOMY CARE FOR RESPI PHYSICIANS

Nor Eyzawiyah Hassan
Universiti Sains Islam Malaysia, Negeri Sembilan, Malaysia

Tracheostomy require clinicians to have a complete understanding of indications, complications, and clinical applications. Although tracheostomy is a common procedure in intensive care units, it requires additional education and training because of the complexity and diversity of available tubes, care of surgical site, and other related nursing care issues including the emergency care to prevent an unwanted adverse outcomes in patients with tracheostomies. The coronavirus disease 2019 (COVID-19) pandemic has led to a global surge in critically ill patients requiring invasive mechanical ventilation, some of whom may benefit from tracheostomy. Decisions on if, when, and how to perform and care of tracheostomy in patients with COVID-19 have major implications for patients, healthcare workers, and hospitals due to its potential as "Aerosol Generating Procedure" (AGP). Clinician awareness of safe tracheostomy practices is needed to improve clinical care of this vulnerable population especially during the coronavirus disease 2019 (COVID-19) pandemic.

S2B M&M session (Mix and Match)

VENTILATOR SETTINGS IN COVID ARDS

Noor Hashida@Juita Hassan
UiTM Private Specialist Centre, Selangor, Malaysia

COVID-19 pandemic has taught us so many things: on how to best possibly immune modulating and deliver safe and best ventilation strategies in severe covid19 pneumonia. The application of general rues for ventilator settings may not be applicable to all patients. A more individualised and personalised approach to treat the patient has been applied. With the advent in technology, this approach can be adapted, allowing physicians and therapists to set target and adjust the settings according to patient's characteristics and respidynamics.

S2B M&M session (Mix and Match)

ADVANCED DIRECTIVE AND END OF LIFE CARE

Richard Lim Boon Leong
Hospital Selayang, Selangor, Malaysia

Advance Care Planning (ACP) is a process of discussion and documentation of a persons values and preferences for future care in the event at some point in the future they are unable to express themselves. Within the process of ACP, some countries have developed legal statutes for the declaration of advance directives and also legal proxies. In Malaysia however, legal statutes for the use of advance directives have not been developed and therefore while these discussions can be conducted and documented, the preferences expressed in such documents is not legally binding. Nevertheless, the role of ACP is an extremely important one for anybody of consenting age and is of particular importance for those with chronic incurable conditions. While medical technology has now advanced to a point where it is possible to maintain a persons vital organ function although they may be in an extremely disabled state, it has always been a constant debate as to whether such interventions are in a person's best interest. This is where in a society that respects individual autonomy and the right to self determination, ACP intends to allow the expression of wishes and preferences for care even when a person lacks capacity. Apart from this, ACP also aims to relieve the burden of decision making on the family.

While ACP is important to allow patients to express their future preferences for care, it must be remembered that if a person chooses not to have aggressive interventions in favour of more comfort care, it is the obligation of the health professional to ensure that comfort is adequately provided. Hence if a patient with severe lung disease is opting to forgo mechanical ventilation, it is important that in the face of deteriorating respiratory function that the patient must be provided an alternative form of care to relieve distressing symptoms of dyspnea. This is where end of life care and good symptom management is essential. Without competent skills in end of life care, ACP discussions would be unethical and doctors would not be fulfilling their professional obligations if such were the case. Hence, all clinicians must be familiar with good end of life care and be able to provide basic relief for common symptoms at the end of life such as pain, dyspnea, restlessness and delirium.

S2C Respiratory Manifestations in Immunocompromised Children

PRIMARY IMMUNODEFICIENCY DISEASE – THE IMPORTANCE OF EARLY DIAGNOSIS

Intan Hakimah Ismail
Universiti Putra Malaysia, Selangor, Malaysia

Primary immunodeficiencies (PID) refer to a heterogeneous group of disorders characterised by defects in one or more components of the immune system that result in weakened or dysregulated immune defense. The clinical manifestations of PID are diverse, but many are associated with increased susceptibility to recurrent and persistent infections (especially by opportunistic organisms), and growth retardation. Apart from infections, patients are frequently accompanied by autoimmunity and immune dysregulation

Immunodeficiencies are no longer considered rare conditions. Thus far, more than 400 PIDs have been identified. These conditions have been placed into 9 categories corresponding with their clinical and immunologic phenotypes by an international group of experts who evaluate these diseases every 2 years.

It is estimated that 70% of PID patients are undiagnosed. The evaluation of immunological status is therefore essential for the diagnosis of these diseases. The delay in the diagnosis of other PIDS can be up to 5 or even more years from birth. This leads to the fact that more than 50% of children die before diagnosis and therapy initiation. The average cost of an early bone marrow transplantation is 3 times lower than that of late transplantation. Prompt PID diagnosis is crucial so that therapeutic measures may be taken quickly, hence results in lower national healthcare costs, help prevent sequelae and allow for quicker referral to therapy.

With new primary immunodeficiencies being described at an exponential rate and those previously described becoming better understood, it is challenging for health care providers to stay up to date. A gap in knowledge may result in delay diagnosis and treatment, leading to increase morbidity and mortality. These data highlight the feasibility and importance of introducing neonatal screening for PID.

In order to ensure testing and diagnosis early on and diagnose unknown forms of the disease, a number of priorities can be identified:

- developing better diagnostic facilities and guaranteeing patients access to them;
- ensuring access to screening tests for severe antibody deficiencies to the whole range of hospital doctors and primary care providers;
- implementing widely routine newborn screening programs for severe forms of PI, including SCID, in both public and private healthcare settings;
- upscaling screening in patients with recurrent infections, irrespective of age and in a patient-centered approach;
- ensuring patient access to genetic testing and widespread availability in all medical specialties.

S2C Respiratory Manifestations in Immunocompromised Children

INVASIVE FUNGAL DISEASE IN CHILDREN

Thahira A Jamal Mohamed
Hospital Tunku Azizah, Kuala Lumpur, Malaysia

Invasive fungal infections (IFI) are important causes of morbidity and mortality particularly in high-risk patients. Recognizing such infections is often difficult because of non-specific symptoms and clinical signs. Timely diagnosis is also a challenge due to difficulty in obtaining adequate volume of samples, need for invasive diagnostic procedures, and insufficient data and experience related to fungal biomarkers and molecular detection tests especially on use in children. This symposium focuses on definition, use of biomarkers and outlines general management of IFI in children.

S2C Respiratory Manifestations in Immunocompromised Children

CHRONIC RESPIRATORY MANIFESTATIONS OF IMMUNOCOMPROMISED CHILDREN

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

Immunocompromised children are children who received long term or high dose steroids or other immunosuppressant drugs, solid organ transplant recipients, children with solid tumor requiring chemotherapy in the last 5 years or haematological malignancy, primary immune deficiency and AIDS. The management of immunocompromised children are extremely challenging, as underlying disease, treatments and infection combine to create a complex clinical picture.

Respiratory symptoms and complications present a significant cause of morbidity and mortality among immunocompromised children. It can affect primarily either upper airways or lower airways. The complications of lower respiratory tract are usually considered to be more important and they determinate patients' prognosis. The chronic respiratory manifestations can be divided into infectious and non-infectious. The pathogens for lung infection include community, nosocomial as well as opportunistic microorganisms. The non-infectious respiratory complications are bronchiectasis, interstitial lung disease, radiation, drug-related pulmonary toxicity, lung lesion due to underlying disease (leukaemic infiltrates), graft versus host disease and bronchiolitis obliterans.

As the numbers of immunocompromised children continues to grow, knowledge and greater awareness of respiratory manifestation should be raised.

S3A Interventional Pulmonology

TRANSBRONCHIAL LUNG BIOPSY FOR PERIPHERAL LUNG LESIONS - RECENT ADVANCEMENT IN BRONCHOSCOPIC APPROACH

Yuji Matsumoto
National Cancer Center Hospital, Japan

Although the bronchoscopic approach to peripheral pulmonary lesions is a relatively safe technique that has been widely used, the conventional method of referring only to X-ray fluoroscopy has had problems with low diagnostic yield due to sampling in a semi-blind manner. However, since the introduction of radial endobronchial ultrasound (R-EBUS), it has become possible to confirm whether the target lesion is reached, which has dramatically improved the diagnostic yield. Nowadays, R-EBUS is an indispensable key device. Note that R-EBUS is useless if it cannot reach the target lesion, and it is recommended to use navigation in combination with R-EBUS in order to guide an accurate route through the complicated three-dimensional branching of the bronchial tree. In addition, if R-EBUS shows within the lesion, forceps or a brush can be used for diagnosis, whereas if it only shows adjacent to the lesion, specimens must be collected tangentially, and aspiration needles or cryoprobes are needed. By using these new techniques, it is becoming possible to obtain diagnostic yield comparable to that of percutaneous approaches. On the other hand, the bronchoscopic approach to small and/or ground-glass nodules is still a challenging field, but it is also an issue to be overcome for the realization of bronchoscopic treatment. In this lecture, I would like to outline the progress of these technologies and the actual implementation in clinical practice.

S3B Beyond the Lungs

UNDERSTANDING BREATHING DYSFUNCTION IN ALLERGIC RHINITIS

Jeevanan Jahendran
Pantai Hospital Kuala Lumpur, Malaysia

Allergic rhinitis is a common disorder that is strongly linked to other atopic related diseases. However, our understanding of the condition usually stems from a very local or at most a unified approach to a one airway disease. It is usually a long-standing condition that often goes undetected in the primary-care setting. However, importance on the etiopathophysiology, the concept and approach as a systemic inflammatory condition is indeed novel. Given that literature in this area has been abundant and spoke about in the past 150 years or more is all the more surprising. A more holistic and integrated approach is required to manage these conditions as early as possible to prevent far reaching consequences in adulthood.

S3B Beyond the Lungs

METABOLIC SYNDROME

Norlaila Mustafa
Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia

Metabolic Syndrome (MetS) refers to co-occurrence of several cardiovascular risk factors, namely insulin resistance, abdominal obesity, atherogenic dyslipidaemia and hypertension. It is a clinical diagnosis where the presence of three out of five criteria is required. These conditions are interrelated and shares underlying mechanism and pathways. Other associated findings such as systemic inflammation, hypercoagulability or microalbuminuria are important to the pathophysiology of MetS. Impaired pulmonary function has been reported to be associated with insulin resistance and metabolic abnormalities. Insulin resistance which is strongly associated with abdominal obesity is also said to cause inflammation in the airway smooth muscle and leads to increased airway responsiveness. On the other hand, obesity also has been shown to be related to cause physiologic impairments in respiratory system: airflow limitation with reduction of both FEV_1 and FVC, and reduction in lung volumes. Taken together, the low lung volume in obese people, which potentially causing detrimental effect on lung function. The association of obstructive lung function with MetS could be explained by obesity, and subsequent systemic inflammation and by the role of adipokines.

S3C Sleep Disordered Breathing in Children: What's New?

COPING WITH RESIDUAL CHILDHOOD OSA AFTER ADENOTONSILLECTOMY

Aroonwan Preutthipan
Mahidol University, Thailand

Obstructive sleep apnea (OSA) is characterized by recurrent events of partial or complete airway obstruction during sleep leading to profound disturbances in homeostatic gas exchange, frequent arousals and disturbed sleep architecture. The prevalence of OSA in children is approximately 2-4%. Although the prevalence of OSA in children is less than that in adults, it is associated with substantial health outcomes, including growth retardation, enuresis, neurocognitive, cardiovascular, and metabolic complications. To diagnose and determine the severity of OSA, PSG has been recommended to be the gold standard test. Empirical treatment with intranasal corticosteroids and anti-leukotriene is the first line medications. They have been found to be helpful in children with adenotonsillar hypertrophy who have mild to moderate OSA. Adenotonsillectomy should be considered in children with OSA documented by either PSG or overnight pulse oximetry. Normalization of polysomnographic findings was observed in 79% of children after adenotonsillectomy. Residual OSA was found more common in children with obesity and severe OSA. Treatment options of residual OSA post adenotonsillectomy should be decided according to the most likely underlying cause of OSA in an individual patient. For example, weight loss and bariatric surgery may be needed in obese patients. Positive airway pressure therapy has been employed for OSA in neuromuscular weakness and obesity hypoventilation syndrome. High flow nasal cannula is recommended in children who cannot tolerate CPAP. Myofunctional therapy and orthodontic devices may be indicated for children with malocclusion, high arch palate. Tracheostomy remains to be the last option for rare children who have failed to respond to other treatment approaches.

S3C Sleep Disordered Breathing in Children: What's New?

UPDATE ON SMA TYPE 1 THERAPIES

Elizabeth Wraige
Evelina Children's Hospital, United Kingdom

Spinal muscular atrophy (SMA) type 1 is characterised by progressive muscle weakness, failure to gain motor milestones including sitting and, in the absence of ventilatory support, shortened life-expectancy with survival not expected beyond 2 years.

Over the last five years a number of diseases modifying treatments for SMA have been developed. These have been shown in clinical trials and subsequent 'real-world' experience to have benefits, including prevention of the usual progressive muscle weakness, potential acquisition of motor milestones, preservation of swallow and respiratory function with improved ventilator-free survival. Treatment has the greatest benefit if started at an early stage in the course of the disease, with the best responses to treatment seen in those treated prior to the onset of muscle weakness.

The treatments nusinersen, risdiplam and onasemnogene abeparvovec will all be discussed with an overview of safety and benefits of each of these therapies.

S3C Sleep Disordered Breathing in Children: What's New?

RESPIRATORY SUPPORT IN SMA TYPE 1: A CHANGE IN PARADIGM?

Noor Zehan Abdul Rahim
Evelina Children's Hospital, United Kingdom

Historically, infants with SMA1 rapidly lose the ability to swallow and breath, do not achieve normal milestone and suffer from frequent pulmonary infections secondary to poor ability to manage secretions and indirectly, maintaining and adequate nutritional balance.

With the recent advancement of disease modifying therapy for SMA1, it is crucial to revisit the role of supportive management from respiratory point of view to help improve the quality of life for this cohort of patients.

I will be discussing the current practice from respiratory perspective as well as the complications and trajectory of the disease impacting the respiratory function in particular from the experience at the Evelina London Children's Hospital.

The aim of the lecture is to instigate a broader discussion on how to balance out respiratory support with the current change in SMA1 therapy.

Plenary 2

CRITICAL CARE EXPERIENCE CARING FOR PAEDIATRIC PATIENTS WITH COVID-19 IN PAEDIATRIC INTENSIVE CARE UNIT

Thianchai Bunnalai and Christopher Prince
University of California San Francisco, California

Sars-CoV-2 or COVID-19 pandemic has been a world health problem since the end of 2019. Even children have more minor symptoms than adults, but children are the parts of the transmission cycle to vulnerable adults, especially those with health disparity and poor socioeconomic status. Fever, cough, and gastrointestinal symptoms are the three most common presenting symptoms in children with COVID-19. The readiness of the team with Critical Care Response Strategies is essential, which includes preparation of “staff,” “space,” and “stuff.” Implementing the unique model using the combined expertise from multidisciplinary pediatric and adult teams to provide care during a pandemic is a potential solution during the COVID-19 surge. Moreover, effective leadership, communication with clear goals, mutual respect of diversity and heterogenicity, and timely conflicts management are the critical elements of effective team-building during a crisis. The general strategy of caring for critically Ill pediatric patients with COVID-19 needs multidisciplinary approaches and ethical consideration. Safety and efficacy data is very limited in the pediatric patient with COVID-19. Therefore, the up-to-date pediatric recommendation is based on an adult’s study. The treatment strategy includes infection control in the Intensive Care Unit, hemodynamic support, oxygenation & ventilatory support, acute kidney injury (AKI) and renal replacement therapies (RRT), pharmacologic intervention, and general care such as respiratory, nursing care, and end-of-life care. Thus far, there is no long-term data and consequences of COVID-19 in children, and only vaccines can stop the pandemic.

S4A Progressive Fibrosing ILD

ILD-ASSOCIATED WITH PULMONARY HYPERTENSION DIAGNOSIS AND TREATMENT CHALLENGES

Steven Nathan
Inova Heart and Vascular Institute, Virginia

Pulmonary hypertension (PH) commonly complicates the course of many different forms of interstitial lung disease (ILD). The prevalence of PH varies on when in the disease course it is sort. The most data emanates from idiopathic pulmonary fibrosis where the prevalence has been shown to be in the range of approximately 15 to 50%. While most the pulmonary hypertension complicating ILD tends to be mild to moderate in severity, it is associated with significantly increased risk of mortality, as well as reduced functional ability, increased oxygen requirements and possibly even acute exacerbations of the underlying ILD. Symptoms that are disproportionate to the severity of the underlying interstitial lung disease, high oxygen requirements, a reduced 6-minute walk distance, and an enlarged pulmonary artery segment on chest CT are all important clues to the presence of underlying pulmonary hypertension. Echocardiography is the best screen, however right heart catheterization is always needed to confirm the diagnosis. There have been many trials looking at pulmonary vasoactive agents to treat PH complicating ILD and while some have suggested a positive benefit, there have been no definitive randomized control studies demonstrating utility until very recently. Specifically, the INCREASE study of inhaled treprostinil was shown to improve

the 6-minute walk distance as well as reduce the likelihood of clinical worsening in patients with PH due to ILD. This medication has since been approved in the USA for the treatment of PH due to ILD which heralds a new era in the management of interstitial lung disease patients.

S4A Progressive Fibrosing ILD

LUNG IMAGING AS A TOOL TO CONNECT THE CLINICAL AND HISTOLOGY IN ILD

Seth Kligerman
University of California, San Diego

Interstitial Lung Disease is a heterogenous group of disorders and one of the few that uses combined radiologic, pathologic, and clinical information to create a unified consensus diagnosis. While none alone is considered the gold standard, the radiologic findings are often mirrored in both the patient's histology and physiology. The goal of this lecture is to provide a case-based review of CT findings in numerous causes of ILD and how the findings are correlated with underlying pathology and clinical findings.

S4A Progressive Fibrosing ILD

PF-ILD: A CHALLENGING PHENOTYPE WITH NEW PRESPECTIVES AND IMPROVISED THERAPEUTIC LANDSCAPE

Kevin Flaherty
University of Michigan Medical School, Michigan

Progressive Fibrosing Interstitial Lung Disease (PF-ILD) describes a phenotype of a large group of diverse interstitial lung diseases that despite initial therapeutic interventions (such as immunosuppression in connective tissue disease associated ILD and/or antigen avoidance in hypersensitivity pneumonia) show progression of fibrosis and loss of lung function. The INBUILD study (N Engl J Med 2019; 381:1718-27) demonstrated that the loss of lung function, measured by change in forced vital capacity (FVC) was similar to that in idiopathic pulmonary fibrosis (IPF) and that nintedanib could slow the rate of decline compared to placebo. The concept of PF-ILD is not meant to dimmish the importance of early and accurate diagnosis as many ILDs, especially when treated before the development of fibrosis, can respond to initial thearpy. Rather the concept of PF-ILD highlights that when progressive fibrosis is present anti-fibrotic therapy such as nintedanib can slow disease progression. Key inclusion criteria for the INBUILD study included having a non-IPF ILD with at least 10% fibrosis on HRCT and the demonstration of progression within 2 years of screening by having at least one of: 1) relative decline in FVC of $\geq$ 10%, 2) relative decline in FVC of 5-10% if combined with increased symptoms or increased fibrosis on HRCT or 3) increased symptoms with increased fibrosis on HRCT.

S4B Lung Cancer

EMERGING BIOMARKERS IN NSCLC: WHICH PATIENTS SHOULD WE TEST? WHICH BIOMARKERS?

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

The precision medicine treatment landscape for patients with advanced non-small cell lung cancer (NSCLC) is evolving at an impressive pace, with a host of targeted therapies approved and many more in development. Current guidelines recommend biomarker testing before initiating first-line therapy in all patients with advanced non-squamous NSCLC, regardless of age, smoking history and other clinical characteristics. The gene aberrations to be tested include *EGFR*, *ALK*, *ROS1*, and *BRAF*. In addition, if next-generation sequencing (NGS) testing is available as part of a broad panel, testing for alterations in *MET*, *RET*, *NTRK*, *KRAS, EGFR exon 20 insertion and HER2* is also recommended. For advanced squamous NSCLC, molecular testing should be considered in patients who are never-smokers, those with mixed histology or if the biopsy specimen is small.

Although an imperfect predictive biomarker, tumour PD-L1 expression is used to select immune checkpoint inhibitors (ICIs) as a monotherapy or in combination with chemotherapy or with another ICI in NSCLC patients without oncogenic drivers.

A reflex molecular test standing order allows molecular testing to be performed on confirmation of a NSCLC histology resulting in a short turnaround time and avoiding the need for sending individual test requests and to conserve tissue.

NGS is the most efficient way to look for acquired resistance to third-generation EGFR tyrosine kinase inhibitor and second-generation ALK inhibitors.

In recent years, adjuvant therapy with novel potent and less toxic targeted therapy agents such as osimertinib following adjuvant chemotherapy in completely resected stage IB-IIIA *EGFR*-mutant NSCLC has shown improved disease-free survival.

S4B Lung Cancer

APPROACHES IN STAGING OF NSCLC: IMPORTANT TIPS

James Ho Chung-man
University of Hong Kong, Hong Kong

Lung cancer remains the top cancer killer in many parts of the world. The majority of lung cancer comprises of non-small cell lung carcinoma (NSCLC). Staging of disease is still the key prognostic factor, with the 5-year overall survival ranging from 77-92% in stage IA1-3, 53-60% in IIA/B, 36% in IIIA, down to 0-10% in IV A/B according to the 8th edition of TNM staging. Accurate disease staging is crucial for precise prognostication and appropriate management approach. The current recommended diagnostic imaging with whole body positron-emission tomography computed tomography (PET-CT) and magnetic resonance imaging (MRI) brain scan can allow precise clinical staging in most cases, to minimize major lung resection in occult metastatic disease. The potential false negative PET-CT for occult metastases with metabolically less 18F-deoxyglucose (FDG) avid tumour can sometimes be challenging. The emerging role and advantages of PET-MR for diagnostic imaging will need further exploration. Pathological staging will need to be considered for solitary metastatic disease, mediastinal involvement and synchronous primary lung cancer. The recent advances in different bronchoscopic approaches especially with endobronchial ultrasound are most helpful in confirming clinical staging by radiological imaging.

S4B Lung Cancer

HOW TO OVERCOME FINANCIAL TOXICITY OF LUNG CANCER TREATMENT?

How Soon Hin
International Islamic University Malaysia, Pahang, Malaysia

Lung cancer is the most common cause of cancer-related death in Malaysia, accounting for almost 20% of all cancer deaths in the country. The vast majority of lung cancer patients in Malaysia present in late stages of the disease, whereby 90% are diagnosed in stages III or IV at presentation. Overall survival of advanced stage non-small cell lung cancer (NSCLC) had been improved by targeted therapy and immune check point inhibitor (ICI). However, there are challenges in making these therapy universally available in a resource limited setting. Modification of the regime may be useful to overcome financial toxicity, in addition to seeking various funding and enrolling patients into clinical trial or compassionate programme.

S4C An Update on Paediatric Asthma

ASTHMA PHENOTYPES AND ENDOTYPES: WHAT ARE THEIR CLINICAL IMPLICATIONS?

Peter Le Souëf
Perth Children's Hospital, Australia

The concept of phenotypes and endotypes for asthma has been introduced in the last decade to provide a better understanding of this complex condition. Broadly speaking, phenotypes are the observed or measured aspects of asthma and endotypes are specific aspects that contribute to particular phenotypes. The difficulty in this enterprise is that asthma is a complex disease with many overlapping phenotypes and no clear distinct mechanistic pathways. Recent published studies have highly complex methodologies that produce endotypes that together have improved our understanding of asthma. In particular, studies that have examined immune system responses have shown that factors associated with enhanced Th2 responses can be viewed as endotypes for atopy and the clinical course of asthma. However, newer studies have shown that impaired Th1 and innate immune responses, as characterised by impaired interferon responses, may be more important in determined asthma phenotypes. These studies have suggested that the association between atopy and asthma in young children is a surrogate for the more important impairment of immune system responses that allow viral respiratory infections to produce acute exacerbations of asthma. As always, we need to know much more than we currently do to understand the basic mechanisms of asthma in children, and many more detailed studies are still required.

S4C An Update on Paediatric Asthma

PERSONALISED TREATMENT IN SEVERE ASTHMA: ROLE OF BIOLOGICS

Mariana Daud
Hospital Raja Perempuan Zainab 2, Kelantan, Malaysia

Severe asthma is defined as asthma that requires treatment with high dose inhaled corticosteroids plus a second controller (and/or systemic corticosteroids) to prevent it from becoming 'uncontrolled' or which remains 'uncontrolled' despite this therapy". This is provided asthma diagnosis has been confirmed and comorbidities or confounding factors have been addressed appropriately.

Severe asthma is a heterogeneous condition with many phenotypes. Generally, it can be divided into T2-high and T2-low phenotypes. The development of new treatment options in severe asthma has been made possible with the improved understanding of the complex pathophysiology of asthma. Biologic therapies target inflammatory modulators that have been identified to play a key role in the pathogenesis of asthma predominantly in the T2-high phenotypes and endotypes, for example, severe eosinophilic asthma and severe allergic asthma. Personalized therapy is based on patient-specific characteristics and underlying endotype rather than disease severity alone.

Biomarkers such as sputum or blood eosinophil count, IgE level, exhaled nitric oxide fraction (FENO) are being used to guide therapy. There is rapid advancement of new treatments for severe asthma, particularly the new biologics approved the management of severe eosinophilic asthma, especially in adults and adolescents. Omalizumab (anti-IgE) is the first biologic agent approved for severe asthma and many studies have shown that it is safe and effective even in children. Omalizumab is the preferred add-on therapy for severe allergic asthma in young children aged 6-11 years. Other biologics that have been approved for severe asthma are anti-IL5/IL5R and anti-IL4R,but their role in young children is somewhat limited due to lack of studies. These targeted therapy have been shown to have clinical benefits eg. reduce asthma exacerbations, improve lung function, reduce systemic corticosteroid dose, improve quality of life and asthma symptoms. In addition to currently approved biologics agents, several other biologics targeting other inflammatory mediators are in clinical trials. This talk will highlight the mechanism of actions, indications, clinical benefits and side effects of the biologic agents that are available in Malaysia and share the local experience in using it.

S4C An Update on Paediatric Asthma

INTERMITTENT ICS IN MILD ASTHMA?

Patrick Chan Wai Kiong
Gleneagles Medical Centre, Kuala Lumpur, Malaysia

Mild persistent asthma is the most common severity category of childhood chronic asthma. The traditional recommendation for the management of mild persistent asthma is the use of a quick relief medication namely the intermittent use of an inhaled short acting beta agonist (SABA) and regular low dose inhaled corticosteroids (ICS) for prevention. It has been proven to alleviate asthma symptoms, prevent exacerbations and improve lung function.

The intermittent use of inhaled SABA with as needed ICS rather than on a regular use appears more recently to be an emerging effective strategy in the management of mild asthma. Several studies have demonstrated that the as needed ICS use was not inferior to regular ICS use in asthma symptom control and prevention of exacerbations. This strategy has the added advantage of potentially reducing the adverse side effects of cumulative ICS use and growth retardation. Furthermore, the

compliance to regular preventer medication in the mild asthma category is less likely to be satisfactory making an as needed treatment strategy that is effective more likely to be adhered to.

The risk of severe exacerbations in mildest category of childhood asthma namely intermittent asthma has been shown to be significant, resulting in a paradigm shift in the management of this category. There is sufficient evidence to now include the use of low dose ICS when inhaled SABA was administered, rather than just inhaled SABA alone to overcome the risk of a severe exacerbation.

S4C An Update on Paediatric Asthma

NEW INHALER OPTIONS IN ASTHMA

Rus Anida Awang
Hospital Pulau Pinang, Pulau Pinang, Malaysia

It was documented in the *Journal of Aerosol Medicine and Pulmonary Drug Delivery* 2017, that people have inhaled substances to treat asthma for more than 3,000 years ago, from smoking opium in ancient China to breathing in the fumes of burning herbs in ancient Greece.

The first inhaler had been created in 1778 by an English physician and astronomer John Mudge. Then in 1800s the first portable nebulizer was invented, named the “Pulverisateur.” During this time the dry-powder inhalers (DPIs), which deliver medicine as a powder, were being used.

The major breakthrough came in 1956, when George Maison, the president of Riker Laboratories, invented the metered dose inhaler (MDI) using glass vials and valves designed for perfume bottles.

A spacer device was then created to overcome the poor coordination using the MDI and it ensure more medicine reaches the lungs. The first commercialized spacer was developed in the 1970s. During this time the breath-actuated MDIs was also developed to synchronise this motion. With this technology, breathing normally can activate the medication's release.

In order to help patients, know when their inhaler has exceeded or is nearing the last available dose, the first MDI with an integrated dose counter was developed in 2004. All new MDIs are now recommended to have dose counters or dose indicators. Counters show how many sprays the inhaler has left, while indicators turn a different color when the medication’s running low.

The propellants used in the inhaler were formerly chlorofluorocarbons (CFCs), but due to concerns about their destructive effect on the ozone layer, these started to be replaced with hydrofluoroalkanes (HFAs) in the 1990s (it was phased out completely in 2012). This replacement had an unexpected beneficial effect, it decreased the size of the liquid particles in the mist produced on spraying the inhaler. This caused the effectiveness of the drug budesonide to increase by a factor of 2.6.

There had been a lot of progress in the chemistry and properties of the inhaled bronchodilators and inhaled steroid used. The first use of corticosteroid to treat acute asthma exacerbation was in 1956. Development of corticosteroids that have less mineralocorticoid activity or no mineralocorticoid activity is preferred in asthma management. Salbutamol was discovered in 1966 and was launched as Ventolin in 1969. The properties of the short-acting beta2 agonist (SABA) have mean duration of effect of two hours and maximal effect within 5-20 minutes. Currently there are long-acting beta2 agonist (LABA) and long-acting muscarinic acid (LAMA) which are made available in a fix combination inhaler with steroid. These had changed the way asthma treatment being prescribed.

Treatment approach for asthma had changed from using three single inhaler which is no longer recommended (add LABA to the Inhaled corticosteroid and continue the SABA as reliever) to either using the two-inhaler approached (combination inhaler preventer and SABA reliever) or one inhaler SMART approach (single inhaler maintenance and reliever therapy).

The new inhaler options in asthma will be discussed further in the lecture.

S5A SDB

THE FUTURE OF TELEMEDICINE IN DIAGNOSING AND TREATMENT OF SLEEP DISORDER

Ahmad Izuanuddin Ismail
Hospital Universiti Teknologi MARA, Selangor, Malaysia

Telemedicine comes in many shapes and sizes and offers many advantages over the traditional healthcare visit, but until recently, it was largely underutilized. COVID-19 pandemic quickly changed that - only time will tell if telemedicine's new popularity will last.

In the management of obstructive sleep apnoea, the telemedicine pathway can encompass all aspect of the management from diagnosis, consultation, and treatment adjustment. The session meant to look at the strengths, weaknesses, opportunities, and threats of telemedicine in this field and discuss its feasibility in our current set up.

S5A SDB

OBESITY, SLEEP APNEA AND COVID-19: RELATIONSHIP, RISK AND THERAPEUTIC IMPLICATIONS

Naricha Chirakalwasan
Chulalongkorn University, Thailand

Obesity is linked to adverse outcome in COVID-19 patients including increased mortality. [1] OSA is associated with severe COVID-19 infection despite controlling for BMI and other factors. [2] The decision to conduct sleep test should be based on availability, turnaround time, local COVID-19 prevalence rate, and local/state regulations. [3] Home auto-PAP at home may be more reasonable due to potential aerosol transmission of COVID-19. [3] Home PAP can be used but with caution to protect household contacts and telemonitoring system has been shown to improve adherence in Asians. [4] The recent publication in Asians also demonstrated increased use of PAP during COVID-19 pandemic in high education group. [5] In patient PAP treatment in OSA management should be avoided, but if the treatment is essential, temporary change to non-vented mask with the use of anti-viral filter preferably in negative pressure room is recommended. [6]

Reference

1. Huang Y, et al. Obesity in patients with COVID-19: a systematic review and meta-analysis. Metabolism. 2020 Dec;113:154378.
2. Strausz S, et al. Sleep apnoea is a risk factor for severe COVID-19. BMJ Open Respir Res. 2021 Jan;8(1):e000845.
3. https://aasm.org/covid-19-resources/considerations-practice-sleep-medicine assessed November 2021 assessed November 2021.

4. Chumpangern W, Muntham D, Chirakalwasan N. Efficacy of a telemonitoring system in continuous positive airway pressure therapy in Asian obstructive sleep apnea. J Clin Sleep Med. 2021 ;17(1):23-9.
5. Tepwimonpetkun C, Muntham D, Suppasawatgul P, Chirakalwasan N. Positive airway pressure therapy adherence for obstructive sleep apnea during the COVID-19 pandemic. Sleep Breath. 2021 Oct 19:1-7. Online ahead of print.
6. https://www.brit-thoracic.org.uk/media/455098/osa-alliance-cpap-covid-19-advice-20-3-20-v10.pdf assessed November 2021.

S5A SDB

SLEEP APNEA AND THE RISK OF NEURODEGENERATION

Hamdi Najman Achok
Hospital Sultanah Aminah, Johor, Malaysia

Sleep disordered breathing, predominantly obstructive sleep apnea (OSA), has been recently researched tremendously as to be one of the independent risk factors for the development of various types of dementia and neurodegenerative diseases, mainly Alzheimer and Parkinson's disease. As we obtain deeper understanding of the disease pathophysiology, and the ever- evolving knowledge of sleep and its physiological changes in OSAs, this will unlock potential in early detection, unraveling effective treatment in providing better care for our dementia patients in the future.

S5B Pleural Disease

PLEURA AND SYSTEMIC DISEASES

Anantham Devanand
Singapore General Hospital, Singapore

There are numerous systemic diseases that impact the pleura and result in effusions. The three main causes of effusion remain heart failure, cancer, and infections. The use of Light's criteria to distinguish transudates from exudates is a helpful first step. This is because there are many causes of exudates and a much smaller differential for transudates beyond cardiac failure, nephrotic syndrome, and hepatic hydrothorax. In the diagnosis of systematic disease, the role of history and physical examination is crucial. Physical examination includes the abdomen, lymph nodes and joints. A screen for malignancy through a breast, pelvis and thyroid examination is also prudent. Lupus pleuritis is a marker of active disease and presents with a serous exudate. Although pleural ANA titers and the presence of lupus cells in the cytology are helpful, the diagnosis remains clinical. Rheumatoid pleurisy seldom precedes joint involvement and typically presents as a lymphocytic exudate with a high adenosine deaminase level. Medical thoracoscopy may identify pleural nodules and the characteristic histology in rheumatoid arthritis is focal, multinucleated giant cells. In systemic disease, effusions can result from causes other than the underlying disease. These alternative causes of effusion include infection, hypoalbuminemia, cardiac/renal involvement, and drug related serositis. If the pleural effusion remains undiagnosed, the clinician should review the context, tempo of symptoms, radiographic findings and look carefully at the fluid before ordering additional tests. Some cases are discussed to highlight this approach.

S5B Pleural Disease

UPDATES ON MPE

Najib M Rahman
University of Oxford, United Kingdom

Malignant pleural effusion is a common clinical condition which causes significant symptom burden, and requires careful evaluation. With a number of recent high quality randomised trials, there are now a number of rational interventions available to our patients, and this presentation will critically review the data and provide a suggested decision-making and treatment pathway, including future research areas.

S5C Neonatal Lung Disease

NEONATAL PRESENTATION OF chILD

Asiah Kassim
Hospital Tunku Azizah, Kuala Lumpur, Malaysia

In the past, Interstitial Lung Disease (ILD) group of disease in children followed adult approach and classification. Unfortunately, it's realised that the ILD in adult and children can be different and some may be overlap. There are many names labelled to this group. chILD, is a broad term for a group of rare lung diseases that can affect babies, children, and teens.
Interstitial lung disease (ILD) is used interchangeably with diffuse parenchymal lung disease (DPLD). The term "interstitial" may be misleading, as other parenchymal components such as vessels, epithelium, airways or pleura are usually also involved. The acronym chILD (children's ILD) is used to differentiate from adult ILD. A spectrum of heterogeneous, rare pulmonary disorders affecting paediatric age group, especially < 2 years old. It causes impairment of pulmonary diffusion, restrictive lung physiology, abnormal gas exchange. Estimated prevalence varies with age from 1.3 to 162cases/1,000,000 children.
Fan et al defined ILD in children must meet at least 3 of the following 4 criteria; respiratory symptoms (cough, rapid breathing, or exercise intolerance), signs (tachypnea, adventitious sounds, retractions, clubbing, failure to thrive or respiratory failure), hypoxemia and diffuse abnormalities on chest imaging. Like any rare group of diseases, the challenges are making the right diagnosis and choosing the optimum treatment for children with ILD.

S5C Neonatal Lung Disease

BPD: LONG TERM RESPIRATORY OUTCOME

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

Bronchopulmonary dysplasia (BPD) comprises 2 different entities of respiratory disease in preterm infants. Historically, BPD referred to chronic lung disease seen in infants with an average gestational age of 34 weeks and prolonged exposure to high oxygen concentrations. One study showed survivors had a high incidence of emphysema and with lower FEV1 values. Decline in lung function has also been reported with a higher incidence of chronic lung disease in adulthood.

The 1990s saw significant improvements in neonatal care including the use of surfactant which changed the whole demographics of BPD with much more premature babies, with consequently much more immature lungs, surviving. The more immature lung of the more premature baby usually

requires more prolonged mechanical ventilation and supplemental oxygen leading to more severe BPD.

Currently BPD or “new” BPD is defined as the requirement for supplemental oxygen for at least 28 days. It is characterized by fewer and larger alveoli, decreased pulmonary vasculature, inflammation and variable smooth muscle hyperplasia which may limit function. These children show an increase in respiratory illness especially wheezing necessitating medical care and some studies report airway obstruction with some restriction and lower lung volumes.

Preterm survivors with BPD may develop morbidity not just from antenatal and neonatal factors but also from childhood factors like poor growth as well as infection and may also be more sensitive to insults in later life. As these survivors grow to maturity, adulthood and old age, this morbidity becomes more apparent. Efforts have to be made to reduce exposure to damaging environmental effects like cigarette smoke and pollution and also infections. Knowledge of the pathophysiology of progression of respiratory disease will aid in determining therapeutic options for both prevention and treatment of long term respiratory sequelae.

S5C Neonatal Lung Disease

CONGENITAL LUNG MALFORMATION

Andrew Bush
Royal Brompton & Harefield NHS Foundation Trust, United Kingdom

The principles of classification of congenital thoracic malformations are (a) ssystematically describe what is actually seen in each component of the lung, [arterial supply (aortic, pulmonary), the venous drainage (pulmonary, systemic), the airway and lymphatic system], as well as any abnormalities elsewhere; (b) use simple English (or other modern language) words, not Latin; and (c) do not speculate about embryology or anything else; you will be proved wrong sooner or later! Most malformations are discovered at antenatal ultrasound, and most regress in the 3rd trimester; hydrops is an ominous sign. Antenatal treatment options, including maternal betamethasone and fetal surgery, are not evidence based. Post-natally, if the baby is symptomatic, then surgery will be required, but if the baby is asymptomatic the question arises as to whether surgery should be performed to prevent complications. The risks are unknown, and policies vary across the world. Complications include infection, bleeding, pneumothorax and air embolism, and malignancy, with a likely prevalence of 3-5%; late presentation with malignancy in adults is well described. Pathological descriptions of these malformations (congenital cystic adenomatoid malformation (CVCAM), sequestration, bronchial atresia, bronchogenic and enterogenous cysts) cannot accurately be predicted from antenatal or postnatal imaging, and hybrid lesions are common. DICER1 mutations as a cause of pleuropulmonary blastome have recently come to the fore. My personal preference is for surgery in the first two years of life, but others prefer a conservative approach.

S6A Primary Care

INHALERS AND NEBULISERS DURING RESPIRATORY PANDEMICS

Tan Jiunn Liang
University Malaya Medical Centre, Kuala Lumpur, Malaysia

We are currently facing the threat of various respiratory pandemics. In the last few years, there has been an increase in the number of new viral respiratory infections such as SARS, MERS-CoV, SIV and

H5N1 resulting in new strains of respiratory tract diseases that are unresponsive to current treatment. Besides that, respiratory bacterial infections also place a heavy burden on healthcare systems across the globe. The increased in antimicrobial resistance and the lack of new antibiotic in the pipeline signalled the alarming state of our healthcare system. With current ongoing COVID-19 pandemic, inhaler and nebuliser use have been a controversial issue. We reviewed the latest evidence and recommendation on inhalers and nebulisers during this respiratory pandemic

S6A Primary Care

LONG COVID

Muhammad Amin Ibrahim
UiTM Specialist Hospital, Selangor, Malaysia

Long COVID-19 syndrome is defined as signs and symptoms that develop during or after an infection consistent with COVID-19, continue for more than 12 weeks and are not explained by an alternative diagnosis[1]. Majority of post COVID-19 patients remained symptomatic at 12-week, and shortness of breath and cough were among the commonest symptoms reported. Myall et al defined persistent post COVID-19 interstitial lung disease (ILD) as combination of symptoms, significant abnormal lung physiology and lung parenchymal changes; only in 5% of the patients in contrast of 39% patients who reported ongoing symptoms[2]. Shah et al reported those were symptomatic were likely to have abnormal lung function[3]. Significant percentage of patient has ground glass and reticulation changes in CT scan during the same follow-up. Our local guideline recommended a dedicated post COVID-19 clinic for those with category 4 and 5 with the initial follow-up at 4-week of discharge[1]. Those with abnormal chest radiograph and lung physiology should be further assessed for ILD and chronic thrombo-embolism pulmonary hypertension.

[1] POST COVID-19 MANAGEMENT PROTOCOL 1st EDITION, Medical Development Division, Ministry of Health Malaysia

[2] Myall, K. J., Mukherjee, B., Castanheira, A. M., Lam, J. L., Benedetti, G., Mak, S. M., ... & West, A. G. (2021). Persistent Post–COVID-19 Interstitial Lung Disease. An Observational Study of Corticosteroid Treatment. *Annals of the American Thoracic Society*, *18*(5), 799-806.

[3] Shah, A. S., Wong, A. W., Hague, C. J., Murphy, D. T., Johnston, J. C., Ryerson, C. J., & Carlsten, C. (2021). A prospective study of 12-week respiratory outcomes in COVID-19-related hospitalisations. *Thorax*, *76*(4), 402-404.

Plenary 3

COVID-19, 2YEARS ON - WHAT MORE DO WE KNOW

Adeeba Kamarulzaman
University Malaya Medical Centre, Kuala Lumpur, Malaysia

Since the first description of the outbreak of pneumonia in Wuhan, China in December 2019 more than 246 million COVID-19 cases have been reported with approximately 5 million deaths worldwide. Recognising its implication, the global scientific community responded early and with breath-taking speed, from the release of the genomic sequence within weeks of the identification of the causative agent SARS-CoV2, that enabled development of diagnostic tests, to the development of highly effective vaccines in less than a year following the declaration of the pandemic. Extensive research including models of public health interventions, the clinical features and natural history of the disease and effective therapeutics informed public health strategies as well as clinical management. More recent research has focused on the development of variants and vaccine strategies including booster doses as well as testing strategies. The development of vaccines and continued non pharmaceutical interventions have enabled countries to plan towards safely exiting to endemicity.

Whilst the COVID-19 pandemic has impacted millions of individuals and devastated countries the world over, extensive scientific research enabled a global response that combined clinical management, public health and vaccination strategies that were successful in limiting the mortality rate of the disease globally. By continuing to conduct research and following the science, we will continue to learn more about SARS-CoV 2 and the disease to further inform us on the appropriate and most effective responses towards the pandemic.

S7A COVID-19: My Experience

SPECIAL FORUM

Zulkifli Abas
Hospital Putrajaya, Putrajaya, Malaysia

I was sent to Sabah for helping medical team there to manage covid-19 pandemic that was worsening in October 2020. I was posted in Lahad Datu Hospital for 3 weeks from 10th October 2020 until 31st October 2020. For first 2 weeks I was put on duty in 3 wards there for helping covid-19 management. In addition, we also helped PKRC that locating patient for quarantines. I stayed in hotel nearby Lahad Datu hospital. After 2 weeks, I felt sick with fever, vomiting and stomachache and hospitalized and my PCR result was positive for COVID-19. I was then treated and transferred to Tawau Hospital (taking care by ID physician there). I was treated for 1 week and went back to KL on 1 Nov 2020. I was symptoms free when I was back. End of November 2020, I did HRCT, lung function test and 6 min walking test arranged by esteemed respiratory team UiTM (by Prof Dr Izuanudin). Luckily, all results come back as normal, and PRN follow up under respiratory team UiTM. In 17 Dec 2021 morning, I felt cerebellar symptoms which were vertigo, vomiting and fall on right side. I was brought to Putrajaya Hospital and CT brain done was normal. Hospitalised for 1 night. One week after I did MRI brain which showed cerebellar infarct and bleeding. Incidental finding I had PFO which closed by IJN and physiotherapy was done and now I was on tablet clopidogrel 75 mg od.

S7A COVID-19: My Experience

SPECIAL FORUM

Eddie Wong Fook Sem
Hospital Selayang, Selangor, Malaysia

Currently my task is being part of COVID-19 Response Unit (CRU) at Hospital Sungai Buloh since March 2020, ever since the WHO declared COVID-19 a global pandemic.

I have been working as a Nephrologist at Hospital Selayang since 2018. At the start of the pandemic the sudden overwhelming of the pandemic has affected so many lives of the dialysis population especially in Klang Valley. This in particular requires meticulous care because of high risk of complications. Once infected with SARS-CoV-2 virus, their weakened body immune system resulted in much higher risk of death.

S7A COVID-19: My Experience

SPECIAL FORUM

Siti Nasrina Yahaya
Hospital Putrajaya, Putrajaya, Malaysia

COVID-19 pandemic management posed several challenges towards the healthcare structure and system in Sabah. This presentation is all about experience sharing regarding our management and challenges faced during the surge of cases in Sandakan following the state election. As a small district hospital with specialist, we encountered multiple difficulties in terms of obtaining the best flow for risk stratification and facilitating admissions for covid-19 patients. Dynamic improvisations were made from time to time to smoothen the flow of the referrals and admissions from the community. As the saying goes, there will always be learning opportunities even during the worst storm. I sincerely hope that this humble experience sharing will provide some useful tips to all the healthcare providers in encountering any potential calamities in the future.

S7A COVID-19: My Experience

SPECIAL FORUM

Zainura Che Isa
Hospital Sultan Abdul Halim, Kedah, Malaysia

During the covid-19 surge in the state of Kedah, like any other healthcare provider, HSAH was forced to adapt and provide service under extreme demand. As a result, transformation and modification transpire at the organizational level to fulfill these demands. First, the management repurposes and reequips the wards, optimizing the spaces, and delegating resources. Concurrently the departments redesign their services to meet the needs of these changes.

Nonetheless, the reassignment and redeployment of healthcare workers to extreme workloads with an increasing number of cases, insufficient equipment including PPE, and lack of adequate therapies to save lives have affected them physically and psychologically. This presentation explores our experience battling with this deadly virus of the century

MODIFIED TECHNIQUES IN PAEDIATRIC RESPIRATORY CARE DURING COVID-19 PANDEMIC

Aroonwan Preutthipan
Mahidol University, Thailand

COVID-19 pandemic is the most serious global health crisis in this century which impacts people around the world. COVID-19 virus is primarily transmitted between people through respiratory droplets and contact routes. This virus can also spread via airborne transmission. Therefore, nebulization which generates aerosols should be prohibited. If a bronchodilator is required, a metered dose inhaler (MDI) with a spacer is preferred. In children with asthma exacerbations, bronchodilators should be administered only by MDI with spacers. Spacers basically have two types, valved VS. non-valved spacers. Theoretical advantages of valved spacers include prevention of exhaled gas with moisture into the spacer, avoidance of leaking of the aerosol from the spacer, prevention of dilution of the aerosol in the spacer, and elimination of the cold-Freon effect. Our team have developed a new homemade valved spacer using a clear drinking water bottle and a paper coffee cup. On the coffee cup we created two one-way valves using pieces of plastic cut from a grocery shopping bag. Since our spacer costs less than one dollar, it is a perfect substitute for a standard commercial valved spacer and can be easily disposed of. Two years before COVID-19 pandemic, we conducted a study comparing the bronchodilator response in children with airway hyperresponsiveness when salbutamol MDI was attached to our homemade valved spacer as against the response obtained when salbutamol MDI was attached to Aerochamber®. In a randomized, two-period, two-sequence crossover design, we recruited 20 children, aged 6-15 years, with bronchial hyperresponsiveness. After giving salbutamol MDI, both spacers produced significant increases in FVC, FEV1 and FEF25-75% ($p < 0.005$). The improvement in FEV_1 did not significantly differ between our homemade valved spacer and Aerochamber® ($p > 0.05$). So, our homemade valved spacer was proved to be effective for an MDI bronchodilator delivery. Our paper was recently published in Pediatric Pulmonology 2021, 56(1), 49-56. Due to its low cost, it was used as a disposable device for patients with bronchospasm to prevent the spreading of COVID-19. During COVID-19 pandemic in Thailand, we have donated and distributed our homemade valved spacers to Thai pediatricians all over the country and made a VDO clip so that every hospital could reproduce these spacers by themselves.

Another respiratory care technique that was used during COVID-19 pandemic is the modified high flow nasal cannula device (MHFNC), which can be setup without difficulties in any hospitals that have heated humidifiers, air and oxygen pipelines, and standard oxygen nasal cannulae. The cost of treatment by MHFNC is less than half of the regular commercial HFNC that is available in the market. At our hospital, MHFNC has been used satisfactorily in various causes of respiratory distress such as pneumonia, bronchiolitis, asthma, croup, postextubation stridor, and tracheobronchomalacia since 2011. We published a paper on the 3-year use of this MHFNC in young children with pneumonia in Pediatr Respirol Crit Care Med 2018;2:45-50. Of all 99 children, 92 were successfully treated with MHFNC. The maximal flow used was 3 L/kg/min. No serious complication from MHFNC was found. In Thailand the MHFNC were used in young children with COVID-19 pneumonia in the hospitals where the commercial ones were not available.

Other unpublished pediatric respiratory care techniques that were used during COVID-19 pandemic include non-invasive ventilation in a child with status asthmaticus, in which MDI bronchodilators were administered via the ventilator circuit, airway clearance with a custom-made chest wall oscillator for atelectasis found in COVID-19 pneumonia and the modified Tai Chi Qigong exercise training program for chest rehabilitation.

S7B COVID-19 in children

COVID-19 IN CHILDREN: LONG TERM RESPIRATORY SEQUELAE

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

Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has resulted morbidity and mortality at an unprecedented scale globally. There are increasing scientific and clinical evidence on the subacute and long-term effects of COVID-19 (post-acute COVID or long COVID), which can affect multiple organ systems including respiratory system. A wide spectrum of pulmonary manifestations, ranging from chronic cough, dyspnea (with or without oxygen dependence) to difficult ventilator weaning and fibrotic lung damage, has been reported among the adult COVID-19 survivors. Potential mechanisms contributing to the pathophysiology of long COVID include: (1) virus-specific pathophysiologic changes; (2) immunologic aberrations and inflammatory damage in response to the acute infection; and (3) expected sequelae of post-critical illness. Although children in general experience less severe COVID-19 disease than adults, there were data demonstrated that children can have significant long-term respiratory symptoms which can impact their quality of life. Exertional dyspnea, cough, chest tightness and exercise intolerance were the most common respiratory symptoms reported in children post-acute COVID. Nonetheless, evidence on long-term respiratory outcomes in children is still limited to small cohorts with a range of prevalence. Large, high-quality case-control studies assessing the SARS-CoV-2 infection consequences, particularly the pulmonary sequelae in children, are needed to better understand the disease burden and to facilitate identification of the risk factors for different long COVID syndrome in children.

S7B COVID-19 in children

COVID-19 THORACIC RADIOLOGY: FROM ACUTE TO LONG TERM CHANGES

Faizah Mohd Zaki
University Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia

Children are also affected with the global health pandemic of Covid-19 eventhough it was thought that children exhibit less severe symptoms as well as imaging findings compared to adults especially the elderly. Approximately 1/3 of the CT of children who had Covid-19 was reported to be normal at diagnosis, and almost 90% of cases showed abnormal chest radiograph. One of the most common CXR and CT findings are similar as adult which is the ground glass opacification with another unique finding of perironchial thickening that is frequently encountered in children. The severity of imaging findings is rather mild as compared to adult. Therefore, this lecture will explore the imaging pattern in paediatric thoracic Covid-19. We will also discuss the role of imaging not just for initial diagnosis, completion of treatment as well as upon long term follow-up in paediatric thoracic Covid-19.

S8 Multi-Disciplinary Case Discussion - Adult Post COVID Care

CASE 2: BLOOD, SWEAT AND TEARS

Loh Thian Chee
Universiti Malaya Medical Centre, Kuala Lumpur, Malaysia

The COVID – 19 pandemic has been a major global issue since 2020. It has affected approximately 250 million people to date, leading to 5 million deaths and more people suffers from post COVID – 19 infection complications. As we know, lung is the most common organ affected by the infection. Complications can range from mild hypoxia to severe respiratory failure which leads to difficulty in weaning of oxygen and poor functional status. Post COVID – 19 infection care requires multidisciplinary team approach which includes the involvement of pulmonologist, rehabilitation physician, physiotherapist, occupational therapist, dietician, and specialized nurses. Here we present a patient who is a survivor of COVID – 19 infection and had suffered from bilateral pneumothoraces, deconditioning and nosocomial infections. The care provided especially the management of pneumothoraces and active rehabilitation programme significantly improved the patient's outcome and quality of life.

S8 Multi-Disciplinary Case Discussion – Combined Non COVID Case

CASE 2 – HIDDEN IN THE MESH

Gan Beng Jin @ Benjamin Gan
Institut Perubatan Respiratori, Kuala Lumpur, Malaysia

75-year-old gentleman who is an ex-chronic smoker with underlying hypertension, dyslipidemia and chronic kidney disease presented to us in 2017 for worsening dyspnea for 10 years but worst since 2016. He did not exhibit symptoms and signs of connective tissue disease neither does he have any environmental exposures. All autoantibodies were negative. His coronary angiogram showed near normal coronary arteries and pulmonary hypertension. CT scan showed diffuse emphysema, chronic bronchitis and interstitial lung fibrosis. His pulse oximeter at rest is low at 90% under room air and reduces to 83% as observed in his 6-minute walk test. His full lung function test showed normal lung volumes with isolated reduced DLCO. A ventilation perfusion lung scan performed revealed pulmonary embolism affecting 2 subsegments. He was treated for chronic thromboembolic pulmonary hypertension and smoking related interstitial lung disease. Sildenafil and warfarin therapies were initiated in 2017. Serial CTs in 2018 and 2019 showed emphysema and definite UIP pattern. Nintedanib 150mg BD was initiated in October 2019. Dose reduction of nintedanib to 150mg od was required in 2020 due to weight loss secondary to poor appetite. His appetite and weight increased thereafter. Serial CTs between 2020 and January 2021 showed enlarging and spiculated RB3 segment lung nodule. CT guided lung biopsy was performed in February 2021 which showed metastatic lung adenocarcinoma. Palliative chemotherapy with gemcitabine was offered by oncology.

S8 Multi-Disciplinary Case Discussion - Paediatrics

CASE 1: DILEMMA OF COVID IN AN INFANT

Tan Yee Yen
Hospital Pulau Pinang, Malaysia

Covid-19 infection in infant is less well understood compared to the disease manifestation in adult. The management is generally supportive at this age. When the infant does not recover as expected, it provokes anxiety among paediatricians due to uncertainty in predicting the course of disease. We present a case of a term infant with severe Covid-19 pneumonia at 1 week old, subsequently continued to be tachypnoeic with chest recessions for many weeks, unable to wean off respiratory support. This raised the possibility of long term sequelae as a result of the severe Covid pneumonia. We discuss the process of resolving the problem of persistent respiratory distress post Covid pneumonia in this infant. This involves studying the clinical progression of the infant, evaluating the serial chest radiographs and excluding common conditions affecting the respiratory system at this age.

S8 Multi-Disciplinary Case Discussion - Paediatrics

CASE 2: DOCTOR, MY CHILD IS PERSISTENTLY WHEEZING?!!

H'ng Shih Ying
Universiti Malaya Medical Centre, Kuala Lumpur, Malaysia

This is a case discussion on a 2-years-old girl who presented with a history of persistent dry cough and intermittent wheezing for the past 3 months of sudden onset. Multiple visits to the Emergency Department or private practitioners were treated as bronchiolitis or asthma but the child did not improve. The child eventually was diagnosed with an interesting condition.

This case will bring the participants to discuss on approach and management of recurrent wheeze and dry cough.

ORAL PRESENTATIONS

OP 1	**METHYLPREDNISOLONE IN CRITICAL COVID-19: THE MORE THE BETTER?** **Nga Hung Ngu**, Chan Sin Chai, Swee Kim Chan, Mei Ching Yong, Siew Teck Tie *Division of Respiratory Medicine, Department of Medicine, Sarawak General Hospital, Kuching, Sarawak, Malaysia*	
OP 2	**OUTCOMES OF PATIENTS WITH EGFR-MUTANT ADVANCED NSCLC IN A DEVELOPING COUNTRY (MALAYSIA) – REAL WORLD EXPERIENCE** Soon Hin How[1], Chong Kin Liam[2], Muhammad Adil Zainal Abidin[1], Harissa H Hasbullah[3], Gwo Fuang Ho[2], Muthukkumaran Thiagarajan[4], Mau Ern Poh[2], Kean Fatt Ho[5], Lye Mun Tho[6], Roziana Ariffin[7], Azlina Samsudin[8], Azza Omar[9], **Sin Nee Tan[10]**, Choo Khoon Ong[11], Sing Yang Soon[12], Yong Kek Pang[2] *1. Kulliyyah of Medicine, International Islamic University Malaysia, Pahang, Malaysia* *2. University of Malaya, Kuala Lumpur, Malaysia* *3. Faculty of Medicine UiTM, Sungai Buloh, Malaysia* *4. Hospital Kuala Lumpur, Kuala Lumpur, Malaysia* *5. Mount Miriam Cancer Hospital, Penang, Malaysia* *6. Beacon Hospital, Petaling Jaya, Malaysia* *7. Hosp Tunku Azizah, Kuala Lumpur, Malaysia* *8. Hospital Sultanah Nur Zahirah, Kuala Terengganu, Malaysia* *9. Hospital Raja Perempuan Zainab II, Kota Bharu, Kelantan.* *10. Hospital Tengku Ampuan Afzan, Kuantan, Malaysia* *11. Gleneagles Penang, Penang, Malaysia* *12. Sarawak Heart Centre, Sarawak, Malaysia*	
OP 3	**CHILDREN WITH COVID-19 PNEUMONIA IN UNIVERSITY OF MALAYA MEDICAL CENTRE: A CROSS SECTIONAL STUDY** **Shih Ying H'ng[1]**, Kah Peng Eg[2], Chua Wai Yim[1], Wai Yee Chan[1], Nadia Fareeda Bt Muhammad Gowdh[1], Jessie de Bruyne[1,] Anna Marie Nathan[2] [1]*University of Malaya Medical Centre, Kuala Lumpur, Malaysia* [2]*University of Malaya, Kuala Lumpur, Malaysia*	
OP 4	**PULMONARY HEMOSIDEROSIS AMONG CHILDREN IN MALAYSIA** **N.Fafwati Faridatul Akmar[1]**, Shangari Kunaseelan[1], Che Zubaidah Che Daud[2], Sellymiah Adzman[3], Arni Talib[3], Asiah Kassim[1]. [1]*Department of Paediatrics, Hospital Tunku Azizah, Kuala Lumpur, Malaysia* [2]*Department of Radiology, Hospital Tunku Azizah, Kuala Lumpur, Malaysia* [3]*Department of Pathology, Hospital Kuala Lumpur, Malaysia*	
OP 5	**MYOSITIS RELATED INTERSTITIAL LUNG DISEASE: RESPIRATORY PHYSICIAN EXPERIENCE** **Syazatul Syakirin Sirol Aflah1**, Siti Rohani Mohd Yakop2, Izyan Ismail3, Aida Abdul Aziz4, Zuhanis Abdul Hamid5 *1 Institut Perubatan Respiratori (IPR), Kuala Lumpur, Malaysia* *2 Hospital Kuala Lumpur, Malaysia* *3 Hospital Serdang, Selangor, Malaysia* *4Hospital Sungai Buloh, Selangor, Malaysia* *5 Institut Kanser Negara, Putrajaya, Malaysia*	

OP 1

METHYLPREDNISOLONE IN CRITICAL COVID-19: THE MORE THE BETTER?

Nga Hung Ngu, Chan Sin Chai, Swee Kim Chan, Mei Ching Yong, Siew Teck Tie
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Background: Corticosteroids, particularly methylprednisolone is part of treatment for critical COVID-19 patients in intensive care unit (ICU).

Objectives: To compare the secondary infections and outcomes of patient who received low dose methylprednisolone versus high dose methylprednisolone for critical COVID-19 illness.

Methodology: A retrospective, observational study conducted at Sarawak General Hospital from June to September 2021. Patients who received intravenous methylprednisolone for critical COVID-19 illness in ICU were identified and divided into 2 groups: high dose (cumulative methylprednisolone dose of 10 mg/kg or more) and low dose (cumulative methylprednisolone dose less than 10 mg/kg). Main outcome was secondary infection with culture evidenced. Secondary outcomes were length of ICU stay and survival rate. Data were analyzed by using SPSS version 22.0.

Results: Among total 165 patients, 40 (24.2%) patients received high dose methylprednisolone. There was no significant difference in socio-demographic characteristics (age, gender, BMI), laboratory parameters (lymphocyte count, CRP, LDH), usage of Tocilizumab or Baricitinib, and mechanical ventilation rate between both groups. Secondary infections, including blood stream and respiratory tract infections were significantly higher in high dose methylprednisolone group (87.5% vs. 60%, $p<0.001$). *Acinetobacter baumanni (MRO)* was the most common pathogen found in both groups (35% vs. 21.2%, $p=0.072$). Nonetheless, high dose methylprednisolone group developed more infections of *Klebsiella pneumonia* (35%) and *Pseudomonas aeruginosa* (25%) ($p<0.05$). In addition, high dose methylprednisolone group was significantly associated with longer ICU stay (13.0 vs. 7.4 days, $p<0.001$) and lower survival rate (HR 0.138, 95% CI: 0.05-0.34, $p<0.001$).

Conclusion: In this study, high dose methylprednisolone in critical COVID-19 illness is associated with more secondary infections and overall poorer outcomes

OP 2

OUTCOMES OF PATIENTS WITH EGFR-MUTANT ADVANCED NSCLC IN A DEVELOPING COUNTRY (MALAYSIA) – REAL WORLD EXPERIENCE

Soon Hin How[1], Chong Kin Liam[2], Muhammad Adil Zainal Abidin[1], Harissa H Hasbullah[3], Gwo Fuang Ho[2], Muthukkumaran Thiagarajan[4], Mau Ern Poh[2], Kean Fatt Ho[5], Lye Mun Tho[6], Roziana Ariffin[7], Azlina Samsudin[8], Azza Omar[9], **Sin Nee Tan[10]**, Choo Khoon Ong[11], Sing Yang Soon[12], Yong Kek Pang[2]

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10. Hospital Tengku Ampuan Afzan, Kuantan, Malaysia
11. Gleneagles Penang, Penang, Malaysia
12. Sarawak Heart Centre, Sarawak, 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 EGFR tyrosine kinase inhibitors (TKIs) are currently the recommended first-line treatment for EGFRm+ NSCLC.

Objective

To describe the proportion of EGFRm+ NSCLC patients treated with first-, second- and third-generation EGFR TKIs, and cytotoxic chemotherapy in the first-line, the time on treatment (TOT) and overall survival (OS) in each treatment category.

Methodology

The data for this multicenter retrospective study were taken from the Malaysian Lung Cancer Registry. All patients diagnosed with advanced stage EGFRm+ NSCLC patients from 1st of January 2015 to 31st December 2019. The type of treatment (chemotherapy or targeted therapy), TOT, re-biopsy rate at progressive disease (PD), and median OS were assessed.

Results

Of the 406 patients with EGFRm+ NCSLS, 351 were treated. First-line targeted therapy was given to 92.3% including 10 patients treated in combination with chemotherapy. Type of first-line treatment and TOT were: EGFR-TKIs (54.1% and 12 months for first-generation, 25.6% and 12 months for second-generation and 12.5% and 24 months for third-generation) and chemotherapy (7.7% and 2 months). The attrition rate was 28.7% (n=101) and re-biopsy at PD was <30%. Nearly half (49.4%) of patients who were on first- or second-generation EGFR TKI had re-biopsied and were started on third-generation EGFR TKI. The overall median OS was 30 months.

Conclusion

The real-world experience in the management of an Asian EGFRm+ advanced NSCLC population within a cost-restrictive setting impacts the overall outcomes for our patients.

OP 3

CHILDREN WITH COVID-19 PNEUMONIA IN UNIVERSITY OF MALAYA MEDICAL CENTRE: A CROSS SECTIONAL STUDY

Shih Ying H'ng[1], Kah Peng Eg[2], Chua Wai Yim[1], Wai Yee Chan[1], Nadia Fareeda Bt Muhammad Gowdh[1], Jessie de Bruyne[1], Anna Marie Nathan[2]

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Introduction: Emergency of the 2019 novel Coronavirus disease (COVID-19) has caused a great burden to the healthcare system worldwide. All age group were infected however local data on children with COVID-19 pneumonia is scarce.

Objectives: This study aim to describe the clinical characteristic and radiological findings and outcome of children admitted with pneumonia due to SARS-CoV-2 infection.

Methodology: All children admitted to Pediatric ward University Malaya Medical Centre (UMMC) with SARS-CoV-2 infection and positive chest radiograph (CXR), from 1st February 2020 to 31st August 2021 were included. Demographic, clinical, laboratory data were reviewed and CXR were reported by a designated radiologist.

Results: There were 27 children with COVID-19 pneumonia, which represent 9.4% (n=27/286) of all children admitted for a laboratory-confirmed SARS-CoV-2 infection over the 18 months period. The median age was 9 (IQR 9) years old and males (74.1%) were predominantly affected. Majority (63%) had no comorbidities. The most common presenting symptoms were fever (92.6%) and cough (77.8%). Respiratory distress was observed in 33.3%. Of these, 55.6% (n=15/27) had moderate disease (pneumonia without hypoxemia),40.7% (n=11/27) had severe disease (pneumonia with hypoxemia) and 1 (3.7%) had critical disease (pneumonia with respiratory failure). Two (7.4%) children had co-infection with Respiratory Syncytial Virus (RSV). The main CXR findings were peri-bronchial thickening (92.6%). The remaining (7.4%) had ground glass opacity. Five (18.5%) children required intensive care (one was intubated) and received systemic steroids. All children recovered without respiratory sequelae. Seven children had a repeated chest X-ray at 2-4 weeks after discharge which showed complete resolution.

Conclusions: One in ten children admitted with COVID-19 had pneumonia with relatively less severe lung disease. Most did not show the typical radiological changes as described in adults.

OP 4

PULMONARY HEMOSIDEROSIS AMONG CHILDREN IN MALAYSIA

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Introduction:
Pulmonary hemosiderosis (PH) is a rare disease in children. It is characterized by triad of hemoptysis, iron deficiency anaemia and pulmonary infiltrates on chest imaging.

Objective:
To describe the demographics, clinical features, management and outcomes of children with pulmonary hemosiderosis.

Methodology:
Retrospective study of children less than 18 years old diagnosed with pulmonary hemosiderosis in
Hospital Tunku Azizah, Kuala Lumpur from January 2015 until August 2021. Data collected include demographics, clinical features, investigations, treatments and clinical outcomes.

Results:
Total of 16 patients included (5 boys and 11 girls). The median age at first symptom and diagnosis was 30 months (IQ range 0-111 months) and 53.5 months (IQ range 5-117 months) respectively. The clinical features were anemia (16, 100%), respiratory distress (14, 87.5%), hemoptysis (12, 75%) and chronic cough (13, 81.3%). Failure to thrive in 7 (43.8%) and syndromic 2(12.5%). All patients had abnormal imaging from first presentation and all had positive hemosiderin laden macrophages from bronchoalveolar lavage. 15 (94%) patients underwent open lung biopsy and 6(40%) were diagnosed with idiopathic pulmonary hemosiderosis while 9 (60%) had vasculitis or capilaritis. Management was divided to four groups i.e. monotherapy with Prednisolone or Methylprednisolone (3, 18.8 %), combination therapy of Methylprednisolone and cyclophosphamide (2, 12.5%) , prednisolone with hydroxychloroquine (3, 18.8%) and combination therapy of methylprednisolone and more than 2 other immunosuppressant (8,50%). The mortality rate was 6.3%.

Conclusion:
The classic triad of PH is not always present in paediatric patient. Early recognition and suspicion required for early diagnosis and intervention.

OP 5

MYOSITIS RELATED INTERSTITIAL LUNG DISEASE: RESPIRATORY PHYSICIAN EXPERIENCE

Syazatul Syakirin Sirol Aflah[1], Siti Rohani Mohd Yakop[2], Izyan Ismail[3], Aida Abdul Aziz[4], Zuhanis Abdul Hamid[5]

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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

PP 1	**DIAGNOSTIC YIELD AND SAFETY OF PULMONOLOGIST-LED TRANSTHORACIC ULTRASOUND GUIDED CORE BIOPSY OF PERIPHERAL THORACIC LESIONS** **Chan Sin Chai[1],** Swee Kim Chan[1], Nga Hung Ngu[1], Sze Shyang Kho[1], Mei Ching Yong[1], Siew Teck Tie[1] *[1]Division of Respiratory Medicine, Sarawak General Hospital, Kuching, Malaysia*	
PP 2	**BARRIERS AND FACILITATORS TO ASTHMA CARE FOR MALAYSIAN HAJJ PILGRIMS: A QUALITATIVE STUDY** **Rizawati Ramli[1]**, Su May Liew[1], Ee Ming Khoo[1], Nik Sherina Hanafi[1], Norita Hussein[1], Ping Yein Lee[2], Sazlina Shariff Ghazali[2], Ai Theng Cheong[2], Ahmad Ihsan Abu Bakar[3], Suhazeli Abdullah[4], Azah Abdul Samad[4], Hilary Pinnock[5], Aziz Sheikh[5], on behalf of the RESPIRE Collaborators *[1]Department of Primary Care Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia [2]Faculty of Medicine and Health Sciences, University Putra Malaysia, Kuala Lumpur, Malaysia [3]Hospital Pusrawi Sdn. Bhd., Kuala Lumpur, Malaysia, [4]Ministry of Health Malaysia, Kuala Lumpur, Malaysia, [5]Usher Institute, University of Edinburgh, United Kingdom.*	
PP 3	**RIFABUTIN AS A REPLACEMENT FOR PATIENTS WITH RIFAMPIN INDUCED ADVERSE DRUG REACTION** **Shan Min Lo,** Hema Ramarmuthy, Kunji Kannan *Hospital Queen Elizabeth, Kota Kinabalu, Sabah, Malaysia*	
PP 4	**FRACTIONAL EXHALED NITRIC OXIDE (FENO) LEVEL IN ASTHMATIC CHILDREN** **Mariana Daud,** Tg Aminah TY, Junitarayani M, Asmah A, Fazila MA *Paediatric Respiratory Unit, HRPZ11, Kota Bharu, Malaysia*	
PP 5	**HOME NON-INVASIVE VENTILATION FOR CARDIOPULMONARY INDICATIONS IN CHILDREN IN TERTIARY CENTRE OF NORTHERN PENINSULAR MALAYSIA** **Amanil 'Ula Hassan[1]**, Rus Anida Awang[1] *Paediatric Respiratory Unit, Penang General Hospital, Penang, Malaysia[1]*	
PP 6	**CAN PATIENTS ACHIEVE ADEQUATE PEAK INSPIRATORY FLOW RATE (PIFR) WITH TURBUHALER® DURING ACUTE EXACERBATIONS OF ASTHMA?** **Jaya Muneswarao[1]**, Nur Azimah Mohd Rhazi[2], Fatimatuzzahra Abdul Aziz[2], Baharudin Ibrahim[3], Azlan Kamalludin[4] *[1]Pharmacy Department, Hospital Pulau Pinang, Pulau Pinang, Malaysia.* *[2]School of Pharmaceutical Sciences, Universiti Sains Malaysia, Pulau Pinang, Malaysia.* *[3]Faculty of Pharmacy, Universiti Malaya, Kuala Lumpur, Malaysia.* *[4]Emergency and Trauma Department, Hospital Kulim, Kedah, Malaysia.*	
PP 7	**RHEUMATOID ARTHRITIS-INTERSTITIAL LUNG DISEASE (RA-ILD) IN A TERTIARY RHEUMATOLOGY CENTER IN MALAYSIA: PREVALENCE AND ASSOCIATED FACTORS** **Aisya Natasya Musa[1],** Suhaili Shariffudin[1], Hazlyna Baharuddin[1], Roqiah Fatmawati Abdul Kadir[1], Shereen Ch'ng[2], Azmillah Rosman[2], Mohammad Hanafiah[3] *[1]Faculty of Medicine, Universiti Teknologi MARA (UiTM)* *[2]Rheumatology Department, Hospital Selayang* *[3]Thoracic Radiology, Sunway Medical Center*	
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PP 1

DIAGNOSTIC YIELD AND SAFETY OF PULMONOLOGIST-LED TRANSTHORACIC ULTRASOUND GUIDED CORE BIOPSY OF PERIPHERAL THORACIC LESIONS

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Introduction

Peripheral thoracic lesions are commonly encountered in pulmonology service. Tissue sampling of these lesions is increasingly being performed by trained pulmonologists.

Objectives

To assess the diagnostic yield and safety of pulmonologist-led transthoracic ultrasound guided core biopsy of peripheral thoracic lesions in our centre.

Methodology

Retrospective review of transthoracic ultrasound guided core biopsy of peripheral thoracic lesions (pleural, mediastinal, pulmonary) by pulmonologists over a 38-month duration. Biopsies were performed with either 16G fully automated (*Pro-Mag™ Ultra; Argon Medical Devices, USA*), or semi-automated (*Quick-Core®; Cook Medical Inc., USA*) core biopsy needles, guided by real-time transthoracic ultrasound. Post procedure, patient was monitored for at least two hours, with repeat chest radiograph to identify complications such as pneumothorax.

Results

105 patients were included in our analysis, with a median age of 58 (range 15-88) years old. Two third (61.9%) of patients were males. The target lesions were peripheral lung (43.8%), pleural (33.3%), and mediastinal (22.9%) lesions. Median procedure time was 25.0 minutes (range 15-60) with 5 median passes (range 5-7). Overall diagnostic yield was 88.6%. The diagnostic yields for lung, mediastinal and pleural lesions were 93.5%, 100% and 73.4% respectively. Pleural lesions were associated with lower diagnostic yield compared to pulmonary and mediastinal lesions ($p<0.005$). The diagnostic yield did not differ between the type of needle employed ($p=0.806$). The overall complication rate was low, with only one case (1%) of pneumothorax.

Conclusions

Pulmonologist-led transthoracic ultrasound guided core biopsy of peripheral thoracic lesions is feasible and safe in trained hands.

PP 2

BARRIERS AND FACILITATORS TO ASTHMA CARE FOR MALAYSIAN HAJJ PILGRIMS: A QUALITATIVE STUDY

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Background

Asthma exacerbations are among the commonest reasons for hospital admission amongst Malaysian Hajj pilgrims.

Aim

To explore the perceptions of stakeholders on barriers and facilitators to asthma care for Malaysian Hajj pilgrims.

Methodology

We conducted in-depth interviews using a topic guide with purposively-sampled healthcare providers, policymakers and Hajj Fund Board personnel involved in the Hajj health examination at 14 primary care clinics in Malaysia. Interviews were thematically analysed.

Results

21 participants were interviewed. Emergent themes related to pilgrims, health care providers and organisational considerations. Poor health literacy and awareness of asthma among pilgrims were barriers while the use of education materials, engagement of family members, practice of preventive measures and regular health briefings during pilgrimage were facilitators to asthma care. For health care providers, time constraints for clinical assessment, clinical inertia among medical officers and insecurities for independent clinical decisions among private general practitioners were barriers while continuous medical education and review and learning of previous poorly assessed cases were facilitators to asthma care. At an organisational level, short time frame from Hajj offer to health fitness certification of pilgrims, organisation of the centralised Hajj health examination process at primary care clinics and limited resources for treatment optimisation and prevention measures were barriers while continuity of care through integrated electronic records and asthma care by a dedicated team were facilitators to asthma care.

Conclusion

Addressing time constraint for disease control, inadequate professional training and clinical competencies of medical officers, limited resources for treatment optimisation and prevention measures, insufficient education for pilgrims are opportunities to enhance Hajj health certifications and asthma outcomes among pilgrims.

PP 3

RIFABUTIN AS A REPLACEMENT FOR PATIENTS WITH RIFAMPIN INDUCED ADVERSE DRUG REACTION

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Introduction
Rifampin is one of the core drugs in treating tuberculosis (TB). However, it is not uncommon for patient with TB develop to adverse drug reaction (ADR) due to rifampin. By discontinuing rifampin, patients will need to take a prolong treatment regimen with less favourable outcome.
Objective
Rifabutin has a different drug profile and its use may replace rifampin in those patients who developed intolerance to rifampin. We have done observational study on this group of patients with replacement of rifabutin.
Methods
We reviewed pulmonary tuberculosis cases referred to our centre in 2020 with ADR due to anti-tuberculosis (ATT) drug. By a timely manner of reintroducing different drug, we identified the group of patients that has ADR due to rifampin. We did not include patients on concurrent anti-retroviral therapy in this study.
Results
13 patients (female 3, mean age 57.5, [IQR 42-66]) were included in this study. The indication for rifabutin usage for all subjects were rifampin related ADR (100%). The mean duration for ADR from initiation of ATT drug is 17 days. 7 patients (53.8%) had liver derangement, 4 patients (30.7%) had dermatological event, 2 patients (15.3%) had gastrointestinal intolerance and 2 patients (15.3%) had thrombocytopaenia. 3 patients (23%) had more than 1 ADR event (dermatological event with deranged liver profile). 10 patients (76.9%) were managed to rechallanged with rifabutin. In other 3 patients, 2 had liver derangement and 1 had dermatological event despite rechallenged with rifabutin.
Conclusions
Although this is a small study, the results showed that there may be a role for rifabutin usage in patients with TB who cannot tolerate rifampin in treatment of pulmonary tuberculosis. A further research is required.

PP 4

FRACTIONAL EXHALED NITRIC OXIDE (FENO) LEVEL IN ASTHMATIC CHILDREN

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Introduction
Fractional exhaled nitric oxide (FeNO) is used as a non-invasive biomarker to assess airway inflammation and rationalize corticosteroid therapy in asthma. It is easily performed, even in preschool-age children. Limited knowledge about Fractional exhaled nitric oxide (FeNO) in Malaysian asthmatic children exists.

Objective
To evaluate feasibility of performing FENO and its role as a marker of Asthma control in Kelantanese Children

Methodology
A retrospective cross-section study of asthmatic children aged 4 -18 years attended pediatric asthma clinic at HRPZ11, Malaysia who underwent FENO measurement between July 2020-August 2021.

Result
100 patients (54 boys, 46 girls) had FENO measurement with failure rate of 3% (3/100). The mean age was 11.1 years ± 2.9 SD and 99% were Malays. The mean FENO was 45.1 ppb ± 34.8 SD. Majority (47.4 %, 46/97) had high FENO (> 35 ppb), 25.8% (25/97) had intermediate value (20-35 ppb) while 26.8% (26/97) had low FENO (<20 ppb). Majority (90.9%, 91/99) had controlled asthma according to child Asthma Control Test (cACT/ACT) (≥20). The mean cACT/ACT was 23.3 ± 3 SD. Majority (31.3%, 30/96) were on GINA step-3 treatment, while 21.8% (21/96) were on Step-4 and 5 GINA treatment. The Spearman's coefficient correlation between FENO value and cACT/ACT score has a positive low correlation, R^s=0.031(p=0.8). Majority (84%) of them have concomitant Allergic Rhinitis.

Conclusion
FENO measurement is feasible in children and majority have high FENO, characteristic of TH2 high phenotype. FENO may has a role as a marker of asthma control in children. However, further study is needed to establish this correlation.

PP 5

HOME NON-INVASIVE VENTILATION FOR CARDIOPULMONARY INDICATIONS IN CHILDREN IN TERTIARY CENTRE OF NORTHERN PENINSULAR MALAYSIA

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Background: Home non-invasive ventilation (NIV) is part of the technological advancement in medical field. Children with chronic lung disease, neuromuscular disorder, hemodynamically significant congenital cardiac anomalies, and airway diseases may benefit from NIV. This will improve the lung function, reduce pulmonary resistance, improves minute ventilation, and reduce the work of the breathing in children.

Objectives: The objectives are to determine the sociodemographic characteristics, to describe the clinical indications and to determine the outcome of children initiated for home ventilation.

Methodology: Observational cross-sectional retrospective study, included patients aged from birth to 18 years old who required initiation treatment of home non-invasive ventilation between January 2019 till June 2020 in a single center, Penang General Hospital. The cases are from Northern Peninsular Malaysia (Perlis, Kedah, Penang, and Perak).

Result: Ninety-one children were initiated on NIV, with median age of initiation was 9 (3-60) months and 62% of children were less than 3 years old. Common indications for NIV were chronic lung disease (82.4%), followed by primary airway diseases (9.6%) and congenital heart disease (8%). The median usage duration was 7.86 (1, 14) months. Majority of them (87.9%) discontinued the treatment following the improvement of clinical condition. We reported significant improvement of unplanned admission frequency ($p<0.001$) with mean SD (standard deviation) from 2.76 ± 1.14 prior to intervention to 1.01 ± 0.41 post intervention. The weight gain mean SD before intervention was 0.71±0.6grams, with 1.37grams ±0.68 post intervention ($p<0.001$). The level of saturations significantly better with mean SD of 95.2±4.08% pre-intervention to 97.22±3.42% post intervention ($p<0.001$).

Conclusion: NIV is beneficial in children with cardiopulmonary diseases for improving the clinical outcome and reduced readmission.

PP 6

CAN PATIENTS ACHIEVE ADEQUATE PEAK INSPIRATORY FLOW RATE (PIFR) WITH TURBUHALER® DURING ACUTE EXACERBATIONS OF ASTHMA?

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Introduction: The single maintenance and reliever therapy (SMART) delivered through Turbuhaler® has been widely used in Malaysia. Patients treated with SMART regimen are not prescribed with separate reliever inhalers but are dependent on the Turbuhaler® during acute asthma. The peak inspiratory flow rate (PIFR) is crucial in drug delivery from a DPI, however, there are concerns that during acute exacerbations of asthma, patients are unable to achieve adequate PIFR. **Objective**: The present study aimed to assess PIFR at resistance setting matching Turbuhaler® in patients with acute exacerbations of asthma. **Methodology**: A five-month prospective study was conducted at the emergency department (ED) of Hospital Kulim and Hospital Sultanah Bahiyah, Kedah. Adult patients diagnosed with mild to moderate acute exacerbations of asthma were recruited. The PIFRs were measured using the In-Check™ DIAL G16 that was set to simulate the resistance of the Turbuhaler® (R3). The PIFRs were assessed before (pre) and after (post) the initial bronchodilator (BD) treatment at the ED. The minimal required PIFR was defined as flow rates ≥ 30 L/min. **Results**: A total of 80 patients were included in the study. The mean age was 39±15.2 years and most of the patients were females, n=43(54%). All patients achieved the minimal required PIFR pre and post-BD. The mean PIFR pre-BD was 60.5±18.1 L/min and post-BD was 70.5±18.6 L/min. Furthermore, 53 % of the patients during pre-BD and 71% of the patients during post-BD recorded PIFR ≥60 L/min. The median corresponding pressure drop across the device was 4.7 (IQR, 3.3) kPa. The PIFR had a moderate correlation with PEFR, r_s=0.5, 95% BCa CI (0.40-0.71), p<0.01.**Conclusion**: The findings from the present study demonstrated that patients are able to achieve adequate PIFR with Turbuhaler® during acute exacerbations of asthma.

PP 7

RHEUMATOID ARTHRITIS-INTERSTITIAL LUNG DISEASE (RA-ILD) IN A TERTIARY RHEUMATOLOGY CENTER IN MALAYSIA: PREVALENCE AND ASSOCIATED FACTORS.

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Aim:

The purpose of the study was to determine the prevalence of RA-ILD and identify its associated factors.

Methods:

This is a cross-sectional study involving 156 RA patients who fulfilled 2010 ACR/EULAR criteria done from December 2020 to May 2021. Data on patient's demographic, serologic and inflammatory markers, and treatment history was collected. Clinical characteristics and treatment history were analysed in univariate and multivariate analysis.

Results:

156 RA patients (female 90.4%) with mean age of 56.57 ± 13.19 year old were included in the study. Sixteen patients were diagnosed as having RA-ILD (10.3%). In univariate analysis, the factors associated with RA-ILD were older age (66.19 ± 9.40 *vs* 55.47 ± 13.14 years old, $p = 0.002$), later onset of RA (53.19 ± 10.58 *vs* 43.26 ± 13.58 years old, $p = 0.005$), Indian race (68.8% *vs* 29.3%, $p = 0.002$), had mMRC score of 2 to 4 (62.5% *vs* 12.1%, $p<0.001$) and not on Methotrexate (MTX) (68.8% *vs* 35%, $p = 0.013$). In multivariate analysis, age (adjusted OR 1.09; $p = 0.026$), Indian race (adjusted OR 8.05; $p = 0.005$), mMRC score of 2 to 4 (adjusted OR 12.93; $p <0.001$) and patients who were not currently on MTX treatment (adjusted OR 0.15; $p = 0.009$) were independent significant associated factors for RA-ILD.

Conclusion:

Factors associated with RA-ILD were age, Indian race, higher mMRC score, and not currently on Methotrexate. The presence of these factors in RA patients would alert clinicians to identify RA-ILD early, hence intensifying RA treatment to ameliorate disease progression

PP 8

CHARACTERISTICS OF PATIENTS WITH TUBERCULOSIS AND THE ASSOCIATED FACTORS WITH TB-RELATED MORTALITY IN A RURAL SETTING IN SARAWAK, MALAYSIA

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INTRODUCTION: Tuberculosis remains a disease of public health importance in Malaysia with estimated incidence and mortality rates of 81 cases per 100,000 people-year and 4.9 per 100,000 population respectively. **OBJECTIVE:** This study aims to study the characteristics of patients with tuberculosis and its mortality outcome in Lubok Antu, a rural district in Sarawak. **METHODOLOGY:** This is a historical cohort study involving analysis of real-world data, looking into patients with tuberculosis in Lubok Antu Health Clinic (01 January 2019 – 31 December 2020) by obtaining their data through review of medical records**.** Statistical significance was $p<0.05$. **RESULTS:** Ninety-one adult patients were included. The estimated incidence and mortality rate were 152 cases per 100,000 people-year and 10.7 per 100,000 population respectively. Median age was 58 years (39 - 68). Fifty-six (61.5%) were male. There were 85 (93.4%) pulmonary TB, 3 (3.3%) extrapulmonary TB, and 3 (3.3%) manifested as both pulmonary and extrapulmonary TB; with 19 (20.9%), 28 (30.8%), 29 (31.9%), 15 (16.5%) demonstrating normal CXR, mild, moderate, and advanced CXR changes respectively. Forty-eight (52.7%) had smear positive TB. Eighty-five (93.4%) were compliant to treatment, and 85 (93.4%) were alive at the end of treatment. Seventy-nine (86.8%) were symptomatic. Sixteen (17.5%) experienced adverse drug reactions. Regression analyses revealed that poor compliance was significantly associated with mortality [OR=10.13 (95% CI: 1.41,72.75), $p=0.038$]. **CONCLUSION:** TB was under-treated as community awareness was low, complicated by logistic challenges. Education of community on seeking treatment early and treatment compliance is essential to improve outcomes.

PP 9

FOREIGN BODY ASPIRATION IN CHILDREN OF A SINGLE CENTRE IN MALAYSIA: FACTORS FOR TIMELY DIAGNOSIS

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Foreign body (FB) aspiration is common among toddlers, causing significant morbidity and mortality. We have retrospectively reported a series of children who underwent flexible bronchoscopy for suspected FB aspiration. We describe the demographic profiles, clinical characteristics, diagnostic features, bronchoscopy findings and complications.

Our study included data of twenty-eight children with suspected FB aspiration, with 50% being positive for FB including two in the oesophagus. 78.6% of the 14 children with positive FB aspiration were below 3 years old with no significant gender difference. Among the 17 children with witnessed choking, nine (52.9%) were confirmed to have FB aspiration. Those with positive FB aspiration commonly presented with stridor (35.7%), acute onset of cough (21.5%), wheezing (14.3%) and shortness of breath (14.3%). Unilateral hyperinflation (28.6%) and unilateral atelectasis (21.5%) were the predominant radiological findings.

All the FBs were successfully retrieved with a flexible (15%) or rigid bronchoscope (85%). Fifty percent of airway FB were in the right main bronchus and the majority (57.1%) were non-organic material. Among children with positive FB, eleven (78.6%) presented within seven days of witnessed choking or symptom onset while nine (64.3%) were diagnosed and retrieved within seven days. Only three (21.4%) children were delayed in FB retrieval beyond seven days. Late retrieval complications were post-operative intubations (2), recurrent admissions for pneumonia (2) and supraglottic narrowing (1).

Timely diagnosis using high index of suspicion based on patient's age, witnessed choking or ingestion, clinical findings and abnormal chest X-ray is essential to prevent complications of FB aspiration.

PP 10

PULMONOLOGIST-LED IN-PATIENT NON-INVASIVE VENTILATION

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Introduction: The benefits of non-invasive ventilation (NIV) in chronic hypercapnic respiratory failure (CHRF) had been reported in many studies. It reduces the overall mortality in acute exacerbation of CHRF. In Sarawak General Hospital (SGH), Pulmonologist-led NIV service in non-intensive care setting was started since 2014.

Objectives: We aimed to study the outcome of Pulmonologist-led in-patient NIV in SGH.

Methodology: This is a 6-month retrospective, observational study done in general medical wards SGH, from January till June 2021. Patients who received Pulmonologist-led NIV were identified. Data were analyzed by using SPSS version 22.0. Main outcome was NIV failure which defined as intolerance, endotracheal intubation or in-hospital death. Secondary outcomes were 30-day mortality, length of stay (LOS) and duration of NIV (days).

Results: We identified total 40 patients (21 male, mean age 63 years) who received Pulmonologist-led NIV for different causes of CHRF; 19 for Sleep Disordered Breathing (SDB), 9 for Chronic Obstructive Pulmonary Disease (COPD), 9 for Bronchiectasis, and 3 for others. 38 (95%) patients received BiPAP. Prior to NIV, the median ABG pH was 7.31, while PaCO2 was 72.5 mmHg. Significant improvement of pH and PaCO2 were observed in those succeed NIV ($p<0.05$). NIV failure was recorded in 12 (30%) patients, which majority was related to intolerance (83.3%). The median duration of NIV and LOS were 4.5 and 9 days, respectively. LOS was positively correlated with duration of NIV ($r=0.54$, $p<0.01$). The 30-day mortality was 10%. However, no significant association was found in between NIV failure and 30-day mortality.

Conclusion: Pulmonologist-led NIV in non-intensive care setting is feasible and beneficial to patient with chronic hypercapnic respiratory failure.

PP 11

OVERVIEW OF CLINICAL CHARACTERISTICS AND OUTCOMES IN CRITICAL COVID-19 PNEUMONIA

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Background: Many observational studies have described poor clinical outcomes and increased mortality in patients with critical COVID-19 pneumonia.

Objective: Our study aimed to describe the clinical characteristics and outcomes of patients who were admitted to intensive care unit (ICU) in Sarawak General Hospital (SGH) for critical COVID-19 pneumonia.

Methodology: This is a retrospective observational study of patients who were admitted to ICU from June to September 2021. Patients were characterized based on demographics, comorbidities, laboratory markers and managements. Main clinical outcome analyzed was in-hospital mortality. Data were analyzed by using SPSS version 22.0.

Results: We identified total 185 patients (57.8% male, mean age 53.9 years). 182 (98.4%) were patients with Category 5 COVID-19 pneumonia. Majority (73.5%) had at least one comorbidity. All patient received corticosteroid therapy while 29 (15.7%) and 10 (5.4%) patients received Baricitinib and Tocilizumab, respectively. 99 (53.5%) patients were mechanically ventilated and 25 (13.5%) patients required acute renal replacement therapy. The rate of pulmonary embolism was 26.6%. 121 (65.4%) patients developed secondary infection and the most common pathogen was *Acinetobacter Baumanni (MRO)*. The median length of ICU stay was 7 days. Overall, the in-hospital mortality was 23.8%. Higher mortality rate was found in patients with mechanical ventilation (OR 17.6, 95% CI: 4.97–62.24, $p<0.001$), acute renal replacement therapy (OR 5.23, 95% CI: 1.73–15.80, $p<0.01$), and longer ICU stay ($p<0.01$). Other associating factors with mortality were male, elderly, pre-existing immunosuppressive therapy, low PF ratio, low lymphocyte count, and high C reactive protein ($p<0.01$).

Conclusion: In this study, critical COVID-19 pneumonia is associated with significant mortality and poor clinical outcomes.

PP 12

CHARACTERISTICS OF PAEDIATRIC BRONCHIECTASIS AT SERDANG HOSPITAL, MALAYSIA

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Introduction: The prevalence of bronchiectasis, especially non-cystic fibrosis bronchiectasis is not clear. There is a lack of data on paediatric bronchiectasis in Malaysia.

Objective: To characterize the clinical features, aetiology, radiological findings and identified micro-organisms in children with bronchiectasis at Hospital Serdang, Malaysia.

Methods: Clinical notes and imaging of 41 children with bronchiectasis between January 2010 and December 2020 in Serdang Hospital were analysed retrospectively via electronic Hospital Information System.

Results: Twenty-four (58.5%) boys and seventeen (41.5%) girls were included with median age of diagnosis was 4 years old (range 2 months to 14 years). The common presenting features were recurrent respiratory infections (76.6%) and chronic cough (22%). Half had 2 or more co-morbidities including 13 (31.7%) children with major congenital anomalies such as congenital defects and neurological conditions. Nine patients (22%) had no co-morbidities. The aetiologies identified were infection (31.7%), primary immunodeficiency (24.4%), congenital malformation (9.6%), aspiration (7.3%), cystic fibrosis (4.9%) and primary ciliary dyskinesia (2.4%). Twenty-four (58.5%) children had infection with identified microorganisms, including 12 children who had infection with 2 or more microorganisms. The commonest microorganisms were Pseudomonas aeruginosa (19%, 8/42), Haemophilus influenza (16.7%, 7/42) and Streptococcus pneumonia (16.7%, 7/42). The findings of chest HRCT were widespread (39.5%, 15/38), unilateral (36.8%, 14/38) and bilateral (23.7%, 9/38) in distribution.

Conclusion: Infection and primary immunodeficiency were common bronchiectasis aetiology in our cohort. There was no association noted between aetiology, micro-organisms and HRCT findings.

PP 13

THE ASSOCIATION OF SMALL AIRWAY DISEASE (SAD) WITH PROXIMAL AIRWAY OBSTRUCTION (PAO) AMONG ADULT ASTHMATIC PATIENTS

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Introduction: Small airways disease in asthma is common and study has shown the correlation with PAO. **Objectives**: To identify the association between SAD with PAO. **Methodology**: An unmatched retrospective case-control study among 169 asthmatics from the Serdang Respiratory Clinic was conducted. PAO is defined as FEV1<80% of pred AND FEV1/FVC <0.7, while SAD is defined as R5–R20>0.030 kPa.s. L^{-1} in IOS. Air-trapping or hyperinflation of the lung due to SAD by definition RV> 100% predicted or RV/TLC> 35% will be evaluated by plethysmography. High-DLCO obstructive groups will be divided into PAO and non-PAO asthma. **Results**: Our study showed Malay (67.5%), females (59.2%) and non-smokers (75%) are dominant. The mean age of the patients was 48.8±14.7 years, while the mean BMI is 27.5±6.48 kg/m^2. 74% of patients have had asthma for more than ten years. Approximately 95.9% of them consist of SAD. There were no significant associations between SAD among PAO (84.4%) and non-PAO (97.3%) (p=0.643). However, SAD was associated with air trapping and hyperinflation (71.6%) in most cases. The risk of PAO is related to the aging with an odds ratio 1.024, 95% confidence interval (CI) 0.263-0.934. PAO associated with patients with a longer asthmatic history with an odds ratio of 3.356, 95% confidence interval (CI) 1.558-7.229. Additionally, PAO increases the risk of developing air trapping and lung hyperinflation by an odds ratio 2.312, 95% confidence interval (CI) 1.140-4.687. **Conclusion**: There were no significant effects of SAD on PAO or non-PAO in our study. There is a high prevalence of SAD with air trapping and lung hyperinflation among our patients.

PP 14

PROGRAMMED CELL DEATH LIGAND (PDL-1) EXPRESSION AND USE OF IMMUNOTHERAPY AMONG ADVANCED NON – SMALL CELL LUNG CANCER (NSCLC) IN A RESOURCE LIMITED COUNTRY

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Introduction:

Immunotherapy is an established treatment for advanced non-small cell lung cancer (NSCLC) and programmed cell death ligand-1 (PDL-1) expression is a recognized biomarker to determine response to therapy. We retrospectively analyzed PDL1 expression levels of patient found in the Malaysian Lung Cancer Registry and report on factors which influence PDL1 expression amongst our cohort. We also report the on accessibility of immunotherapy in Malaysia, a low to middle income south east asian country.

Methods:

A total of 901 NSCLC patients from the Malaysian Lung Cancer Registry (MLCR), diagnosed between 1st January 2017 to 31st December 2020 from 14 hospitals across the country were included from analysis. PDL1 test was performed in 489 of these patients whose data were available for analysis

Results:

A total of 901 patients from the MLCR we reviewed. 505 patients (56.0%) had PDL1 testing performed but complete data from only 489 patients were available for analysis. Of the 489 patients, the most common histology was adenocarcinoma (84.7%) followed by squamous cell carcinoma (10.2%). Majority (95%) presented at stage 3 to 4. In this cohort, 39.5% had negative PDL1 TPS. 138 (28.2%) patients had PDL1 TPS score of ≥50% and the remaining 158 (32.3%) patients had PDL1 TPS of between 1% and 49%. In univariate analysis, patients with adenocarcinoma or positive genomic mutation were more likely to have negative PDL1 TPS than non-adenocarcinoma or patients without genomic mutation. However, in multivariate analysis, presence of genomic mutation is the only independent factor associated with negative PDL1 TPS score (Crude OR 0.579, 95% CI 0.399-0.840, p=0.004).

Among 292 patients who have either stage 3 or 4 NSCLC without driver mutation and has fairly good performance status of ECOG 0-2, 100 (34.2%) of them received immunotherapy with majority (78%) received immunotherapy as first line treatment. A further 15 patients received immunotherapy as second line with the remaining 7 patients received immunotherapy as third line. Only two patients received immunotherapy without PDL1 testing.

Conclusions:

This is the first data on PDL1 expression and immunotherapy accessibility from Malaysia. Despite data showing good efficacy of immunotherapy, only 56% of patients had PDL1 testing at diagnosis and only 34.2% of patients with ECOG 0-2 advanced NSCLC patients without driver mutation received immunotherapy.

PP 15

MORTALITY AMONG CHILDREN WITH TUBERCULOSIS IN MALAYSIA

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INTRODUCTION

Tuberculosis (TB) in children is challenging to managing clinicians due to non-specific clinical presentation, difficult in making diagnosis and the natural history varies from one patient to another.

OBJECTIVE

To describe the presentation and characteristic of children with Tuberculosis who succumbed. **METHODODOLOGY**

A cross-sectional study of children with TB less than 16 years old succumbed from 1st January 2018 till 31st December 2020. Data extracted from TB Surveillance System Malaysia (TBSS) and patient's medical records.

RESULTS

Total number of 85 children identified from TBSS and 31 subject's medical record were available for review. There were 56.5% female subjects, and 42.4% were non-Malaysian. 65.9% had a BCG scar. Seven children (8.2%) diagnosed following TB contact tracing. Median duration between diagnosis to death was 8.5 days (min <1 day, max 280 days). The main cause of death were septicaemia with multi-organ failure (25.9%) followed by disseminated TB with 18.8%. Median duration between diagnosis to death was 8.5 days (min <1 day, max 280 days).

From medical records of 31 subjects, median duration between start of symptom to presentation to healthcare facilities was 4 weeks (min < 1 week, max 52 weeks). Their comorbidities include cardiac disease (9.7%), respiratory disease, and on long term immunosuppression (6.5% respectively). Majority (74.2%) of the 31 children present with cough, followed by prolonged fever (67.7%), loss of appetite (58.1%), dyspnoea (45.2%), fatigue (41.9%), weight loss (38.7%) and failure to thrive (32.3%). Most children (83.9%) admitted to intensive care wards, with 74.2% requiring invasive ventilation.

CONCLUSION

The short duration between diagnosis to mortality and high percentage of ICU admission signifies the severity of disease during presentation. Early detection is important to prevent progression of the disease and hence mortality.

PP 16

ASTHMA CONTROL STATUS AMONG CHILDREN UNDER PRIMARY AND SECONDARY HEALTHCARE FOLLOW UP IN KLANG VALLEY

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Introduction

Asthma is the commonest chronic illness among children and managed at both primary and secondary care centre in Malaysia.

Objective

To describe asthma control among children attending follow up in primary and secondary healthcare centre in Klang Valley.

Methodology

This is a combined secondary data from 2 cross sectional studies performed in six primary health clinics and three hospitals with Paediatricians in Klang Valley. Children aged 5 to 18 years old diagnosed with asthma and under follow up were recruited. Asthma control was assessed using GINA Recommendation. Good asthma control was categorized as controlled asthma while partly controlled and uncontrolled asthma were categorized as poor asthma control.

Results

A total of 188 children from primary healthcare clinics and 120 children from hospitals with Paediatricians were recruited. The mean age of the children was 10.7 (SD 3.37) years and 9.0 (SD 1.65) years for primary and secondary care group respectively. In the primary care group, 102 (54.3%) children had good asthma control, while in secondary care group, 81 (67.5%) had good control (p=0.021). In both groups, triggering factors for asthma were animal fur, environmental smoke, aeroallergen, weather (cold and hot), haze, fumes, foods and stress. Univariate analysis showed teenager and primary healthcare centres were associated with poor asthma control. Obesity was not associated with asthma control

Conclusion

About half of the children with asthma in Klang Valley did not achieve controlled asthma despite under healthcare follow up. Intervention is required to improve asthma control among children.

PP 17

TREATMENT AND OUTCOME OF POST-INFECTIOUS BRONCHIOLITIS OBLITERANS AMONG CHILDREN IN MALAYSIA: A MULTICENTRE STUDY

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Introduction:
Post-infectious bronchiolitis obliterans (PIBO) in children is a rare disease, and the treatment is not clearly established. The diagnosis is based on clinical and CT scan findings. Current practice varies from centre to centre, including monotherapy or combination therapy of inhaled corticosteroid, Prednisolone, Azithromycin, and Montelukast.

Objective:
To determine the association between several treatment regimes and respiratory outcome after three months of therapy.

Methodology:
A retrospective study of children less than five-year-old diagnosed with PIBO between 2015 to 2019 from 12 hospitals in Malaysia. We retrieved data on demographic, clinical, treatment, and respiratory outcomes.

Results:
Sixty-one PIBO children included. The median days from the first presentation to diagnosis was 86.5 (IQR 37.25-253 days). Treatment was started as early as the same day of diagnosis and up to 3 days after diagnosis. Twelve patients (19.6%) received systemic steroids, 25 (41.0%) received the combination of systemic steroids, Azithromycin and Montelukast, and 24 (39.3%) received only MDI steroid and bronchodilator. Comparing three groups receiving Prednisolone only, the combination of Prednisolone, Montelukast, and Azithromycin and inhaled corticosteroid only, 41.7%, 56.0%, and 4.2% respectively required long term oxygen therapy after three months.

Conclusion:
Early diagnosis and treatment are essential to improve the outcomes of PIBO in children. A prospective study is required to determine the outcome of children with the different PIBO treatment regimes.

PP 18

PREVALENCE OF OBESITY HYPOVENTILATION SYNDROME IN PATIENTS WITH OBSTRUCTIVE SLEEP APNOEA AND COMMORBIDTIES ASSOCIATED WITH IT IN A TERTIARY CENTER IN PAHANG

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Introduction: Obesity Hypoventilation Syndrome (OHS) is defined as the combination of obesity [Body Mass Index (BMI) ≥ 30 kg/m^2], sleep disordered breathing and daytime hypercapnia [arterial carbon dioxide pressure ($PaCO_2$) ≥ 45 mm Hg], in absence of other possible causes of hypoventilation. Despite being associated with higher impact on morbidity, lower quality of life as well as greater health expenses, the prevalence of OHS in the general population is unknown.

Objective: To assess the prevalence of obesity hypoventilation syndrome (OHS) in patients with obstructive sleep apnea (OSA) and the comorbidities associated with it among patients in a tertiary hospital's Sleep Clinic.

Methodology: This is a retrospective observational study involving patients who underwent full polysomnography with end tidal CO2 monitoring in Hospital Tengku Ampuan Afzan from May 2017 until march 2021. Patient's medical records and polysomnography results were used for data collection and analysis.

Results: Total of 210 patient's data were analyzed. 93.8% (n=197) patients have obstructive sleep apnea for which 44.2% (n=87) were female and 55.8% (n=110) were male. 37.6% (n=74) patients fulfilled the criteria of OHS. The mean BMI of patients with OHS is 40.4 kg/m2. The mean AHI in OHS patients is 61.74. The lowest oxygen saturation level in OHS group is 31%. 85.1% (n=63) of patients with OHS have hypertension, where 37.8% has type 2 diabetes mellitus and 10.8% has heart failure. 62.2% (n=46) of patients with OHS managed to achieve at least an adequate titration with CPAP, where 27% (n=20) need a higher pressure with bi level PAP titration to reduce the RDI by 75% from baseline.

Discussion: Prevalence of OHS varies significantly across studies. Multiple studies reported it to be between 8% to 20% in obese patients and up to 30% among patients with OSA. The prevalence of OHS in OSA patients in our center is 37.6%. The use of end tidal CO2 monitoring as the surrogate for PaCo2 is a reliable and practical method for identifying sleep hypoventilation. Metabolic and cardiovascular diseases are the most prevalent comorbidities and are usually diagnosed prior to the recognition of OHS. The prevalence of hypertension in patients with OHS is very high, ranging between 55% to 88%. In our study, prevalence of hypertension is the highest in OHS group 62.2%, followed by T2DM 37.8%.

Conclusion: Obesity hypoventilation syndrome prevalence is getting higher and is associated with metabolic and cardiovascular diseases. Early diagnosis of OHS is important in order to avoid serious health consequences.

PP 19

REAL-WORLD TREATMENT AND OUTCOMES OF ALK-POSITIVE METASTATIC NON–SMALL-CELL LUNG CANCER IN A RESOURCE-LIMITED COUNTRY: A RETROSPECTIVE, OBSERVATIONAL STUDY

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Background: The anaplastic lymphoma kinase (ALK) inhibitors are associated with good overall survival (OS) for ALK-positive metastatic non–small-cell lung cancer (NSCLC). However, as these treatments can be unavailable or limited by financial constraints in developing countries, it is important to determine the effect of treatment access in these resource-limited settings. Using data from a nationwide lung cancer registry, the present study aims to identify treatment patterns and clinical outcomes of ALK-positive NSCLC in Malaysia.

Methods: This retrospective study included data of patients with ALK-positive NSCLC from 18 major hospitals (public, private or university teaching hospitals) throughout Malaysia between 1st January 2015 and 31st December 2020 from the National Cardiovascular and Thoracic Surgical Database. Data on baseline characteristics, treatments, radiological findings, and pathological findings were collected. Time on treatment (TOT) and overall survival (OS) were calculated using the Kaplan-Meier method.

Result: Of the 2000 NSCLC patients in the registry, only 53 (2.6%) patients were ALK-positive. Majority (n=38) received an ALK inhibitor, 10 received chemotherapy, and five received no treatment. Crizotinib is the most commonly prescribed ALK inhibitor followed by alectinib and ceritinib. Patients who received ALK inhibitors had significantly longer TOT than chemotherapy ($P<0.001$). At the time of analysis, all patients on chemotherapy had disease progression compared to only 47% of patients on ALK inhibitor.

Conclusion: Patients on ALK inhibitors had significantly longer TOT than chemotherapy, suggesting long-term benefit. However, the low prevalence of ALK-positive patients was mainly attributed to the low rates of ALK testing among patients with NSCLC. Testing was not a priority as most patients were unlikely to afford ALK inhibitors even if they were ALK positive.

Keywords: ALK inhibitors, chemotherapy, ALK-positive, NSCLC, Resource-Limited Country

PP 20

SPONTANEOUS PNEUMOTHORAX AND PNEUMOMEDIASTINUM IN PATIENTS WITH COVID-19 PNEUMONIA

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Introduction:
Spontaneous pneumothorax and pneumomediastinum (SP) are potential complications reported in COVID-19 patients.

Objectives:
To identify risk factors that may predispose patients with COVID-19 pneumonia to develop SP and to determine the outcome.

Methodology:
A retrospective review was performed of laboratory-confirmed COVID-19 patients diagnosed with SP at the High Dependency Ward (HDW) in Queen Elizabeth Hospital, (October 2020- July 2021). Demographics, clinical management and outcomes were recorded.

Results:
Out of 771 COVID-19 patients admitted to HDW during this study period, 18 patients (2.33%) were found to have pneumomediastinum (PM)/pneumothorax (PT), out of which 9 (1.17%) were unrelated to positive pressure ventilation. Of the 9, 8 were male. Mean age was 48.6years (SD 17.1). 5 patients had both PT and PM, whilst 4 had PM only. None had underlying lung pathology. Most common presenting symptoms were cough (88.9%) and fever (77.8%). Highest oxygen requirement for 8 of the patients was high flow nasal cannula. Only 3 patients had chest drains inserted while the others were managed conservatively. At the end of this study, 2 patients died (One died as a direct result of complications from pneumothorax) while the rest were discharged home.

Conclusion:
SP in our cohort of patients was more commonly seen in males and not influenced by underlying lung pathology. Cough, the most common presenting symptom, leads to increased alveolar pressure. Combined with diffuse alveolar injury in severe COVID pneumonia, this could contribute to air leak and SP. Majority of the patients in this study were managed conservatively with favourable outcomes. SP should be considered as a differential diagnosis in patients with persistently high oxygen requirement despite receiving standard medical therapy.

PP 21

RESPIRATORY PATHOGEN AMONG CHILDREN WITH PNEUMONIA BEFORE AND DURING THE COVID-19 PANDEMIC

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Introduction

Movement control order (MCO) to control the spread of Covid-19 infection in Malaysia was implemented since March 2020. In general, it reduced other infections among children too. Several studies from different countries reported changes in respiratory pathogen distribution during this pandemic.

Methodology

Retrospective data collection of respiratory samples for respiratory virus and bacteriology tests from 1st April 2019 till 1st August 2021 from children less than 12 years old in Hospital Tunku Azizah Kuala Lumpur.

Results

Total of 466 patients were admitted for pneumonia during this period. There were 683 samples sent for respiratory viruses and bacterials from 191 patients. Generally, the number of respiratory infection cases among children reduced during pandemic with higher isolation of respiratory pathogens before pandemic (11 months, April 2019 to February 2020) compared to during pandemic (17 months, March 2020 to July 2021) i.e., 254 and 166 respectively. Influenza A and B were not isolated during pandemic and respiratory syncytial virus (RSV) remained the leading virus isolated before and during pandemic. Other viruses isolated were adenovirus, parainfluenza and human metapneumovirus (HMPV). For bacterial pathogens, few isolations detected before and during pandemic i.e. *Streptococcal pneumonia*, *Hemophilus influenza*e and *Pseudomonas aeroginosa*. Children aged less than 2 years old were more frequent to get a positive isolation of respiratory viruses compared to other age groups.

Conclusion

Covid-19 pandemic and MCO reduced number of respiratory infections among children and changed pattern of pathogen isolation.

PP 22

COMPARISON OF CHILDREN WITH SYMPTOMATIC SARS-CoV-2 INFECTION AND OTHER SEVERE ACUTE RESPIRATORY ILLNESSES

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Introduction: Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has spread globally and resulted in a formidable pandemic. It is important for clinicians to differentiate SARS-CoV-2 infection from other acute respiratory infectious diseases in children.

Objectives: This study aimed to compare the clinical presentation and disease severity between children with symptomatic SARS-CoV-2 infection and other severe acute respiratory infections (SARI).

Methodology: This was a retrospective secondary analysis of all 71 children aged <18 years with laboratory-confirmed SARS-CoV-2 infection presented to University of Malaya Medical Centre between February 1 and December 31, 2020. Demographic and clinical data of children with symptomatic SARS-CoV-2 infection were compared with children admitted for SARI (an acute respiratory infection in ≤ 10 days requiring hospitalization) during the same study period, with no history of contact and were tested negative for SARS-CoV-2.

Results: There were 33 (46.5%, n=71) children with symptomatic SARS-CoV-2 infection and 112 children with SARI. Children with SARS-CoV-2 positive were older than the SARI group {median age 6.8 (IQR 3-12.8) vs 3.1 (IQR 1.0-7.5) years, p=0.017}. Vast majority of children with SARS-CoV-2 infection had no comorbidities, compared to SARI (90.9% vs 61.6%, p=0.001). All children with symptomatic SARS-CoV-2 infection had mild disease with no pneumonia. Cough and runny nose were significantly lesser in the SARS-CoV-2 group than the SARI group {adjusted odd ratio 0.202 (95%CI 0.07-0.56, p=0.002) and 0.436 (95%CI 0.15-1.30, p=0.01) respectively}. None of the SARS-CoV-2 positive group had breathing difficulty, noisy breathing or lethargy (p<0.001).

Conclusions: Children with symptomatic SARS-CoV-2 infection had mild presentation.

PP 23

THE EFFICACY AND SAFETY OF LEGA-KID® IN CHILDREN WITH PNEUMONIA: A PILOT STUDY

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Introduction

Chest physiotherapy (CPT) commonly used as adjuvant treatment for pneumonia in children to remove the inflammatory exudates and secretions, which will prevent airway obstructions and reduce airway resistance. LEGA-Kid® is a device designed to assist physiotherapist during CPT.

Objective

To compare the efficacy and safety profile of LEGA-Kid® devise and manual CPT among children with pneumonia.

Methodology

A pilot study of randomised control trial. Subjects were children with chronic suppurative lung disease (CSLD) admitted for pneumonia. Their age were between 6 to 60 months old or weight 3 to 15 kg. Subjects were recruited and assigned randomly into 3 minutes manual CPT or 3 minutes LEGA-Kid® devise group by certified physiotherapists prior to each CPT procedure. Each subject was assessed before the CPT, immediately after CPT and 3 minutes post CPT.

Results

Twenty-three CPT procedures recorded: 15 in manual CPT and 8 in LEGA-Kid®. The mean age of the subject was 21.7 months(SD 13.09). The duration of admission between manual CPT and LEGA-Kid® group were (20 days, IQR 19-20) and (19 days, IQR 12.5-19.5) respectively. Although the SaO2 was significantly higher in the manual CPT group compared to the LEGA-Kid® group immediately after CPT (96.6% vs. 93.5%, p=0.046) and 3 minutes post CPT (98.2% vs. 95.1%, p=0.037), all are within normal range. There is no significant difference between the two groups for heart rate, respiratory rate, breath sound, Dalhousie score, and Wong and Baker Pain Score. No complication or adverse events reported in either group during study period.

Conclusion

Both LEGA-Kid® and manual CPT are comparable in terms of efficacy and safety profile. LEGA-Kid® has potential to reduce the physiotherapist's manual workload during CPT. It can helps to improve compliance of parents to practice CPT at home for their children in need.

PP 24

HOSPITAL ADMISSION FOR RESPIRATORY DISEASES AMONG CHILDREN BEFORE AND DURING COVID-19 PANDEMIC IN A TERTIARY HOSPITAL, MALAYSIA

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Introduction

Respiratory tract-related diseases among children are a common cause of hospital admission. It can be infective or non-infective related. Coronavirus disease (COVID-19) pandemic and movement control order (MCO) may affect the trend of hospital admissions.

Objective

To determine changes in hospital admission patterns due to respiratory diseases among children before and during the pandemic.

Methodology

A cross-sectional study in a tertiary paediatric hospital in Kuala Lumpur. It involved hospital admission to general paediatric wards from April 27, 2019, to June 30, 2020, using the electronic record system.

Results

A total of 7939 hospital admissions were analysed (4676 respiratory and 3263 non-respiratory admissions). There was a significant reduction in the number of respiratory tract-related admissions during the pandemic (4305, 92.1% vs. 371, 7.9%, $p<0.001$). There was a significant reduction in pneumonia during the pandemic (47.9%) compared to before the pandemic (55.2%). However, hospital admission due to TB increased significantly from 1.2% (before the pandemic) to 4.1% (during the pandemic). Non-infective respiratory diseases include asthma (before and during the pandemic, 10.7 % and 12.9% respectively) and wheezing episodes (before and during the pandemic, 6.2% and 6.3%, respectively) showed no significant difference.

Conclusion

COVID-19 pandemic and MCO caused a reduction in hospital admissions due to respiratory tract infection but increased admission for TB with no significant effect on non-infective respiratory diseases.

PP 25

FIRST TWO YEARS AERO-DIGESTIVE OUTCOME OF NEWBORN WITH OESOPHAGEAL ATRESIA

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Introduction

Oesophageal atresia (OA) is an anomaly of the oesophagus characterized by the complete discontinuity of the oesophagus with or without an abnormal connection between the oesophagus and the trachea, also known as tracheo-oesophageal fistula (TOF).

Objective

To determine immediate outcome of oesophageal atresia following surgical repair i.e. mortality rate and intermediate aero-digestive outcome

Methodology

A retrospective study involving newborn with OA over 13 years (2005 until 2018) and their first 2 years of life aero-digestive outcome.

Results

Total 91 subjects identified with boys (53), Malays (70), spontaneous vaginal delivery (33), term gestation (74) and birthweight less than 2.5 kg (44). Pure OA found in 8.8% and 85% had fistula ligation and primary repair. About 25% had neonatal complications like IRDS, NEC and sepsis. Seventy-nine patients had co-morbidities like respiratory, vertebral, skeletal, cardiac, syndrome and other pathology. Forty-five subjects had immediate complications like oesophageal anastomosis leak (10), surgical site infection (1), pleural effusion (4), pneumothorax (16), oesophageal stricture (23), gastroesophageal reflux (25) and others. Seventy of them survived and discharged home include without respiratory support (67) and without feeding assistance (56). Forty subjects continued follow up until one year old. Aero-digestive complications during first year of life include recurrent pneumonia (16), trachea/ bronchomalacia (2), recurrent vomiting (12), oesophageal dysmotility (5), oesophageal stricture (12), gastroesophageal reflux (37), failure to thrive (10) and succumbed (1). Twenty-four subjects continued follow up until 2 year old and their aero-digestive complications were), trachea/ bronchomalacia (2), recurrent pneumonia (10), gastroesophageal reflux(10), oesophageal stricture (2), oesophageal dysmotility (2), assisted feeding (4), recurrent vomiting(2) and failure to thrive (7).

Conclusion

Oesophageal atresia is a rare condition in newborn baby but its immediate and intermediate aero-digestive complications must be recognize by clinicians to prevent morbidity and mortality.

PP 26

FACTORS AFFECTING ASTHMA CONTROL AMONG CHILDREN IN MALAYSIA: A MULTICENTRE STUDY

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15. Hospital Segamat, Johor
16. Hospital Sultanah Nora Ismail, Batu Pahat, Johor
17. Hospital Sultanah Aminah, Johor
18. Hospital Sultan Ismail, Johor
19. Hospital Seri Manjung, Perak
20. Hospital Taiping, Perak
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Introduction:
Assessment of asthma patient includes assessment of asthma control, treatment issues and co-morbidities. Poor symptom control is a risk factor for flare-ups.

Objective:
To determine the factors affecting asthma control among children in Malaysia.

Methodology:
A cross-sectional and multi-centres study involved asthmatic children aged 6-11 years old in 23 MOH hospitals with paediatrician between 1st October 2020 and 31st January 2021. Asthma control status based on Global Initiative Asthma (GINA) guideline; controlled asthma was categorized as good controlled while partly controlled and uncontrolled asthma is categorized as poor controlled.

Results:
A total of 755 children were recruited. Five hundred and fifteen children (68.2%) were good controlled, and 240 (31.8%) were poorly controlled. The mean age was 102.1 months (SD 20.60) for good controlled group and 106.0 months (SD 20.76) for poor controlled group (P=0.017). Among poorly controlled group, 26 (15.7%) children were not prescribed with prophylaxis, 196 (36.4%) were on one prophylaxis, 15 (39.5%) were on two prophylaxis. Concurrent allergic rhinitis and food allergic, inadequate prescription of prophylaxis, exposure to allergens, and precipitating factors were the risk factors for poorly controlled asthma. Poor controlled asthma group was more prone to high short beta-agonist usage at home, emergency department visit, restricted physical activity, and frequent exacerbation.

Conclusion:
By targeting the risk factors of poorly controlled asthma, it will help in achieving good asthma control, which will improve the quality of life of the children and the family.

PP 27

DELAYED SPUTUM CONVERSION AMONG PATIENTS TREATED FOR SMEAR POSITIVE PTB IN SABAH: A RETROSPECTIVE STUDY

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Introduction: Patients with failure of sputum conversion after 2 months of intensive anti tuberculous therapy (ATT) are at risk for treatment failure, drug resistance and increased mortality.

Objectives: To analyse demographics, clinical, radiological, microbiological, and therapeutic data and to identify confounding factors that may influence delayed sputum conversion(DSC).

Methodology: Retrospective review of all smear positive PTB patients with DSC that were referred to the Respiratory Department, Queen Elizabeth Hospital. (January to December 2020).

Results:
62 patients (33 male, mean age 41.7 (SD 11) were studied. 40 (64%) were foreigners. Mean weight was 44.3kg. 87% (54) had initial sputum AFB load of 2+ and above .90% had moderate to advanced chest radiograph changes. 52 patients received fixed dose combination (FDC). At 2 months, all patients had improvement in their symptoms. Chest radiograph showed improvement in 31 (50 %) patients. 25% had sputum AFB load of 2+ and above. Out of 32 patients who received Isoniazid more than 5 mg/kg/day and Rifampicin more than 10 mg/kg/day, 27(84%) had reduced sputum bacillary load and 17 (57% had improvement in their CXR. Whilst 1 patient was noted to have drug resistance, 61 patients had good treatment outcome.

Conclusion: Although most patients were given Rifampicin and Isoniazid within standard recommended doses, patients who were given doses within the higher range had CXR improvement and reduced bacillary load. The use of FDC is also a reason for inadequate dosing of individual drugs in some. More research is required to support reconsideration of currently recommended standard dosing guidelines and the use of higher doses of Isoniazid and Rifampicin in patients with advanced PTB.

PP 28

THE 1-MINUTE SIT-TO-STAND TEST TO DETECT EXERCISE-INDUCED OXYGEN DESATURATION IN OUTPATIENT ASSESSMENT OF POST COVID-19 INFECTIONS PATIENTS.

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Background: The 6-min walk test (6MWT) is the gold standard for assessing exercise-induced impairment of gas exchange, but it is cumbersome. The aim of this study was to compare the 1-min sit-to-stand test (1STST) with the 6MWT in assessment of exercise-induced oxygen desaturation in post COVID-19 patients complicated by with organizing pneumonia and pulmonary embolism in an outpatient setting.

Methods: A total of 34 outpatient post COVID-19 patients were recruited. Both 6MWT and 1STST (a set) were performed on the same day including pulse oxygen saturation (SpO2) recording at baseline, nadir, and recovery stage.

Results: A total of 50 sets of both 6MWT and 1STST tests were performed at mean of 50 days post discharge; 21 patients had 1 set done, 10 had 2 sets and the remaining 3 had 3 sets of tests. Majority were in COVID-19 infection category 4 (n=25, 73.5%) and 5 (n=8, 23.5%). All had organizing pneumonia and 10 (29.4%) had co-existing pulmonary embolism. The SpO2 nadir and recovery during the 6MWT was lower compared to 1STST in each paired test (91% ± 4% vs 92% ± 2%, p0.048 and 95% ± 3% vs 95 95% ± 1%, p0.031 respectively). However, there was no significant desaturation proportion detected between 6MWT and 1STST, p 0.24. The 6MWT distance correlated with number of repetitions in the 1STST ($r = 0.499$, $p < 0.000$)

Conclusion: The 1STST can detect exercise-induced oxygen desaturation in patient post COVID-19 infection with organizing pneumonia and pulmonary embolism post COVID-19 infection.

PP 29

METHYPREDNISOLONE VERSUS DEXAMETHASONE FOR SEVERE COVID-19 INFECTION: A RETROSPECTIVE COMPARATIVE ANALYSIS OF OUR EARLY EXPERIENCE

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Introduction:

By August 2021, over 240 million patients suffered from Covid-19 and more than 4.5 million deaths were recorded worldwide. Dexamethasone (DXM) remains the mainstay of treatment with various reports begin to surface describing the use of Methyprednisolone (MTP).

Objective:

The primary Objective is to determine response of each treatment and secondary outcome is to evaluate the complications and mortality of both treatments.

Methodology:

This is a retrospective cohort study involving patients hospitalized for COVID-19. Subjects treated with MTP are compared with those treated with DXM alone. Subjects' characteristics, laboratory and ventilatory parameters, length of mechanical ventilation, length of stay and mortality are evaluated.

Result:

A total of 100 patients (50 for each cohort) were evaluated. Patients treated with MTP presented later (9.96 (±4.43) versus 6.10 (±3.30) day of illness (P<0.01)). More patients in the MTP group 28 (56%) were mechanical ventilated compared to 5(10%) the DXM group. Median dose of MTP used was 500 (IQR 408) in divided doses. The all-cause mortality was higher for MTP group versus DXM group (29(58%) versus 17(34%); P=0.016), longer length of stay in the MTP group (19.71 (±14.23) versus 10.86 (±5.36) days; P < 0.01) due to more severe patients and longer weaning time for patients mechanically ventilated. However, the use of MTP demonstrated significant improvement in ventilation for patients with SpO2/Fio2 (SF) ratio below 235 (pre-treatment of 143.20 (± 43.00) to post treatment of 196.65 (± 92.95); P < 0.01). Nosocomial infection was more prevalent in the MTP group versus DXM group (30 (60%) versus 10 (20%); P<0.01). Improvement of ventilatory failure for patients with SF ratio above 235 was insignificant.

Conclusion:

In conclusion, these results further strengthen the use of MTP in patients with severe COVID-19 as reported previously; especially in patients with SF ratio below 235.

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COMPARISON BETWEEN RADIOLOGISTS AND DEEP LEARNING TECHNIQUE IN DETECTING SITE OF LESION OF COVID-19 PNEUMONIA

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Introduction

COVID-19 pneumonia CT-Scan thorax findings characterized by bilateral and sub-pleural ground glass opacities (GGO), vascular thickening, spider web, and crazy-paving patterns. The advanced Artificial Intelligence-based (AI-based) algorithms can differentiate COVID-19 pneumonia from other cause of pneumonia by deep learning these typical CT image signs.

Objective

To compare radiology findings accuracy of deep learning (DL) algorithms in reporting HRCT Thorax of confirmed COVID-19 pneumonia patients compared with reports by Radiologist.

Methodology

Thirty-three radiologists reported nine abnormal (COVID-19 pneumonia) and one normal HRCT thorax to determine pathology and site of lesions. Pathology studied were ground glass changes, consolidation and crazy-paving patterns. Inter-observer agreement measured using Fleiss Kappa (95% confidence interval). The radiologist's findings compared with the results generated by the DL module.

Results

DL algorithm AI available in HTA unable to identify consolidation and crazy-paving lesions on CT-Scan. Therefore, further analysis was on ground glass changes on CT-Scan study only. Based on the comparison of the calculation of 60%, 70%, and 80% agreement between radiologists, 70% agreement of the radiologists needed to consider significant CT-Scan findings. The inter-observer agreement ranged between 0.076 (95% CI 0.030-0.122) to 0.949 (95% CI 0.861-0.999), and in 75% of the cases, the inter-observer agreement was good (Fleiss kappa >0.4). When comparing the radiologist's findings and DL modules, the average percentage of agreement for site of ground glass lesion was 72.5%, ranging from 0-100%.

Conclusion

The findings showed wide range of agreement between DL modules and Radiologists for ground glass changes. Available DL module may need upgrading of algorithm to improve detection of ground glass, consolidation and crazy-paving for Covid-19 pneumonia before it can be used as a tool to screen or diagnosed Covid-19 pneumonia.

PP 31

RETROSPECTIVE STUDY ON IDIOPATHIC PULMONARY FIBROSIS (IPF) PATIENTS FOLLOW UP IN INSTITUT PERUBATAN RESPIRATORI (IPR)

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Introduction

IPF, an unknown aetiology fibrosing interstitial lung disease (ILD), primarily affects older adults which leads to a progressive decline in lung function and quality of life. We aim to describe the demographic, radiological, treatment received and outcome in IPF patients follow up in our institution.

Methodology

A 4-year retrospective analysis of ILD patients who diagnosed with IPF attending ILD clinic in IPR. Demographic, radiological pattern, treatment and outcome were evaluated.

Results

115 IPF patients evaluated, mean age was 69.7, male predominance (85%) and Malay ethnicity (39%). Majority were smoker and former smoker (70.4%). The most common radiological pattern encountered was usual interstitial pneumonia (UIP) both typical and probable, around 85%. 84.3% have mild to moderate restrictive ventilatory defect and 97 patients had completed lung function test. There were 67% received anti-fibrotic treatment, 32.2% received best support care and 0.8% on follow up monitoring. Most patients received nintedanib (73%), but more adverse drug reaction (ADR) were reported among pirfenidone patients (36.4%). Gastrointestinal ADR were the most commonly reported with pirfenidone (60%).Dermatologic ADRs were also higher with pirfenidone (20.0%) Hepatic ADRs were only reported with nintedanib (21.4%). Dose reduction as a result of ADRs in pirfenidone around 50%. Only nintedanib was discontinued following ADRs (5.35%). 33% patients passed away during follow up, majority with severe disease and with episode of acute exacerbation of IPF.

Conclusion

The results from this real-world clinical setting support findings from previously conducted clinical trials show similarities in demographic profile and both anti-fibrotic medication were generally tolerated.

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THE IMPACT OF MULTIDISCIPLINARY DISCUSSION (MDD) IN DIAGNOSIS OF INTERSTITIAL LUNG DISEASE (ILD): SINGLE CENTRE EXPERIENCE

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Introduction

The diagnosis of ILD can be challenging and a multidisciplinary approach is the current gold standard and recommended in the international guidelines. The multidisciplinary team discussion consists of respiratory physician, thoracic radiologist and pathologist. We aim to evaluate the cases discussed in our 2-weekly meeting in our institution to see the impact of meeting on diagnosis and management .

Methodology

This retrospective cross-sectional study included patients who underwent MDD review between January and October 2021.

Results

There were 170 patients included in the analysis, mean age of patient was 61.4 with female predominance (53.5%). The patients discussed were from our institution and hospital in other states including government and private. The MDD was conducted based on clinical and radiological information given by the presenter. From the discussion, none of the cases was proposed for lung biopsy and incomplete information cases were recommended to do further extended autoimmune serology test. The most prevalent diagnoses after MDD were connective-tissue disease associated ILD (37%), idiopathic pulmonary fibrosis (12%), hypersensitivity pneumonitis (12%) and 17% had no evidence of ILD based on high resolution computed tomography (HRCT) thorax.

Conclusion

Our results confirm the benefits of MDD especially on ILD diagnosis based on clinical and radiological information provided. MDD also demonstrates a viable service to all suspected ILD patients that allows greater access to ILD service.

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CORTICOSTEROID TREATMENT IN SEVERE COVID-19 SURVIVORS – AN OBSERVATIONAL STUDY FROM A TERTIARY CENTRE

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Introduction:

Short course systemic corticosteroid has been reported to reduce mortality in severe coronavirus disease-19 (COVID-19). Pulse corticosteroid, extended corticosteroid, maintenance and tapering of corticosteroid were observed in clinical practice. Early withdrawal of corticosteroid treatment is associated with reconstituted systemic inflammation in certain circumstances.

Objective:

We aimed to study the prescription pattern of corticosteroid. Our secondary objective was to identify the incidence of oxygen dependence after 14 days of illness in severe COVID-19 survivors in our centre with its associated factors.

Methodology:

This was a retrospective study on survivors of severe COVID-19 patients who were admitted to University Malaya Medical Centre from 1 January to 15 April 2020. We categorised our patients into two groups according to oxygen dependence after 14 days of illness.

Results:

There were 101/120 (84%) survivors of severe COVID-19. Forty-nine (48.5%) patients were oxygen dependent after 14 days of illness prior to discharge. Mean onset of symptoms to admission was 6.3 days (SD ±3.14). Mean length of stay was 13.8 days (SD ±8). Mean duration of corticosteroid for acute treatment was 9 days (SD ±4.9). Thirty-two (31.7%) survivors were given extended steroid and 28 (27.7%) survivors were given prednisolone as maintenance and tapering before discharge. Mean duration of prednisolone maintenance was 50.8 days (SD ±19.3). Univariate analysis showed significant variables associated with oxygen dependence after 14 days of illness were pulmonary embolism, high maximum oxygen requirement (Non-invasive and invasive ventilation), pulse corticosteroid, extended course of corticosteroid and maintenance prednisolone with tapering. However, logistic regression analysis indicated only extended corticosteroid during acute treatment was a predictor of oxygen dependence after 14 days of illness.

Conclusion:

There was a heterogenous pattern in prescribing corticosteroid in severe COVID-19 survivors.

CASE REPORTS

CR 1	**CYSTIC FIBROSIS DUE TO RARE A553TER AND G551VAL MUTATION IN MALAYSIA: A CASE REPORT** **Mariana Daud** *Paediatric Respiratory Unit, HRPZ11, Kota Bharu, Kelantan*	
CR 2	**CASE SERIES: LOCAL EXPERIENCE ON USING TOFACITINIB-RITUXIMAB-METHYLPREDNISOLONE COMBINATION FOR TREATMENT INDUCTION OF ANTI-MDA5 ANTIBODY ASSOCIATED RAPID PROGRESSIVE INTERSTITIAL LUNG DISEASE (RP-ILD)** **Wang-Jie Tan1,** Manghani Mona2, Choon-Guan Chua2 Gin-Tsen Chai1 *Department of Respiratory & Critical Care Medicine, Tan Tock Seng Hosptial1* *Department of Rheumatology, Allergy & Immunology, Tan Tock Seng Hosptial2*	
CR 3	**CASE REPORT: A RARE CASE OF RECURRENT PANCREATITIS SECONDARY TO ANTI TUBERCULOUS DRUG THERAPY IN A PATIENT WITH DISSEMINATED TUBERCULOSIS.** *1. **Tang JT** (Hospital Queen Elizabeth)* *2. Anwardeen AK (Hospital Queen Elizabeth)* *3. Mohd Makhtar NH (Hospital Queen Elizabeth)* *4. Kannan K (Hospital Queen Elizabeth)* *5. Emmanuel J (Hospital Queen Elizabeth)*	
CR 4	**COVID ASSOCIATED PULMONARY ASPERGILLOSIS- CASE SERIES** **Jin lee Lim,** In Shih Khor, Yuen Cheng Kew, YF Lam, Kumaresh Raj *Department of Respiratory Medicine, Hospital Raja Permaisuri Bainun, Ipoh*	
CR 5	**CASE REPORTS OF CONGENITAL DIAPHRAGMATIC PARALYSIS: HOSPITAL SERDANG EXPERIENCE** **Amanil 'Ula Hassan[1]**, Dayang Zuraini Sahadan[1] *Paediatric Respiratory Unit, Hospital Serdang, Selangor, Malaysia[1]*	
CR 6	**NEUROENDOCRINE CELL HYPERPLASIA OF INFANCY (NEHI): A DISTINCT ENTITY OF CHILDHOOD INTERSTITIAL LUNG DISEASE** **SH Tan**, Fazila MA, Mariana Daud *Pediatric Respiratory Unit, Hospital Raja Perempuan Zainab II, Kota Bharu, Kelantan, Malaysia*	
CR 7	**DOCTOR, MY CHEST IS DEFORMED!** **Nur Shafinaz Rusli[1],** Muhammad Khairul Amri Yusoff[1], Farah Syuhada Mohd Radzi[2], Ahmad Fadzil Abdullah[1]. *1. Pediatrics Department, Sultan Ahmad Shah Medical Centre @ IIUM, Kuantan, Pahang, Malaysia* *2. Pediatrics Department, Hospital Tengku Ampuan Afzan, Kuantan, Pahang, Malaysia.*	
CR 8	**OVERFEEDING IN INFANCY WITH RESPIRATORY COMPLICATIONS AND ITS OUTCOMES** **Swee Wei Tan,** Rus Anida Awang, Nicholas LW Chang *Paediatric Respiratory Unit, Hospital Pulau Pinang, Pulau Pinang, Malaysia*	
CR 9	**POSITIVE SPUTUM ACID FAST BACILLI IN PATIENTS WITH LEPROSY: IS IT TB?** **Muhammad Khairul Taufiq Rosli,** Hema Yamini Ramarmuty, Shan Min Lo, Jeat Thong Tang, Kunji Kannan *Hospital Queen Elizabeth, Sabah, Malaysia*	
CR 10	**THE ROLE OF NON INVASSIVE VENTILATION (NIV) IN MASSIVE CONGENITAL CHYLOTHORAX IN AN INFANT: A CASE REPORT** **Fazila Mat Arifin[1],** FC Lai[2,] Mariana Daud[1] *[1] Pediatric Respiratory Unit, Hospital Raja Perempuan Zainab II, [2] Hospital Sultan Ismail Petra, Kelantan*	
CR 11	**ROLE OF FLEXIBLE BRONCHOSCOPY AND LAVAGE IN A CHILD WITH SEVERE SMOKE INHALATION INJURY** **Farul R Patel[1]**, Kelvin Cheong Yung Chia[1], Anis Siham Zainal Abidin[2], Siew Choo Su[1] *[1]Department of Paediatrics, Hospital Tengku Ampuan Rahimah, Klang, Malaysia* *[2]Department of Paediatrics, Hospital UiTM, Selangor, Malaysia*	
CR 12	**COMBINATION OF FLEXIBLE BRONCHOSCOPY WITH STAGED BALLOON DILATATION AND ORAL CORTICOSTEROID FOR BRONCHIAL STENOSIS IN ENDOBRONCHIAL TB: A SUCCESSFUL STORY** **Haly Rozie Ahmad1**, Soon Hin How2, Zarifa Zainuddin3, Justin Tan1, Megat Razeem Abd Razak1, Aishah Ibrahim1	

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CR 15	**THE GREAT MIMICKER STRIKES 2.0** **Justin Yu Kuan Tan**, Azlina Samsudin, Nizafaziayida Fauzee Andylim, Norhaya Mohd Razali *Respiratory Unit, Hospital Sultanah Nur Zahirah, Kuala Terengganu, Malaysia*	
CR 16	**CASE SERIES OF NEONATE AND COVID-19 INFECTION** **Yi Cheau Chua[1]**, N Fafwati Faridatul Akmar Mohamed[1], Shangari Kunaseelan[1], Nor Diyana Ismail[1], Hasliza AR[1] , Che Zubaidah Che Daud[2], Asiah Kassim[1] *[1]Respiratory Unit, Paediatric Department, Hospital Tuanku Azizah, Kuala Lumpur, Malaysia* *[2] Radiology Department, Hospital Tuanku Azizah, Kuala Lumpur, Malaysia*	
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	Roqiah Fatmawati AK, Bushra J, Aisya Natasya M, Mohd Zhafran ZA *Faculty of Medicine , Universiti Teknologi MARA(UiTM), Sungai Buloh, Malaysia*	
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CR 32	**A CASE SERIES: PNEUMOTHORAX IN COVID-19** **Nor Anith MA[1], Syakir Hasenan[2], Muhammad Amin Ibrahim[3,] Anez Aslan[4]** [1]*department of Surgery, Faculty of Medicine & Defence Health, Universiti Pertahanan Nasional Malaysia (Upnm), Kuala Lumpur, Malaysia* [2]*Department of Cardiothoracic, Institut Jantung Negara (IJN) Kuala Lumpur, Malaysia* [3] *Department of Respiratory, Faculty of Medicine, Universiti Teknologi Mara (UiTM), Selangor, Malaysia* [4] *Hospital Selayang, Batu Caves, Selangor, Malaysia*.	
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CR 35	**TUBERCULOSIS AND COVID-19: A DOUBLE WHAMMY OF HEALTHCARE** **Chan Tha A Hing*,** Gahyathri Balakrishnan*, Noor Yusriza Suzane Mohd Yusoff*, Asyif Fairus*, Arvind Alaga* **Pulmonology Department, Hospital Sultanah Bahiyah, Kedah, Malaysia*	
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	S. Darshini[1], Zul Amali Che Kamaruddin[1], Letchumanan M[2] *[1] Medical Department, Hospital Tawau, Sabah, Malaysia* *[2] Radiology Department, Hospital Tawau, Sabah, Malaysia*	
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CR 45	**MANAGING POST COVID-19 COMPLICATIONS WITH COPD COMORBIDITY** **Yen Shen Wong[1],** Muhammad Amin Ibrahim[1], Mohd Fauzi Abdul Rani[1], Mohd Arif Mohd Zim[1] *[1]Faculty of Medicine, Universiti Teknologi MARA (UiTM), Sungai Buloh, Selangor, Malaysia*	
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CR 52	**CLINICAL OUTCOMES OF SLIDE TRACHEOPLASTY IN CONGENITAL TRACHEAL STENOSIS: HOSPITAL SERDANG EXPERIENCE** **Amanil 'Ula Hassan[1],** Dayang Zuraini Sahadan[1], Saraiza Abu Bakar[1], Ani Suraya Abd Ghani[1], Koh Gee Tiong[1], Zakaria Zahari [2] *Hospital Serdang, Selangor[1],* *Hospital Tunku Azizah, Kuala Lumpur[2]*	

CR 1

CYSTIC FIBROSIS DUE TO RARE A553TER AND G551VAL MUTATION IN MALAYSIA: A CASE REPORT

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Introduction

Cystic fibrosis (CF) is an inherited disease that is caused by pathogenic mutations of the cystic fibrosis transmembrane conductance regulator (CFTR) gene. CF is very common among Caucasians but rare among Asians. The major mutation, F508del, accounts for 30%–88% of CF chromosomes worldwide.

Objective

To report a case of CF in Malaysia due to rare CFTR gene mutation involving A553Ter and G551Val mutation, describing his clinical phenotype.

Case History

A 24 months old boy of mixed Asian heritage (Malay-Uzbekistani) presented with recurrent pneumonia, needing non-invasive ventilation/intubation on three occasions since two months old. He required home oxygen therapy for duration of 4 months. He has pseudo-Bartter syndrome with hyponatremia, hypokalemia, hypochloremic metabolic alkalosis and fat malabsorption. HRCT Thorax at 9 months of age revealed bronchiectasis. Sweat test showed high chloride of 131mmol/L on two occasions. He was a chronic pseudomonas carrier but successfully eradicated. He responded well to symptomatic treatment, with good weight gain and resolution of tachypnoea and lung crepitations at 18 months. He has pathogenic mutation of A553Ter and likely pathogenic G551Val mutation on genetic testing.

Discussion

More than 2000 CFTR mutations have been identified with variable phenotypic expression. Currently there are 6 classes of CFTR mutation and the most common pathogenic mutation is F508del in Class II mutation. This patients has A553Ter and G551Val mutation and it is unknown to what mutation class they belong. To our knowledge, this is the first reported rare CFTR mutation in Malaysia.

Conclusion

Identifying the CFTR mutations via genetic testing is the way forward and the test should be offered readily in Malaysia. It helps to classify phenotype and probable CFTR mutation class-based therapy.

CR 2

CASE SERIES: LOCAL EXPERIENCE ON USING TOFACITINIB-RITUXIMAB-METHYLPREDNISOLONE COMBINATION FOR TREATMENT INDUCTION OF ANTI-MDA5 ANTIBODY ASSOCIATED RAPID PROGRESSIVE INTERSTITIAL LUNG DISEASE (RP-ILD)

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Introduction: Anti-melanoma differentiation-associated gene 5 antibody (anti-MDA5 Ab) is associated with clinically amyopathic dermatomyositis (CADM) with RP-ILD, which often follows a fulminant disease course that carries a high mortality. Combination therapy with tofacitinib, a Janus kinase (JAK) inhibitor, rituximab, an anti-CD20 chimeric antibody, and pulse methylprednisolone has shown promising results as an induction treatment modality for this condition.

Objectives: To describe the experience on using tofacitinib-rituximab-methylprednisolone combination therapy for induction treatment of anti-MDA5 Ab associated RP-ILD in a tertiary hospital in Singapore.

METHODS: Medical charts of three patients with anti-MDA5 Ab associated RP-ILD who received induction treatment with tofacitinib-rituximab-methylprednisolone combination were reviewed.

RESULTS:

Case 1: A 39-year-old Malay female presented with a one-month history of bilateral symmetrical polyarthritis and rash, with fever and dry cough for 1 week without breathlessness. Physical examination revealed Gottron's papules and vasculitic rashes at hand without abnormal lung findings. She has no muscle weakness with normal muscle enzymes and electromyographic findings. Computed tomography (CT) thorax showed organising pneumonia. Her diagnosis was recognised on day 1 of admission and above combination of immunosuppression was started promptly. She did not require any supplemental oxygen during her hospital stay.

Case 2: A 64-year-old Chinese lady presented with a 3-month history of rash, fatigue, cough and weight loss. Despite outpatient treatment with corticosteroids, she developed worsening hypoxemic respiratory failure requiring high flow nasal cannula. Her condition improved following treatment and was discharged after 3 weeks in hospital without oxygen.

Case 3: A 41-year-old Fillipino lady presented with a one-month history of eyelid swelling, joint pain cough and fever. She was initially diagnosed as pneumonia but deteriorated rapidly to ARDS requiring mechanical ventilation. Diagnosis of CADM with RP-ILD was made in the ICU and immunosuppression was started. She unfortunately succumbed after 13 days in the ICU.

CONCLUSIONS: Early recognition and treatment remains key in managing patients with anti-MDA5 Ab associated RP-ILD. Our experience in using the tofacitinib-rituximab-methylprednisolone combination for treatment induction has shown promising results in managing this condition when presented early.

CR 3

CASE REPORT: A RARE CASE OF RECURRENT PANCREATITIS SECONDARY TO ANTI TUBERCULOUS DRUG THERAPY IN A PATIENT WITH DISSEMINATED TUBERCULOSIS.

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Context. Anti-tuberculous drugs (ATD) induced pancreatitis is rare but has potentially serious consequences. Thus early recognition and subsequent causative drug withdrawal are important.

Case Report. A 38 year-old male presented with smear positive disseminated tuberculosis infection. He developed acute pancreatitis after 1 week of ATD therapy (Rifampicin, Isoniazid, Pyrazinamide and Ethambutol). He demonstrated clinical improvement after the ATD regimen was withheld. However, he developed another 3 episodes of pancreatitis in the weeks to come during failed attempts to rechallenge with Rifampicin, before he eventually succumbed to his illness.

Conclusion. We report a case of Rifampicin induced pancreatitis with unfavourable outcome. It is essential for clinicians to have a high index of suspicion for drug induced acute pancreatitis and to discontinue the offending agent in a timely manner to avoid further complications.

CR 4

COVID ASSOCIATED PULMONARY ASPERGILLOSIS- CASE SERIES

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Introduction

Covid Associated Pulmonary Aspergillosis (CAPA) is a new entity. It is associated with higher mortality in COVID infection. We reported two cases who were diagnosed to have CAPA based on clinical, radiological and microbiological evidence.

Case presentations

Patient 1: A 62-years old lady was admitted for CAT 5 COVID infection and was treated with IV methylprednisolone followed by dexamethasone. After extubation, she was dependent on oxygen via Venturi mask. CT thorax showed cavitary lesion in the right upper lobe with hyper-dense lesion seen in the cavity, which was not seen in previous CT. The impression of possible CAPA was made and she was treated with voriconazole. She showed marked improvement after the initiation of voriconazole and was able to go home with oxygen concentrator at the level of 1litre/min. Her serum Galactomanan revealed a positive result later on.

Patient 2: A 56-years old lady was admitted for CAT 4 COVID infection and was treated with IV methylprednisolone followed by dexamethasone. She developed hemoptysis on day 30 of illness. CT thorax showed cavities in bilateral upper lobes containing soft tissue. she was diagnosed to have CAPA and was initiated on voriconazole. Unfortunately, she deteriorated and succumbed to disease after one week. Her serum Galactomanan was positive, and her sputum culture recovered Aspergillus niger.

Discussion

The exposure to prolonged steroid therapy and damage of airway epithelial from SARS-Cov2 infection are deemed to be responsible for CAPA in these two patients.

Conclusion

With suggestive radiological and clinical features, early initiation of azole group anti-fungal should be considered, even before microbiological evidence is available, to avoid delay in treatment.

CR 5

CASE REPORTS OF CONGENITAL DIAPHRAGMATIC PARALYSIS: HOSPITAL SERDANG EXPERIENCE

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The diaphragm is the main respiratory muscle which consist of the musculo-fibrous membrane that separates the thoracic and abdominal cavities. Diaphragm dysfunction can be due to congenital or acquired causes. The latter is more common and mostly related to the birth trauma or postoperative complications. Congenital causes are mostly idiopathic but may have an association with disorders (Spondylocostal dysostosis, Kabuki syndrome, Poland syndrome, chromosomal defects, mitochondrial respiratory chain disease) and intrauterine congenital infections.

We report two cases of congenital diaphragm paralysis. The first case, a-7-month old premature boy, presented at birth with persistent right lower lobe pneumonia and inability to weaning off ventilator. He underwent diaphragm plication at three months old and required home continuous positive airway pressure. The second case was a-5-year-old girl, who had recurrent pneumonia since 9 months old with persistent radiological findings of right hemidiaphragm elevation. The diagnosis was confirmed by ultrasonography and Computed Topography of thorax in both cases. The latter case is under close monitoring and awaiting surgical intervention.

Infants may present with respiratory distress, atelectasis, recurrent pneumonia or inability in weaning from ventilator. Infants tolerate less than older children because the intercostal muscles are weaker and have more horizontal orientation of the rib cage. The diagnosis is suggested when the chest radiograph shows a raised diaphragm and is supported by ultrasonography and fluoroscopy that could evaluate the dynamic function.

The goal of treatment is to maintain normal lung volume and lung ventilation. Treatment options are surgical diaphragmatic plication which is indicated in patients with respiratory distress or inability to wean from ventilator. A trial of continuous positive airway pressure may be helpful in some infants.

CR 6

NEUROENDOCRINE CELL HYPERPLASIA OF INFANCY (NEHI): A DISTINCT ENTITY OF CHILDHOOD INTERSTITIAL LUNG DISEASE

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Introduction:

Neuroendocrine Cell Hyperplasia of Infancy (NEHI) is a rare interstitial lung disease of childhood (chILD) that typically presents in the first year of life. It was previously reported as persistent tachypnea of infancy until the disease was established to be associated with an increased number of Bombesin-positive neuroendocrine cells on histopathology of the lung.

Objective:

To describe a mixed Asian heritage (Malay, Siamese) girl with the diagnosis of NEHI, her clinical presentation, diagnostic modality and clinical outcome.

Case Study:

A 7 months old girl was referred from other tertiary hospital for persistent tachypnea and oxygen dependency after a prolonged 3 weeks of mechanical ventilation due to intracranial bleed and status epilepticus. After extubation she had persistent tachypnea, wheezing, hypoxemia with haziness on chest radiograph. The child required prolonged high flow nasal cannula therapy and nasal oxygen prior to referral. Previously she had an early onset of tachypnea with chest recession at 3 months old requiring oxygen supplementation. Unfortunately, her parent took AOR discharge. Current assessment showed failure to thrive with tachypnea, chest retractions, Harrison sulci, hypoxic in air with lung crepitation. High-resolution computerised tomography (HRCT) thorax revealed ground glass opacities of right middle lobe and lingual, which is consistent with NEHI. Remarkable improvement was seen with 2 months of systemic corticosteroid, immunosuppression and home oxygen therapy.

Conclusions:

NEHI is a rare form of chILD in infancy thought to be disorder of pulmonary dysmaturation. Previously lung biopsy is the gold standard investigation. However, pathognomonic HRCT pattern in NEHI may avoid the need for lung biopsy. Awareness of this entity and radiological findings can aid the diagnosis.

CR 7

DOCTOR, MY CHEST IS DEFORMED!

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Chest deformity is not an uncommon finding in children and can be one of the reasons they visited doctors. Causes of chest deformity can be congenital or acquired. Shape of the children's chest were determined by the chest wall (defect in bone or the intercostal muscle), or intra thoracic tissue or organs. Chest deformity may have no clinically significant or conversely it can also be a sign of something sinister. We highlighted 3 cases of children with chest deformity with different underlying causes. All these children do not have conspicuous symptoms thus can easily be missed by primary doctors. This can ensure delayed diagnosis especially if patients were not assessed properly. Case 1: A 2-year-old boy case with Morgagni Diaphragmatic Hernia, Case 2: 10-year-old boy with progressive chest deformity for the past 5 month due to inflammatory pseudotumor, Case 3: 6-month-old girl infant who was growing well but developed chest deformity since 4-month-old due to large PDA. All the cases were initially seen by primary doctors earlier before they were referred. Thus, doctors should be more cognizant of children with chest deformity and evaluate them properly to rule out any underlying causes that can lead to long term morbidity if complications develop.

CR 8

OVERFEEDING IN INFANCY WITH RESPIRATORY COMPLICATIONS AND ITS OUTCOMES

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Background:
There have been several publications describing overfeeding in infancy leading to overweight and childhood obesity. However, publication describing the relationship of overfeeding and respiratory complications are severely lacking. The aim of this study is to demonstrate the respiratory characteristics of overfed infants and its outcomes with treatment. This is to raise awareness amongst paediatricians in recognizing the respiratory complications of overfed infants.

Method:
This was a retrospective case series review. Data were collected from the hospital files of 16 infants who had overfeeding with respiratory manifestations. These infants were either admitted to the Paediatric ward or followed-up at the Paediatric Respiratory unit at Hospital Pulau Pinang between September 2018 and October 2020.

Results:
Sixteen patients met the inclusion and exclusion criteria. The mean age of presentation was 3.5 months old (± 2.5 months). Only 3 were premature (19%) and 1 was syndromic (6%). The most common respiratory complaint was rapid breathing (75%), followed by cough (62%) and rattling (50%). Chest recession (87%) was the most common clinical sign, followed by tachypnoea (50%) and crepitations (31%). With intervention of overfeeding by restricting milk volume (94%), introducing anti-reflux formula milk (31%) and initiation of anti-reflux medications (44%), there was resolution of respiratory symptoms (87%, <0.001), respiratory signs (67%, <0.001) and radiological changes (77%, <0.05). However, 3 patients had respiratory complications of chronic lung disease and required short-term home non-invasive ventilation support.

Conclusion:
Feeding with higher volume of milk than recommendation during infancy can lead to respiratory complications. Most patients had complete resolution of respiratory signs and symptoms once overfeeding is addressed by restricting milk volume at suggested amount according to age. However, a few developed chronic lung diseases which could have been preventable if the overfeeding and respiratory manifestations were recognised and addressed early.

CR 9

POSITIVE SPUTUM ACID FAST BACILLI IN PATIENTS WITH LEPROSY: IS IT TB?

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Leprosy is a rare infection that commonly affects skin and peripheral nerves. Although leprosy is caused by Mycobacterium leprae, an intracellular Gram-positive aerobic acid-fast bacilli (AFB), it is rarely detected in sputum samples. We describe 5 patients with leprosy, in whom the sputum smears were positive for AFB. 3 of the patients had cough and 1 among the asymptomatic patients had chest x-ray changes that led to them being started on anti-tuberculous treatment (ATT). All patients were given ATT together with leprosy treatment but sputum AFB remained positive despite being on ATT for more than 2 months. 3 of the patients received ATT for 6 months and 2 of them completed less than 6 months of treatment as clinical evidence of an active pulmonary TB based on presentation, radiology and sputum cultures were low. All five patients' MTB cultures and gene expert results were negative. During post-leprosy treatment follow up, all patients remained asymptomatic of TB infection. Positive sputum AFB in leprosy patients could be due to coinfection with TB or possibly due to leprosy infection itself. In countries where TB is endemic, a positive sputum smear for AFB in a patient who has leprosy can lead to a misdiagnosis of tuberculosis. Sputum MTB culture as well as sputum gene expert which is a more rapid option will be helpful to differentiate both conditions. A careful evaluation is needed before deciding to start ATT in these group of patients.

CR 10

THE ROLE OF NON INVASSIVE VENTILATION (NIV) IN MASSIVE CONGENITAL CHYLOTHORAX IN AN INFANT: A CASE REPORT

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INTRODUCTION

Congenital Chylothorax is an abnormal chyle accumulation in the pleural space and it is a rare condition. It causes respiratory and nutritional problems and significant mortality. The treatments are medical or surgical which aim to relieve the respiratory symptoms, prevent recurrence, prevent and treat the malnutrition and immunodeficiency.

OBJECTIVE

To describe the use of NIV as an alternative to traditional thoracocentesis in massive congenital chylothorax in addition to standard treatment.

CASE REPORT

We report a normal term non-syndromic baby boy whom first presented at day 44 of life with gradual worsening respiratory distress since 30 days old and subsequently required intubation at another hospital. Serial chest X-rays showed worsening bilateral pleural effusion. Bilateral chest tube inserted and noted milky pleural fluid and produced high output drainage (35-90 mls/kg/day). The pleural fluid analysis consistent with chylothorax. CT Thorax done showed massive pleural effusion with collapse consolidation and no other abnormality. He showed some improvement with fasting, total parenteral nutrition and infusion Octreotide. His right chest tube able to be off due to resolution, unfortunately his left tube was accidentally dislodged. His chylothorax reaccumulated after starting a special high medium chain triglyseride formula. He has 3 episodes of significant worsening of his chylothorax. Interestingly, his chylothorax and respiratory distress improved markedly post-NIV application hence thoracocentesis was abandoned. His management was challenging and surgical intervention can't be offered due to lack of expertise in doing lymphangiography in infancy.

CONCLUSION

NIV provide an alternative treatment for massive chylothorax. Hypothetically, it provides tamponade to decrease chyle leak and reduces malnutrition and immunodeficiency associated with thoracocentesis.

CR 11

ROLE OF FLEXIBLE BRONCHOSCOPY AND LAVAGE IN A CHILD WITH SEVERE SMOKE INHALATION INJURY

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Introduction: Smoke inhalation injury is a major cause of morbidity and mortality in victims of fire. Flexible bronchoscopy has both diagnostic and therapeutic roles in these patients.

Case Presentation: We report a five-year-old boy who was trapped in a house fire for 30 minutes. He did not sustain any external burns but was covered in soot with singed nasal hair. He was intubated for airway protection on arrival at the emergency department. He was diagnosed with smoke inhalation injury and carbon monoxide toxicity, and underwent two cycles of hyperbaric oxygen therapy at 8 hours and 16 hours post-inhalation.
As he had copious amounts of carbonaceous deposits from his endotracheal tube with prolonged ventilation, he underwent a bedside flexible bronchoscopy and bronchoalveolar lavage on day 4 post-inhalation. He had moderate inhalation injury (Grade 2) with multiple large carbonaceous plugs removed from both lungs. His left main bronchus was almost completely obstructed by large carbonaceous plugs, and there was diffuse granular bronchitis. A repeat flexible bronchoscopy two days later showed minimal residual carbonaceous deposits, generalised granular bronchitis with patent airways. Post bronchoscopy, he made a remarkable recovery, with successful extubation at day-7 and oxygen support discontinued at day-11 post-inhalation. He remains well with no residual respiratory or neurological sequelae.

Conclusion: Flexible bronchoscopy has a role in the management of smoke inhalation injury to grade the severity of mucosal injury and a therapeutic role to remove carbonaceous deposits in severe cases. It should be incorporated into our clinical practice for the diagnosis and management of severe smoke inhalation injury.

CR 12

COMBINATION OF FLEXIBLE BRONCHOSCOPY WITH STAGED BALLOON DILATATION AND ORAL CORTICOSTEROID FOR BRONCHIAL STENOSIS IN ENDOBRONCHIAL TB: A SUCCESSFUL STORY

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Introduction: Endobronchial tuberculosis (EBTB) is defined as tuberculous infection of the tracheobronchial tree. The most important treatment goal is eradication of tuberculous bacilli followed by prevention of bronchial stenosis. Role of Corticosteroid remains controversial, but in order to achieve airway patency, mechanical approach either by bronchoscopy or surgery should be considered.

Case Report: We report a case of a 27-year-old man with 2 months history of cough, loss of weight and appetite. Sputum AFB was positive and he was treated as smear positive PTB. 17 days into maintenance phase he presented again with exertional dyspnea. Physical examination revealed reduced air entry of the right side. CXR showed collapsed right lung. CT thorax confirmed total right lung collapsed causing mediastinal shift to the right with stenosis of the right main bronchus. Flexible bronchoscopy done showing narrowed opening of the right main bronchus of a pin hole size. Guide wire was introduced and dilatation was done using a balloon dilator. Dilatation attempted multiple times with gradually increased pressure. A pediatric bronchoscope could be navigated through the enlarged opening post procedure and massive purulent material was aspirated. Patient was started on tab prednisolone 20mg od. 2nd bronchoscopy done 2 weeks later showed similar size of right main bronchus opening. Dilatation was repeated using higher pressure till to the size of 12mm. Prednisolone was tapered down over 1-month period with a plan for 3rd bronchoscopy KIV endobronchial stenting. Surveillance flexible bronchoscopy prior to rigid bronchoscopy revealed patent right main bronchus with approximate diameter of 14mm. Repeated CECT thorax showed fully expanded lung. Anti TB was continued to complete 6 months.

Discussion: Bronchoscopic Balloon dilatation is one of the less invasive method to dilate a strictured airway due to infection by Mycobacterium Tuberculosis. It can be done either using rigid or flexible bronchoscopy. Other adjunct that can be used includes laser, electrosurgery, argon plasma coagulation (APC), cryotherapy and balloon bronchoplasty. If the stenosis recurred, a temporary stent placement will be needed. In this case, the airway was successfully restored in a staged manner using flexible bronchoscope and balloon dilator combined with low dose corticosteroid with the intention to reduce inflammation and fibrosis. Patient managed to escape rigid bronchoscopy with endobronchial stenting thus, further reducing risk to be under general anesthesia.

Conclusion: Bronchoscopic balloon dilatation for bronchial stenosis is safe, less invasive and has proven efficacy. Therefore, it can be performed early at diagnosis to restore airway patency, even in centers with limited resources.

CR 13

CASE SERIES OF DOWN SYNDROME CHILDREN WITH RARE CHRONIC LUNG PARENCHYMAL DISEASES.

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Introduction

Down syndrome is the most common chromosomal abnormality in children. It's associated with involvement of many systems including respiratory system like sleep disordered breathing, recurrent respiratory infections, recurrent aspiration pneumonia and malacic airway.

Case series

We report six cases of Down syndrome children with rare pulmonary disorders diagnosed in this centre from 2019 to 2021. There were boys(3) and girls(3) with median age at diagnosis of chronic lung parenchymal disease was 1.2 years old (7 months-6 years old). All patients had congenital heart defect and hypothyroidism. Their clinical presentations were recurrent pneumonia (1), non-invasive ventilation dependency (2), anemia (2) and oxygen dependency (1). All patients had abnormal serial chest X-rays and high resolution computed tomography thorax. They were investigated include flexible bronchoscopy and lung biopsy. Their final diagnosis were Childhood interstitial lung disease (4) and Pulmonary hemosiderosis (2). All four patients diagnosed as Interstitial Lung Disease treated with high dose Prednisolone and responded well. Two patients with Pulmonary hemosiderosis did not respond well with high dose prednisolone alone and required additional intravenous Cyclophosphamide.

Conclusion:

Down syndrome is associated with multiple co-morbidities and majority of them have congenital heart defect and delayed the diagnosis these rare lung parenchymal diseases. High index of suspicion in patients with severe and prolonged respiratory illnesses may allow earlier diagnosis and prompt management, allowing improvement of their lung function.

CR 14

NON-SURGICAL TREATMENT OF BILATERAL PERSISTENT AIR LEAK SECONDARY TO SEVERE COVID-19 RELATED MACKLIN EFFECT.

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Introduction: The incidence of secondary spontaneous pneumothorax in coronavirus disease 2019 (COVID-19) is low however it is not uncommon in mechanical ventilated patients in which the mortality rate is high. Autologous blood patch pleurodesis (ABPP) as a treatment in COVID-19-related secondary spontaneous pneumothorax is scarce and only limited to case reports by Redzwan et al. and Mitsuyama et al. The macklin effect is a phenomenon whereby air leak from distended alveoli, ascending to overlying pulmonary vascular sheaths and then channel into mediastinum, it may further spread to lungs and other connective tissues of neck, chest, abdomen and limbs.

Objective: We herein presented a case of recurrent bilateral pneumothoraces with persistent air leak in COVID-19 which was successfully treated with ABPP and ambulatory device.

Methodology: A 71-year-old gentleman without any medical illness presented with worsening shortness of breath for which associated with fever and cough. He was tested positive for COVID-19 polymerase chain reaction (PCR) with CT value of 21 on the day of admission. He was commenced on intravenous dexamethasone. However he had persistent respiratory failure even after 2 weeks of illness. High resolution computed tomography (HRCT) was performed and it demonstrated bilateral ground-glass opacities, bilateral pneumothoraces and pneumomediastinum.

Result: Left pneumothorax was drained successfully via an ambulatory device. However he had recurrent right pneumothorax with persistent air leak. We performed ABPP up to three times for him and his lungs were fully expanded afterwards. Meanwhile, he underwent intensive physiotherapy and pulmonary rehabilitation and was discharged well after 104 days of admission.

Conclusion:
ABPP may be an option for persistent air leak in COVID-19 related secondary spontaneous pneumothorax.

CR 15

THE GREAT MIMICKER STRIKES 2.0

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Objective: To highlight diagnostic challenge in relapse of pulmonary tuberculosis presenting with interstitial lung disease features.

Description: We herein report a 36 year old accountant who has history of smear negative pulmonary tuberculosis (PTB) in 2011 for which he has completed nine months of antituberculosis treatment. He was admitted to the severe acute respiratory infection (SARI) ward for upper respiratory tract symptoms during the COVID-19 pandemic first movement control order (MCO) where his routine Chest X-ray(CXR) showed a right upper lobe nodular opacity, in view of his history of PTB, he was screened back for reactivation PTB and a high resolution computer tomography (HRCT) of the thorax was ordered. Initial sputum acid fast bacilli (AFB) was negative, Mantoux test was 18mm. HRCT thorax showed confluent of ground glass opacity (GGO) in the right apical segment giving the appearance of reverse halo sign. He is an ex-smoker with history of cave hiking and part-time rearing turkey. With his exposure history and HRCT findings, he was suspected for interstitial lung disease (ILD). Connective tissue disease screening were normal. The case was discuss with an international ILD expert and was given a diagnosis of possible alveolar sarcoidosis with differential diagnosis of Histoplasmosis. Later on he develop new symptoms of acute respiratory infection and he self screen for PTB where his sputum AFB was positive and sputum GeneXpert and Line probe assay (LPA) shows Mycobacterium tuberculosis complex detected with rifampicin resistance and Isoniazid resistance detected. He was diagnose with multi drug resistance pulmonary tuberculosis and commence with conventional second line antituberculosis treatment which was later change in accordance to the world health organisation PTB treatment guideline 2020 with bedaquilline regime with total treatment planned for 2 years. He is currently at 15 months of second line antituberculosis treatment. He has no new symptoms, serial CXR and HRCT thorax shows radiological improvement and sputum remains converted.

Conclusion: High index of suspicion of reactivation of pulmonary tuberculosis should always be in mind especially when imaging shows persistent radiological changes with atypical features as Tuberculosis is known in literature to be a great mimicker of diseases.

CR 16

CASE SERIES OF NEONATE AND COVID-19 INFECTION

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Introduction

Respiratory distress is common and occurs in up to 7% of newborn. In current pandemic, the neonatal group develop respiratory distress related to Covid 19 virus.

Case series

We report five neonatal patients with persistent tachypnea following Covid-19 infection or exposure to Covid-19 patient. All patients presented with respiratory distress i.e. early (2 cases) and late (3 cases). Two patients born prematurely and three patients were oxygen dependent.

Four patients had positive Covid-19 PCR and negative in one newborn despite severe respiratory distress and mother developed category 5 Covid-19 pneumonia. Other signs and symptoms during the illness were biphasic stridor, chest hyperinflation, bilateral lung crepitation and oxygen dependency. HRCT Thorax showed variable findings from ground glass changes suggestive of Interstitial Lung Disease and air trapping suggestive of Bronchiolitis Obliterans.

Final diagnosis for persistent tachypnea associated with Covid-19 infection were Post Covid 19 Bronchiolitis Obliterans (1), airway abnormalities (1), Bronchopulmonary Dysplasia (1), Congenital CMV infection (1) and Interstitial Lung Disease (1).

Conclusion:

This series showed that persistent tachypnea among neonatal group after Covid-19 infection can be due to multiple causes and required comprehensive approach to look for underlying etiology that may not be related to Covid-19 infection.

CR 17

CASE REPORT: ANTI MDA 5 ANTIBODY POSITIVE IN RAPIDLY PROGRESSIVE INTERSTITIAL LUNG DISEASE (RP-ILD) WITH NO CUTANEOUS FEATURES

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INTRODUCTION

Anti Melanoma Differentiation Association Gene 5 antibody is closely associated with rapidly progressive interstitial lung disease. It is a very rare type of ILD with a catastrophic consequences. Herein, we report a rare case of Anti MDA 5 Antibody positive in rapidly progressive interstitial lung disease presented with progressive breathlessness and prolonged productive cough without cutaneous manifestation

CASE PRESENTATION

A 46 year old non smoker gentleman presented with progressive worsening breathlessness with productive cough for 1 month. Clinical examination, does not reveal any clubbing or any CTD like features. His lungs findings are scattered coarse crepitations with no rhonci. Spirometry is consistent with restrictive ventilatory defect and subsequent HRCT findings are consistent with lung fibrosis and organizing pneumonia.HPE from TBLB sampling results confirmed presence of organising pneumonia. Later his myositis panel was strongly positive for Anti MDA 5 antibody with normal CK level.

DISCUSSION:

The presence of Anti MDA 5 Antibody positive has been strongly associated with RP-ILD in DM, especially in CADM subtype. Majority of cases exhibit skin manifestation related to DM. The commonest features include progressive breathless impairing daily life function and persistent chronic cough. The imaging shows features of ground glass opacities with septal thickening and reticular changes consistent with fibrosis and organising pneumonia. Overall outcome of Anti MDA 5 antibody in RP-ILD is poor and rapidly progressive, thus prompt recognition and initial treatment is essential especially in those without any skin manifestation.

CONCLUSION

Despite its rarity and diagnostic challenges, Anti MDA 5 antibody positive in RP-ILD should be considered as one of the differentials in patient with chronic progressive shortness of breath.

CR 18

ASYMPTOMATIC CONGENITAL PULMONARY AIRWAY MALFORMATION AT BIRTH: TO CUT OR NOT TO CUT?

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Introduction: Congenital pulmonary airway malformations (CPAM) are increasingly diagnosed antenatally due to the advancement in antenatal ultrasound. As the majority of these infants are asymptomatic, the treatment recommendation remains controversial, between an operative versus a non-operative and expectant approach.

Case Presentation: We report a 1 year 10 months old previously healthy boy, who presented with severe respiratory distress with a large left tension pneumothorax with cystic changes, requiring immediate intubation and a left sided chest tube insertion. His serial chest radiographs revealed left lung hyperlucency with pockets of cysts with mediastinal shift to the right. There was no chest computed tomography performed as he was too unstable.
As he was critically ill requiring high ventilator settings and inotropic support, he underwent an emergency bedside left thoracotomy and left lower lobectomy by the visiting paediatric surgical team from Hospital Tunku Azizah Kuala Lumpur (HTAKL) on day-7 of admission. The pathologic specimen results revealed CPAM type 1. Post-operatively, he was transferred to the paediatric intensive care unit, HTAKL. He was successfully extubated at day-8 and discharged home in room air at day-14 post-operatively.

Conclusion: The management of symptomatic CPAM at birth is well established with confirmation of diagnosis by CT scan, followed by surgical excision. However, in asymptomatic infants, there is no consensus on the timing of surgery. Urgent surgeries for patients who have developed signs have the highest risk of intra-operative and peri-operative complications, as illustrated in our patient. Therefore, the higher risks of urgent surgeries should be taken into account when managing asymptomatic CPAMs.

CR 19

COMMON PRESENTATION OF A RARE DISEASE – A CASE REPORT

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Introduction

Adult pulmonary Langerhans' cell histocytosis (PLCH) is a rare cystic lung disease of unknown etiology. It's a neoplastic disease characterized by infiltration of histiocytes in single or multiple organs. It is commonly seen among young smokers, with peak incidence at 20-40 years of age. Characteristic HRCT findings with typical clinical manifestation are often sufficient to establish diagnosis without tissue biopsy. Many cases of PLCH recover spontaneously with smoking cessation or remain stable without treatment. There are no established effective treatments and no reliable assessment tools to monitor disease activity of PLCH at present.

Case report

We present a case report on a 24-year-old gentleman, active smoker, who presented with recurrent unilateral pneumothoraces within a 1-month period. There was no significant family history of pulmonary diseases. HRCT done revealed multiple irregular varying sized lung cysts bilaterally. A thorough examination revealed no other systemic involvement. Multidisciplinary discussion concluded the diagnosis of adult PLCH. The patient subsequently underwent VATS with pleurodesis and bullectomy for recurrent right pneumothoraces. Post operative, patient was started on tapering doses of prednisolone while waiting for definitive treatment. Histopathological examination of the surgical specimen confirmed the diagnosis with immunohistochemistry staining shown positivity for CD1a and S100. Patient is currently receiving LCH-III treatment protocol.

Discussion

1) Rare disease can present with a common clinical manifestation
2) HRCT thorax are important for the diagnosis of rare interstitial lung diseases
3) Multidisciplinary approach can improve the diagnostic accuracy and management strategies
4) Tissue diagnosis are mandatory prior to treatment commencement
5) No definitive treatment for PLCH at present

CR 20

CLINICAL CHARACTERISTICS AND OUTCOME OF COVID19 INFECTION IN TECHNOLOGY DEPENDENT CHILDREN

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INTRODUCTION

COVID19 is caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). Initial stage of pandemic Covid19 saw a small proportion of children contracted the disease which were usually mild. However, the trends changed recently with more children were affected and developed more severe disease. Children with medically complex disease are at higher risk of severe COVID19 infection and outcome data is limited.

OBJECTIVE

To evaluate clinical characteristics and short-term outcome of medically complex patients dependent on technology (home oxygen, BIPAP or life ventilator) who contracted Covid19 infection.

METHODOLOGY

Retrospective four case series who are technology dependent and admitted to pediatric ward HRPZ11 for COVID19 infection from May to October 2021.

RESULT

We have four patients with equal gender distribution, aged 8 months to 4 years 8 months old. Two patients on home oxygen therapy had diagnosis of Neuroendocrine Hyperplasia Of Infancy (NEHI) and Au-Kline-Syndrome on tracheostomy, both had category 5 Covid19 infection. They required positive pressure ventilation, systemic steroid and thrombolysis. One received antiviral therapy. A girl with Congenital Central Hypoventilation Syndrome (CCHS) on 24hours invasive life-ventilator had category 3 disease, without needing oxygen supplementation. Another Achondroplasia boy with severe obstructive sleep apnoea and sleep hypoventilation on nocturnal BIPAP had category 1 Covid19. Three have positive household contact. One acquired nosocomial Covid19 infection while in the hospital. The duration of Covid19 related hospitalization ranged from 3 to 68 days. No reported mortality in this study.

CONCLUSION

Medically complex and technology dependent patients have favourable outcome even after contracted severe COVID19 infection in this report. However, further studies are needed to examine the short and long-term outcomes.

CR 21

POST COVID-19 ORGANIZING PNEUMONIA TREATED WITH MYCOPHENOLATE MOFETIL.

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Organizing pneumonia (OP) promptly responds to corticosteroids. However, a minority demonstrate corticosteroid resistance, relapse on corticosteroid tapering or evolve into a fibrosing variant. Post Covid-19 OP is a new entity with scarce evidence base. Most are smoothly treated with a tapering -regime of corticosteroids but some are challenging.

The following case reports describe post COVID-19 OP patients with clinically inadequate response to corticosteroids but improved after the addition of mycophenolate mofetil (MMF, Mycofit®).

Case 1: 44-year-old healthy Navy Officer was diagnosed with post Covid-19 OP, but had suboptimal clinico-physiologic-radiologic response and steroid toxicity during outpatient reviews. Trial of clarithromycin was aborted due to QTc interval prolongation. A repeated HRCT showed residual fibrosing OP. MMF was initiated resulting in marked clinical response and quick liberation from corticosteroids.

Case 2: 56-year-old gentleman with post Covid-19 OP relapsed during tapering of steroids. Repeated HRCT showed fibrotic progression. Clarithromycin and MMF were added to his regimen, which improved his clinico-physiologic parameters and allowed corticosteroid tapering. Unfortunately, he developed MMF-related colitis after 10 weeks, necessitating therapy cessation. Nevertheless, he remains clinically stable despite further corticosteroid tapering.

Currently, no studies have reported on MMF utilisation in difficult post Covid-19 OP patients. Many questions remain unanswered on the natural history and treatment of post Covid-19 OP. Nevertheless, we believe, similar as in non-Covid OPs, MMF or other immunomodulators, potentially have a role in treating difficult or steroid-resistant OPs as shown above.

CR 22

PULMONARY SCLEROSING PNEUMOCYTOMA: A CASE REPORT

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Introduction:
Pulmonary sclerosing pneumocytoma (PSP) is a rare benign pulmonary tumor which commonly found in Asian women. Patient maybe asymptomatic and if symptom present, it may include haemoptysis, cough, chest pain and breathlessness.

Objectives:
Here we report a case of a young PSP female patient and review the relevant literature in order to improve our understanding of this disease.

Methodology /Results:
53 years old chinese lady was referred to our clinic for 1 year history of cough. She is a passive smoker, with underlying left maxilla ameloblastoma, hypertension and dyslipidemia. She underwent enucleation of left maxilla back in 2003. Physical examinations are unremarkable, and her initial chest radiography shows multiple lung nodules. She was then subject to computed tomography, which revealed multiple lung nodules bilaterally, bilateral axillary and mediastinal lymph nodes. CT guided biopsy was not done as there is high risk of pneumothorax. Her bronchoscopy showed no endobronchial lesion. Extensive work up was done to look for primary origin of malignancy but to no avail. Her positron emission tomography (PET scan) highly suggestive of primary lung malignancy. She undergone video assisted thoracoscopic surgery (VATS) and biopsy sample confirmed diagnosis of pulmonary sclerosing pneumocytoma. PSP is often overlooked and misdiagnosed as malignant disease. It is easily mistaken for adenocarcinoma and carcinoid tumors. Early biopsy is warranted to prevent unnecessary investigation therefore, biopsy should not be delay and it is gold standard in establishing diagnosis of PSP.

Conclusions:
PSP is a rare benign lung neoplasm that typically affects Asian middle-aged women. The definitive diagnosis requires a histopathological examination with a corresponding immunohistochemical analysis.

CR 23

BILATERAL DIAPHRAGMATIC PARALYSIS, BILEVEL POSITIVE AIRWAY VENTILATION AS TREATMENT OPTION - A CASE REPORT

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Diaphragmatic weakness due to neurological disorders can result in respiratory failure. Treatment with non-invasive ventilation (NIV) have been to be beneficial in this group of patients. We report the usage of NIV in a 41 year-old man with chronic axonal polyneuropathy and HIV on HAART treatment. He initially presented with 10 years history of progressive bilateral lower limb weakness. Upon presentation he had breathlessness especially on lying. Respiratory examination was unremarkable. He had bilateral muscle wasting with reduce power but intact sensory and reflexes. His arterial blood gas under room air showed acute on chronic type 2 respiratory failure (pH 7.1, pCO2 51mmHg, pO2 59mmHg, HCO_3 36mmHg). Sural nerve biopsy revealed chronic axonal polyneuropathy. Echocardiogram showed EF of 67% with grossly dilated right ventricular. He was treated with 5 days course of IV Immunoglobulin Spirometry done showed restrictive ventilatory defect with FEV_1/FVC of 96%. Sitting and dorsal decubitus position spirometry showed a reduction of FVC by 30%. As he was dependent on BiPAP, he was discharged with home BiPAP. Follow up spirometry showed marginal improvement in the FVC difference (22.5%) between sitting and dorsal decubitus position. He remained stable after 4 years initiating home BiPAP. This case highlights the importance of treating diaphragmatic weakness with NIV.

The usage of bilevel positive airway pressure ventilation on bilateral diaphragmatic paralysis patients showed symptoms improvement.

CR 24

ELUSIVE LUNG ADENOCARCINOMA IN SYSTEMIC SCLEROSIS WITH NON SPECIFIC INTERSTITIAL PNEUMONIA

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The relationship between lung carcinoma and ILD has been studied for many years since 1952 [1]. Scleroderma among other CTDs has been shown to be a risk factor in the development of lung carcinoma [2 3] .

We reported a complicated case of lung adenocarcinoma in systemic sclerosis with non specific interstitial pneumonia affecting A 68- year-old woman with Scleroderma . Her first pulmonary manifestation occurred three years ago, with progressively worsening cough and reduced effort tolerance. Serial lung function tests showed a significant drop in FEVI and FVC , with desaturation on 6-minute walk test. High resolution computed tomography (HRCT) of the lungs showed consistent with Scleroderma-related Interstitial Lung Disease (ILD); Non-Specific Interstitial Pneumonia (NSIP) pattern. There was also an area of consolidation in the medial basal segment of right lower lobe. Broncho-alveolar lavage was performed, which yielded Klebsiella Pneumoniae from culture, and treated with a course of antibiotics.

A repeat HRCT done 6 months later revealed worsening of consolidation. A CT-guided biopsy was done. Histopathological Examination (HPE) at that time showed acute on chronic inflammation, with no malignancy seen with culture for mycobacterium tuberculosis was positive. A multi-disciplinary discussion agreed for pulmonary tuberculosis treatment. Surveillance CT showed enlarging consolidation, with multiple other nodules in both lungs. CT-guided biopsy was repeated and this time the HPE diagnosis was mixed mucinous and non-mucinous adenocarcinoma of the lung.

This case serves as a reminder lung carcinoma should be strongly investigated in non resolving consolidation in ILD patient.

CR 25

DO I HAVE COVID-19? PCR NEGATIVE COVID- 19 PNEUMONIA – A CASE SERIES

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The COVID 19 pandemic is the biggest healthcare challenge of our lifetime. To combat the pandemic, prompt diagnosis is paramount to prevent transmission of the virus. Currently the RT PCR towards SARS COV 2 virus is regarded as the gold standard for confirming diagnosis. Nevertheless its debatable sensitivity may lead to occasional false negatives. We highlight 3 such cases.

3 male patients aged 38, 44 and 73 years old respectively, presented with typical features of Covid 19 infection, dyspnoea with profound hypoxia, cough and anosmia for 4 to 10 days duration. The first patient had close contact with a confirmed case. All patient had chest radiograph findings suggestive of Covid 19 pneumonitis. Initial blood investigations were also fairly typical with raised CRP and D Dimer. The first patient had lymphopenia while the other two had normal lymphocyte counts. All 3 patients had 2 separate RT PCR swab test taken at least 2 days apart which were negative. They were diagnosed radiologically when all 3 showed typical CT findings of peripheral ground glass opacities, areas of consolidation plus crazy paving pattern and linear opacities predominantly found bilaterally in the lower and right middle lobe. Subsequently antibodies testing confirmed the presence of circulating IgG antibodies suggestive of recent infection.

These cases highlight the inherent pitfall of missing COVID-19 infection relying solely on RT PCR test. RT PCR may have false negative rates up to 20%. Some studies indicate HRCT may have superior sensitivity compared to RT PCR (97.2% vs 83.3%). Antibody testing, though not recommended as a diagnostic tool, can be utilized to strengthen diagnosis in these circumstances.

CR 26

BALANCING QUALITY OF LIFE AND THE NEED FOR HOME NON-INVASIVE VENTILATION IN INTELLECTUALLY CHALLENGED YOUNG ADULTS

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OHS have been shown to have many complications if left untreated. Non-invasive ventilation (NIV) have been shown to be effective in treating these patients however some patients may not be able to tolerate it especially if they are intellectually challenged.
We present two cases of young adult patients with intellectual disability and OHS.
Case 1: A 31-year-old woman has Down Syndrome and severe autism. She was morbidly obese (BMI 62kg/m^2) with chronic type 2 respiratory failure (T2RF) and cor pulmonale secondary to OHS. Due to profound intellectual and behavioural disability, she did not tolerate BiPAP. She was subsequently treated with long term oxygen therapy (LTOT) and loop diuretic.
Case 2: A 26-year-old woman with Prader Willi Syndrome with intellectual disability. She was morbid obesity (BMI 45kg/m^2), intellectually challenged, has type 2 diabetes mellitus, chronic T2RF and cor pulmonale. Upon OHS diagnosis, she was treated with BIPAP but could not tolerate it. Similarly, she was treated with LTOT and heart failure medications.
Both cases were offered bariatric surgery but was declined by the guardian. Despite having OHS complications, these patients remained clinically stable without significant symptoms for years.

Conclusion:

This case highlights that OHS patients with cor pulmonalae and chronic T2RF may live into adulthood without prognostic-changing treatment. Personalizing patients' treatment taking into account patients' physical, mental and social circumstances, using conservative treatment and complications directed care may be useful in these subsets of patients as quality of life remains the main goal of treatment.

CR 27

A RARE CASE OF DISSEMINATED TUBERCULOSIS; SPINAL INTRAMEDULLARY TUBERCULOMA WITH CONCURRENT TUBERCULOUS MENINGITIS

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Introduction

While pulmonary tuberculosis being the commonest, the spectrum of central nervous system tuberculous infection should not be overlooked. Among the uncommon, spinal intramedullary tuberculoma (IMT) is one of the rarest presentation. In the district settings of Sabah, a case of IMT has been identified.

Case report

A 49 years-old female, who was cachexia and appeared unkempt, with no known medical illness presented with altered behaviour, progressive bilateral lower limbs weakness with thoracic sensory level, further investigations, imaging and clinical correlations revealed the diagnosis of IMT. Whole spine magnetic resonance imaging revealed moderate size central intramedullary/intradural mass in thoracic cord at level of T9, associated with extensive peri-lesional cord edema from level of T7 to T11. CT-brain imaging showed early hydrocephalus with Cerebrospinal fluid (CSF) analysis revealed an elevated protein level with low glucose level suggestive of tuberculous meningitis. Her Chest-Xray showed miliary changes with multiple cavitation and sputum MTB Gene Expert came back positive, showing moderate loads of MTB. In view of positive sputum MTB gene expert with evidence of rim enhancing lesion intramedullary and CSF results suggestive of tuberculous infection, patient was subsequently commenced on anti-tuberculosis drugs (AKURIT 4) and IV Dexamethasone 0.4mg/kg/day as she was being treated for disseminated tuberculosis - Miliary tuberculosis, tuberculous meningitis and intramedullary tuberculoma (IMT). Although there is no histological evidence, identification of the primary focus of infection together with CSF biochemistry and MRI scan, the diagnosis of IMT and tuberculous meningitis was clinched. Throughout the period of admission, patient GCS had returned to baseline and her motor function grading of her lower limbs improved. Her case was discussed with neurosurgical team and was planned for surgical intervention after completing 2 months of intensive ATT. Patient was subsequently allowed home with weekly review and daily directly observed treatment short course (DOTS) at our primary care setting.

Conclusion: Spinal intramedullary tuberculoma, although a rare entity, must be considered as the differential diagnosis of the spinal cord lesion, especially when tuberculosis is endemic and in patient with history of tuberculosis and those who have a bad socioeconomic background with bad nutritional habit.

CR 28

UNFORESEEN JOURNEY OF A PRECIOUS PREGNANCY

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Introduction: Concurrent existence of tuberculosis (TB) pericardial with lymphoma is rare even in general population. Here we report the challenging diagnostic and treatment dilemma in an Asian lady with concomitant extra-pulmonary TB (EPTB) and Hodgkin Lymphoma diagnosed during pregnancy.

Case report: 33 year old Asian lady with background history of primary infertility, bronchial asthma and papular eczema presented with cardiac tamponade and was diagnosed with TB pericarditis based on positive TB GeneXpert from aspirated pericardial effusion. She responded well to initiation of anti tuberculosis and steroid. Unfortunately, she had recurrence of pericardial effusion with new onset cervical lymphadenopathy while on maintainance phase and was coincidently in her early trimester of pregnancy. After extensive workout, diagnosis of concomitant Hodgkin lymphoma with EPTB was made. Chemotherapy was initiated simultaneously during this pregnancy with close observation. She made a good recovery and has been asymptomatic and her pregnancy is doing well till now.

Discussion: Pericardial TB accounts up to 4% of acute pericarditis with up to 7% of tamponade cases. Rapid intervention is life saving and may expedite an accurate diagnosis. Despite the rarity of concurrent TB and lymphoma, the need to revise possibility of dual pathology is needed especially in a recurrent episode of pericardial effusion. Pregnancy shouldn't limit the feasibility of diagnostic value of imaging and biopsy as early and accurate diagnosis is important and confers good prognosis.

Conclusion: The occurrence of co existent TB and lymphoma is rare and high index of suspicion is needed to prompt a correct diagnosis and treatment especially in a high risk group such as in pregnancy.

CR 29

ENDOSCOPIC ULTRASOUND-BRONCHOSCOPE (EUS-B): EXPLORING BEYOND THE AIRWAYS

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Introduction

The advent of Endobronchial ultrasound (EBUS) at the beginning of 21st century has revolutionized diagnosis of mediastinal lesions and mediastinal staging of lung cancer. Recently, pulmonologists have explored endoscopic ultrasound (EUS-B) using the EBUS scope.

Objective

This case series highlights the utility of EUS-B.

Methodology

Case 1: A 69-year-old male presented with dyspnea, dry cough, and drastic weight loss. A pan computed tomography (CT) scan confirmed multiple large heterogenous mediastinal lymphadenopathy (MLN) compressing central airways, moderate pericardial effusion, and multiple metastatic cerebral lesions. The patient's final diagnosis from EUS-B fine needle aspiration (FNA) of the MLN was advance lung squamous cell carcinoma (SCC).

Case 2: A 70-year-old asthmatic lady had non resolving chronic cough for eight months despite on medical treatment. A retrocardiac left lower lobe mass with MLN was seen on CT Thorax. The patient's final diagnosis from EBUS and EUS-B-FNA of the subcarinal node and mass was stage IIIb lung adenocarcinoma (EGFR exon 19 mutation).

Case 3: A 52-year-old male had chronic cough for 6 months. Both CXR and CT thorax demonstrated a left hilar to retrocardiac mass with multiple MLN. The patient's final diagnosis from EUS-B-FNA of the station 4L node and mass was stage IIIb lung SCC.

Case 4: A 40-year-old male was intubated for severe respiratory distress due to central airway obstruction from multiple MLN. A combine EBUS and EUS-B-FNA confirmed advance lung SCC.

Results

Some preference for EUS-B over EBUS included lower risk of airway compromise and maintain stability in patient's hemodynamics (Case 1), better patient and procedure tolerance: excessive cough (case 2), better accessibility (Case 3,4)

Conclusion

EUS-B can be an independent and a useful complementary diagnostic tool to EBUS for challenging cases.

CR 30

INNOVATIVE APPROACHES IN POST COVID-19 PULMONARY REHABILITATION: A CASE SERIES TO SHARE

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Introduction

The coronavirus disease 2019 (COVID-19) pandemic has brought to light the importance of pulmonary rehabilitation (PR). However, those with severe COVID -19 sequelae requires innovative rehabilitation approach.

Objective

We present cases of incapacitating respiratory failure secondary to Post COVID-19 syndrome characterised by Platypnea Orthodeoxia Syndrome (POS), debilitating Covid -19 associated cough and impaired bilateral diaphragmatic excursion. Patients were successfully managed with various innovative approach in pulmonary rehabilitation.

Methodology

Case 1: A 58-year-old man, diagnosed with COVID-19 (Category 5a) associated with organizing pneumonia. Post infection, he had long standing respiratory failure (RF) with a PaO2/Fio2 (PF) ratio of 230 complicated with POS and Post COVID cough syndrome (PCCS); limiting rehabilitation exercises .

Case 2 : A 70-year-old man with a history of chronic smoking (40 pack-years) , diagnosed COVID-19 (Category 5a) . Post infection, he had debilitating respiratory failure with PF ratio of approximately 280 complicated with severe dyspnoea from bilateral impaired diaphragmatic excursion. The patient was largely bed bound with very restricted movement.

Case 3: A 60-year-old gentleman was mechanically ventilated for COVID-19 (Category 5a) with organizing pneumonia. Post extubation, he had persistent respiratory failure and was dependent on high oxygenation support (high flow nasal cannula). He experienced POS and excessive secretion; thus limiting his rehabilitation.

Result

Despite patients RF, PR was successful through innovative approaches such as awake prone position, supine leg ergometry, verticalization exercises, ambulatory ventilatory support and suppression of debilitating cough through the use of anticholinergics.

Conclusion

Incorporating innovative approaches for challenging post COVID-19 sequalae were successful in the rehabilitation of patients with severe COVID-19

CR 31

EXTENSIVE PHARYNGEAL-TRACHEOBRONCHIAL PAPILLOMATOSIS EFFECTIVELY TREATED WITH ARGON PLASMA COAGULATION AND TYROSINE KINASE INHIBITOR.

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Introduction

Respiratory papillomatosis is a rare benign disorder characterized by the development of multiple small, wart-like growths (papillomas) in the respiratory tract. Extensive disease potentially led to central airway obstruction and death.

Objective

This case highlights the importance in recognition and successful treatment of a potential life-threatening rare condition

Methodology

A 65-year-old lady was intubated for central airway obstruction due to severe respiratory distress.

She endured a prolonged weaning off mechanical ventilation via a tracheostomy. A bronchoscopy biopsy confirmed the diagnosis of pharyngeal-tracheobronchial papillomatosis (PTP). The patient had extensive disease affecting the posterior pharynx to the carina. Progression of PTP was confirmed on periodic (3 monthly) bronchoscopy surveillance.

Results

The PTP was treated with regular debulking (3 monthly) using argon plasma coagulation. Later, the patient was initiated on oral Tyrosine Kinase Inhibitor (TKI: Gefitinib) which has managed to control the growth of the papillomas.

Conclusion

Oral TKI is a potential treatment for extensive respiratory papillomatosis

CR 32

A CASE SERIES: PNEUMOTHORAX IN COVID-19

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Introduction: Multiple mycotic pulmonary artery aneurysms due to invasive aspergillosis secondary to *Aspergillus Terreus* infection is rare. It carries a significant morbidity and mortality especially in immunocompromised patients.

Case: Here, we present an interesting case of a 17-year-old male who has been dialysis dependent since the age of 10-years-old due to FSGS. He was recently hospitalized for Covid19 pneumonia category 3 and was discharged well. He presented to our hospital with history of fever, chest discomfort and dyspnoea 1 day post discharge. There was pus at his permanent catheter which later was identified as *Aspergillus Terreus.* He was initiated with Amphotericin B. Unfortunately, on day 6 of admission he developed respiratory distress requiring mechanical ventilation. CT scan showed subsegmental pulmonary embolism (PE) with consolidation and he was treated with antibiotics as well as anticoagulation.

Few days later he had bouts of haemoptysis hence anticoagulant discontinued. Repeat CT scan revealed multiple mycotic pulmonary artery aneurysm and endovascular coil embolization was performed at the descending branch of right pulmonary artery. BAL was positive for Galactomannan; therefore, Amphotericin B was changed to Voriconazole.

One-week later he had another episode of haemoptysis. Third CT Thorax showed worsening of the aneurysm and Voriconazole was changed to Anidulafungin. Unfortunately, he succumbed after one week of admission due to ruptured aneurysm.

Conclusion: This case illustrates the difficulties in managing mycotic aneurysm in a patient who is relatively immunosuppressed with complications from COVID 19 pneumonia.

CR 33

DOUBLE TROUBLE: A CASE OF LUNG ADENOCARCINOMA PRESENTING WITH MALIGNANT CENTRAL AIRWAY OBSTRUCTION.

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Introduction: Malignant central airway obstruction poses a challenging diagnostic approach and the clinical manifestation may not be apparent until the degree of luminal obstruction is severe. The heterogeneity of presentation allows usage of various endoscopic technology and tools to restore airway patency while awaiting for systemic therapy.

Case: We report an interesting case of a 71 year-old lady who presented with stridor preceded with progressive shortness of breath for 1 month, chronic cough for 2 months as well as significant weight loss and appetite. Chest radiograph showed superior mediastinal mass with right pleural effusion and was further confirmed with CT scan. There was a large soft tissue mass occupying the superior mediastinum size 8.2 x 10.0 x 9.5 cm (AP x W x CC) from the level of T1 vertebral body superiorly extends till T6 inferiorly which encases great vessels with local compression causing 5 mm tracheal narrowing.

Furthermore, there were right subclavian vein thrombosis, right brachiocephalic thrombosis with slit like vessel patency, left jugular vein thrombosis and left brachiocephalic vein thrombosis. Pleural fluid cytology showed adenocarcinoma with immunohistochemistry reveals lungs as primary. She underwent rigid bronchoscopy, tracheal dilatation and partially covered stent was inserted.

Oral gefitinib was initiated although mutational analysis was still pending. Post tracheal stenting, her symptoms and oxygenation improved. Following this, she was referred to oncology team for palliative radiotherapy.

Conclusion: Although she succumbed due to infection, this case demonstrates that prompt decision is crucial in approaching malignant central airway obstruction moreover with simultaneously occuring external compression of great vessels and thrombosis.

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PLEUROPANCREATIC FISTULA: A RARE COMPLICATION OF PANCREATITIS

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Introduction: Pancreaticopleural fistula (PPF) is a rare complication related to chronic pancreatitis as a result of pancreatic duct disruption, wherein the abnormal fistulous tract between the pancreas and pleural cavity leads to large and recurrent effusions in the lung (1). The incidence is estimated at 0.4% in patients with pancreatitis (2) with only few cases reported.

Case report: We describe a 42-year-old gentleman with underlying history of significant alcohol abuse, who presented to us with 2 weeks history of cough and pleuritic chest pain associated with loss of appetite, loss of weight and steatorrhea. Chest radiograph showed a left sided pleural effusion and CT imaging confirmed presence of left lung empyema with evidence of pancreatic calcification and pancreatic duct dilatation consistent with chronic pancreatitis. A Seldinger chest drain was inserted. Pleural fluid investigations revealed an exudative effusion with raised pleural fluid amylase. Endoscopic Retrograde Cholangiopancreatography (ERCP) confirmed a pancreatic duct leak with stricture at the head of pancreas. Pancreatic duct stenting was then performed. Patient was discharged well. Follow up CT showed resolution of the empyema.

Discussion: A high index of suspicion is required in order to diagnose PPF especially in patients with risk factors (male, middle aged, alcohol abuse). Detection of amylase-rich pleural fluid from thoracentesis should strongly suggest PPF warranting further investigation via ERCP for confirmation of the diagnosis. More studies should be undertaken to further enhance our understanding of PPF.

Reference:

1. Aswani Y et. al. Pancreaticopleural fistula: a review. Journal of the Pancreas. 2015 Jan 31;16(1):90-4
2. Kord Valeshabad A, et al. Pancreaticopleural fistula: a review of imaging diagnosis and early endoscopic intervention. Case reports in gastrointestinal medicine. 2018 Aug 19;2018.

CR 35

TUBERCULOSIS AND COVID-19: A DOUBLE WHAMMY OF HEALTHCARE

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Introduction: Coronavirus disease 2019 (COVID-19) and tuberculosis (TB) are two major infectious diseases causing significant global public health threats and economic problems. Their co-infection can cause a double whammy of healthcare.

Objectives: To study the characteristic and epidemiology of COVID-19-TB co-infected patients

Methodology: We present case series of five COVID-19 patients who were diagnosed with TB during their admission to our hospital.

Result: The mean age of patients was 59.6±10.6 years and all of them were male. All of them were immunocompetent patients and chronic smokers.

Discussion: Evidence to date suggests that COVID-19 patients with pre-existing comorbidities such as hypertension, diabetes, and cardiovascular disease are at greater risk of death, but few studies have involved COVID-19 patients co-infected with other respiratory infectious diseases. In this case series, we report 5 cases of COVID-19-TB co-infection The use of corticosteroid in the treatment of COVID-19 infected persons who require oxygen supplement further complicates undiagnosed TB infections. Immunocompetent males with a history of smoking have a higher tendency to get both infections.

Conclusion: Male with history of smoking have a higher risk to get both infections and a routine screening for TB may be recommended among suspected or confirmed cases of COVID-19 in countries with high TB burden

CR 36

FIBROSING MEDIASTINITIS - A RARE COMPLICATION OF POST TUBERCULOSIS

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Introduction: Fibrosing mediastinitis or also known as mediastinal fibrosis is a rare but serious idiosyncratic infiltration of mediastinal fat by dense fibrous tissue. Fibrosing mediastinitis lacks universally accepted diagnostic criteria, thus investigations should be done to rule out sinister conditions such as primary or secondary malignancy and active tuberculosis.

Objectives: To learn a rare complication of post tuberculosis who comes with unilateral vocal cord palsy.

Methodology: Case Report

Result: We report a case of fibrosing mediastinitis in post tuberculosis infection in a 32-year-old man who presented in August 2020 with a 6-week history of productive cough with whitish sputum, gradual hoarseness of voice for 2 weeks and 5 kilograms of weight over 5 months. There was no fever, night sweats, haemoptysis or shortness of breath. He was a smoker of 15 pack years, stopped since June 2020. He has a history of smear positive pulmonary tuberculosis (PTB) in May 2012, completed 8 months of anti-tuberculous therapy (ATT) in January 2013. Imaging showed a lobulated soft tissue mass measuring approximately 4.7 cm x 3.6 cm x 5.0 cm at the aortopulmonary window, causing left vocal cord palsy due to compression of the left recurrent laryngeal nerve, right upper lobe traction bronchiectasis with fibrosis likely secondary to previous PTB infection. He underwent video assisted thoracoscopic surgery (VATS) in December 2020 and was noted to have a firm to hard whitish lesion at the aorta pulmonary window involving the phrenic and vagus nerves. Incisional biopsy was taken and histologically, it showed a few fragments of fibrous tissue with presence of a part of nerve bundle. Active tuberculosis was excluded with sputum culture as well as tissue sample from mediastinal lesion. He was stable during reviews for 1 year and continued to be followed up at a regular interval.

Conclusion: Vocal cord paralysis may be caused by a variety of mediastinal disease entities, including various neoplastic, inflammatory and vascular conditions. It is important to exclude other sinister conditions such as malignancy. Fibrosing mediastinitis is a rare complication of active as well as previous tuberculosis.

CR 37

MANAGING A BRONCHOPLEURAL FISTULA IN A CAVITARY TUBERCULOSIS: A DISTRICT EXPERIENCE, IT IS POSSIBLE.

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Introduction

A bronchopleural fistula (BPF) is a sinus tract between the main stem, lobar, or segmental bronchus and the pleural space and this can manifest as subcutaneous emphysema. Ideally, BPFs requires intervention from subspecialties like cardiothoracic and the respiratory teams who are only available at tertiary centers. We report a case of an atypical presentation of pulmonary tuberculosis with subcutaneous emphysema that was secondary to a ruptured cavity causing emphysema, pneumothorax and pneumomediastinum, along with its management, in a district hospital in Tawau, Sabah in Malaysia.

Case Report

A 49-year-old Malaysian GRAB driver who is a known case of poorly controlled diabetes mellitus presented with breathlessness and swelling over the right neck, arm and chest for the past 3 days. This was a sudden onset after coughing for a month. HRCT Thorax showed multiple cavitating lung lesions with a wall defect in one of the cavities at the anterior segment of the right lower lobe suspicious of a ruptured cavity causing a bronchopleural fistula. It also showed an upper pneumomediastinum with extensive subcutaneous emphysema. After discussion with cardiothoracic team, as we are a district facility remotely located the patient was planned for an ambulatory chest tube (*Pneumovac*) which was self-purchased. In ward his subcutaneous emphysema reduced, and patient was allowed home with 2 weekly review and was educated regarding the *Penumovac* care, diabetes control, nutritional support and treatment adherence (daily directly observed treatment short course (DOTS)). A repeat HRCT Thorax done at the end of intensive phase showed good treatment response.

Conclusion

We conclude that with good adherence to anti TB via local DOTS system, good diabetes control and nutritional support, the BPF sealed, aided the patient's recovery.

CR 38

GENITOURINARY TUBERCULOSIS: THE SECRET OF THE "GREAT MIMICKER".

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Introduction

Tuberculous orchitis is a genitourinary Tuberculosis (TB) and is exceptionally rare. It carries a very small percentage of incidence and most of the time are missed or picked up late due to its very benign presentation. It is usually presented as painful or painless testicular swelling with or without scrotal ulceration or discharging sinus. The nature of presentation can be misleading leading to a delay in diagnosis and management. We report a case of disseminated TB with genitourinary TB in an elderly 72-year-old man who presented to us with a right testicular swelling in Tawau, Sabah. The suspicion toward malignancy was high and clearly, we were proven wrong.

Case Report

A 72-year-old retired fisherman, who is a known case of dyslipidaemia, hypertension, stage 3 chronic kidney disease and benign prostate hyperplasia since 2019. He presented to us with a hard swelling over his testes since past 8 months gradually increasing in size, painless and associated with puss discharge 2 weeks prior to admission. Initial differentials were leading towards testicular carcinoma. His right testes were enlarged and firm with a punctum. His chest Xray showed milliary picture. A right orchidectomy was done and HPE of the right testes had necrotizing granulomatous inflammation with no acid-fast bacilli seen. His sputum TB Gene expert came back positive, and he was treated with anti TB Chemotherapy for 2 months. Patient showed tremendous clinical and radiological improvement, He was switched to maintenance phase. Surprisingly his renal profiles have also improved to normal suggesting that this a case of genitourinary TB that responded well to anti TB chemotherapy.

Conclusion

Sufficient and detailed evaluation of testicular mass, particularly in the elderly population is important as the timing of diagnosis may yield a better prognosis.

CR 39

DIG DEEP FOR THE HIDDEN DEMON: BONE MARROW TUBERCULOSIS

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Fever in immunocompromised patient needs detail history taking and thorough investigations to come to a definite conclusion or diagnosis.

This 28 years old Chinese lady, a known case of retroviral disease since age of 18 years old with multiple history of defaulting her 1st line highly active antiretroviral therapy (HAART). Her CD4+ was less than 35 and viral load of 64 315 copies/mL. She had completed 1 year antituberculosis treatment for disseminated tuberculosis in 2018 (Smear Negative Pulmonary Tuberculosis, Tuberculous Lymphadenitis and Tuberculous Meningitis). Currently, she presented with prolonged fever for 3 weeks, associated with diarrhea, productive cough with greenish sputum and had COVID-19 contact with her landlord. Her COVID-19 PCR was negative. Chest radiograph was clear. She noted to have pancytopenia and her full blood profile showed leucoerythroblastic picture with pancytopenia. Her temperature remained spiking despite receiving two weeks of broad spectrum antibiotic. All culture from blood, sputum, urine and stools remained aseptic and blood for fungal culture were negative as well. ECHO showed no vegetation. Computed tomography of thoracic, abdomen and pelvis (CT TAP) showed no lung lesions or any pleural collection, no enlarged lymphadenopathy and no intraabdominal collection. She was empirically started on anti TB in view of persistent fever and we conducted a bone marrow trephine. Marrow aspirate was a dry tap and two trephine rolls was sent. Her trephine showed presence of granuloma and acid fast bacilli consistent with tuberculosis of the bone marrow. Temperature starts to response after 1 week of antituberculosis treatment initiation and currently still on intensive phase of anti TB.

A high index of suspicious of tuberculosis infection need to be considered in this case in view of her immunocompromised state with prior history of tuberculosis and treatment may be started empirically before confirmatory result came back. Mycobacterium tuberculosis of bone marrow is one of the rare extrapulmonary tuberculosis and diagnosis is confirmed from bone marrow sampling.

CR 40

BEAUTY IS ONLY SKIN DEEP: MYCOBACTERIUM CARINUM

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Infection with Mycobacterium marinum, a nontuberculous mycobacterium, is rare and usually following skin or soft tissue injuries that exposed to aquatic environment or marine animals. Herein we report a case of skin infection with Mycobacterium marinum.

A 63 years old chinese gentleman with post living related renal transplant since 1994 in India from a primary disease of focal segmental glomerulousclerosis (FSGS), chronic gouty arthritis and spinal canal stenosis. He developed right lower limb cellulitis with small subcutaneous collection in May 2021. Skin biopsy showed suppurative granulomatous inflammation consistent with cutaneous mycobacterium. He was started on 1st line antituberculosis (EHRZ) since 19/5/2021 but complicated with multiple adverse drug reactions with acute renal injury, drug induced liver injury as well as skin drug eruption. Even trial with second line antituberculosis such as clofazimine and levofloxacin worsened his kidney function. Antituberculosis withheld temporarily and his skin lesion resolving despite not on treatment with antituberculosis. However, the skin lesion recurs and smear came back positive from pus coming out from the lesion. He was desensitized back with isoniazid and pyranzinamide and successfully introduced back to antituberculosis with isoniazid, pyranzinamide and ethambutol. His skin mycobacterium culture was difficult to grow as there were no colonies seen. Hence tuberculous gene sequencing was done and revealed Mycobacterium marinum. His treatment regime has yet to be established.

Mycobacterium marinum infection of the skin in human usually causes localized granuloma but can evolve into ascending lymphangitis that resembles sporotrichosis or can spread to deeper. tissues. It is Runyon group 1 and a rapid grower. Mycobacterium marinum carries excellent prognosis with treatment. Rifampicin, is the most active drug against M marinum. Other medications that work includes ethambutol, doxycycline, moxifloxacin, linezolid, imipenem, isoniazid and clarithromycin based regime. Intrinsically, it is resistant to pyranzinamide. Immunocompromised patient need two agents regime for at least 6 months.

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WITHDRAWN

CR 42

LIMITED DOSES OF IMMUNOTHERAPY USE IN ADVANCED NON-SMALL CELL LUNG CANCER ELDERLY PATIENTS WITH HIGH PDL-1 EXPRESSION

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Introduction: There have been breakthroughs in the treatment of lung cancer with immunotherapy being in the spotlight. Clinical trials have demonstrated significant survival benefits with immunotherapy compared with chemotherapy. However, only a few trials involved elderly patients with poor Eastern Cooperative Oncology Group (ECOG) functional status. Despite the advantages of immunotherapy, cost is an issue in developing countries.
Case reports: In these case reports, three elderly patients aged over 80 years with advanced non-small cell lung cancer (NSCLC) and ECOG 2 at diagnosis were treated with limited doses of immunotherapy. All three patients had high programmed death ligand 1 (PD-L1) expression (tumour proportion score [TPS] ≥50%) with no EGFR and ALK mutations.
Management and outcome: The three patients had remarkable durable response for 19 months following treatment with limited doses of immunotherapy, without developing any adverse reaction.
Discussion: Durable response was observed in the three patients treated with non-continuous doses of immunotherapy. The patients did not have disease progression for 19 months and their ECOG status improved. PePS2, a study in patients with advanced NSCLC and ECOG 2, showed relatively favourable toxicity and adverse event profile with the immunotherapy pembrolizumab. This suggested that elderly patients with ECOG 2, especially those with high PD-L1 expression, may benefit from immunotherapy.

Keywords: immunotherapy, short duration, durable response, high PD-L1, poor ECOG

CR 43

A CASE OF POLYMICROBIAL LUNG ABSCESS COMPLICATED WITH LOCULATED PNEUMOTHORAX AFTER MILD COVID-19 INFECTION RECOVERY

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Introduction

A lung abscess is a microbial infection of the lung that results in necrosis of pulmonary parenchyma. Etiologically, they can be classified as primary or secondary, when they occur in the absence of underlying pulmonary lesions or if they occur in the presence of underlying pulmonary lesions, respectively.[1] Here, we report a case of polymicrobial lung abscess which further complicated into loculated pneumothorax, causing lung parenchymal compression after mild COVID-19 infection recovery.

Case report

25 years old obese female, previously well, presented with severe Diabetic Ketoacidosis (DKA) required invasive ventilation. She was being diagnosed as COVID-19 Category 2 three weeks prior, and already discharged for three days from quarantine center. During quarantine period, she was told to have Diabetes Mellitus and medication given. She was well throughout quarantine period and did not receive any steroid or biologic therapy. After discharged, she was asymptomatic until she presented again to emergency department with DKA symptoms. She had persistent fever in ward during initial empirical antibiotic. Sputum cultures were positive for Staphylococcus aureus and Pseudomonas aeruginosa. Chest radiograph and contrasted enhanced computed tomography (CECT) thorax showed multiloculated pleural effusion with left lung abscess and right upper lobe cavity. She was treated with Piperacillin/Tazobactam and Clindamycin. Follow up CECT thorax after three weeks showed new loculated air over left pleural cavity suggestive of pneumothorax and it caused lung parenchymal compression. In addition, imagings also showed some residual organizing pneumonia. Chest tube was inserted and total duration of six weeks antibiotic coverage was given for both Pseudomonas and Staphylococcus aureus infections. She was clinically and radiologically improved subsequently.

Conclusion

In the current COVID-19 pandemic, multiple pulmonary complications and interesting imaging findings have been reported. However, this is rarely seen in mild category. This case shows that even after mild COVID-19 infection, patient can still develop complicated polymicrobial lung abscess that progresses into loculated pneumothorax.

CR 44

VACCINE-INDUCED IMMUNE THROMBOTIC THROBOCYTOPENIA (VITT) AFTER ChAdOx1 nCoV-19 VACCINATION: A CASE REPORT

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Background:

Vaccination have proven to be an effective approach to curb the current Coronavirus disease 2019 (COVID-19) pandemic. Various vaccines types were used includes inactivated virus, mRNA and viral vector. Each of the vaccine has its own safety profile and although rare, unusual thrombotic events and thrombocytopenia in COVID-19 vaccine recipients have been reported. We describe the first case in Malaysia who develop severe thrombotic thrombocytopenia syndrome after the 1st dose of ChAdOx1 nCoV-19 (AstraZeneca) vaccine.

Case Presentation:

The 31-year-old Indian man with no known medical illness presented with 1-day history of acute abdominal pain 14 days after ChAdOx1 nCoV-19 vaccination. Investigations revealed severe thrombocytopenia ($11x10^9$), low fibrinogen (185 mg/dl), and raised D-Dimer (20µg/ml). Computed tomographic (CT) imaging showed segmental pulmonary embolism and extensive portal venous system thrombosis with mesenteric ischemia. VITT-adapted 4Ts scoring system was 8/8, and a presumed diagnosis of VITT was made.

He received total of 3 doses of intravenous immunoglobulin (1g/kg), followed by 3 cycles of plasma exchange, intravenous hydrocortisone and subcutaneous fondaparinux. The screening test for antibodies against platelet factor 4 (PF4)-heparin by late-enhanced immunoassay was negative, however this was taken post plasma exchange. He responded well to treatment with resolution of thrombosis in subsequent CT scan and normalization of platelet trends.

Conclusion:

This case highlights a rare but severe adverse event associated with ChAdOx1 nCoV-19 vaccine with a successful outcome from IVIG and plasma exchange. Further studies are needed to delineate at risk groups that are prone to get such adverse event.

CR 45

MANAGING POST COVID-19 COMPLICATIONS WITH COPD COMORBIDITY

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Background: Chronic respiratory disease may be associated with severity of coronavirus disease 2019 (COVID-19) infection. We review a case of chronic obstructive pulmonary disease (COPD) patient who develop acute breathlessness post COVID-19 infection, also focusing on the diagnostic approach.

Case: A 69-year-old gentleman with background history of COPD Gold D and ischemic heart disease was admitted with severe COVID-19 infection. He required high flow nasal cannula upon presentation. A computed tomography pulmonary angiography (CTPA) thorax at Day 10 of illness reviewed moderate organizing pneumonia (OP) with emphysematous changes. Intravenous methylprednisolone was prescribed for 3 days, followed by tapering prednisolone starting dose of 1mg/kg/day (60mg/day) with reduction 10mg prednisolone every 3 days. COPD pharmacotherapy was optimized with early utilization of dual bronchodilators and inhaled corticosteroid was withhold. He underwent inpatient pulmonary rehabilitation and was discharged with home oxygen therapy. Unfortunately, he presented again after 2 weeks with shortness of breath and fever for 3 days. Blood results revealed leukocytosis with raised C-reactive protein. A repeat CTPA showed increase reticulations and crazy paving pattern with reduction in lung volume. Multidisciplinary team discussion concluded as covid OP with fibrosis progression and secondary bacteria infection. Prednisolone was stopped and he responded well with antibiotics. A follow up at 3 months post Covid-19 showed improvement of 6-minute walking test with radiological resolution of ground glass changes.

Conclusion: Corticosteroid inhaler should be cautioned in this case, in view of recent pneumonia and non-elevated serum eosinophil count. These groups of patients should be closely followed up to unmask interstitial lung disease that may present prior to COVID-19 and worsen post infection. Optimizing pre-existing medical conditions should be the paramount intervention.

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DEVELOPMENT OF BULLOUS LUNG DISEASE WITH PNEUMOTHORAX FOLLOWING COVID-19 INFECTION.

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Introduction: Cyst formation secondary to Coronavirus Disease 2019 (Covid-19) infection was described during COVID-19 pandemic, but with relatively low prevalence. A rare yet under-recognized complications is that these cystic areas may progress to bullae, cavities and pneumothoraces. We reported 2 cases of ruptured bullae with pneumothorax post COVID-19 infection.

Case: The first was a 60-years-old gentleman who was diagnosed with COVID-19 category 4, complicated with moderate Organizing pneumonia (OP) and right ascending pulmonary artery pulmonary embolism. He presented again after 1 month with shortness of breath. Computed tomography (CT) thorax showed ruptured bullae with left pneumothorax, complicated with left empyema. Decortication and parenchyma lung repair was done.

The second case was a 38-years-old lady who was diagnosed with COVID-19 category 4 and moderate OP. She presented after 1 month with shortness of breath. CT thorax showed development of new bilateral lung bullae with loculated pneumothorax. Surgical intervention was not suitable in view of bilateral severe bullous lung disease. CT guided pigtail was inserted for right loculated pneumothorax. She undergone pulmonary rehabilitation after resolution of pneumothorax.

Discussion: In both cases, they were non-smokers, did not have pre-existing lung disease, and did not receive positive pressure ventilation. Both of them required prolong chest drain insertion due to underlying bullous lung disease, however clinical improvement was seen 3 months post covid with no recurrence of pneumothorax.

Conclusion: Post COVID-19 infection with bullous lung disease development face a greater risk of pneumothorax and infected bullae. Patients whose general condition permits should be offered surgical intervention. Pulmonary rehabilitation is also important to improve exercise tolerance and quality of life.

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A RARE CASE OF ADENOID CYSTIC CARCINOMA OF TRACHEA

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Introduction : Adenoid cystic carcinoma is a rare tumor arising from salivary glands involving head and neck region.Tracheal tumor commonly occur as a result of direct infiltration or metastasis. Primary tracheal tumor itself is rare occurrence with most common type being squmous cell carcinoma. Adeniod cystic carcinoma of trachea is extremely rare and arises from mucosal glands of trachea.

Case report: we report a case of 70 year old gentleman, an ex smoker of 50 pack year with underlying COPD presenting with worsening shortness of breath and cough for 2 weeks duration. The chest CT showed intraluminal tracheal lesion with significant airway stenosis.Subsequently patient underwent rigid bronchoscopy and complete endoluminal resection of tracheal mass. Histopathology of the tracheal mass reported as adenoid cystic carcinoma.staging and locregional and distant metastasis assessed with PET CT scan showing no metastasis. Radiotherapy for local disease or surveiilance was suggested after discussion with oncology team. However patient opted for surveillance with repeated CT.

Discussion: adenoid cystic carcinoma typically present at 5^{th} decade of life. Smokers has increased risk similar to our patient who had significant smoking history. Common presenting symptom is airway obstruction whereby patient initially can be diagnosed with obstructive airway disease.in this patient he had underlying COPD for 2 years prior to the current presentation. Resection of the tumor need might need postoperative radiotherapy.

Conclusion: primary malignant tumor of trachea like cystic adenoid carcinoma is very rare and pose diagnostic difficulty. Multidisciplinary involvement in patients management may improve outcome.

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RECRUDESCENCE OF ATYPICAL SARCOIDOSIS MIMICKING PULMONARY TUBERCULOSIS

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We present a case of 72-year-old Indian lady which presented with painless palpable cervical lymphadenopathy without any constitutional symptoms. Her past medical history included diabetes mellitus and osteoporosis on denosumab injection. Computed tomography (CT) scan of the thorax showed enlarged mediastinal lymphadenopathies and normal lung parenchyma. Spirometry showed normal forced vital capacity (FVC). Baseline cardiac assessments which included electrocardiogram, 24-hour Holter study and echocardiogram were all normal. In view for her long-standing diabetes, we were concerned for lymph node tuberculosis, but the cervical lymph node biopsy showed non-caseating granuloma with elevated serum Angiotensin Converting Enzyme (ACE) to 124IU/L (normal range 8-53IU/L). Additional investigations for tuberculosis (TB) which included sputum AFB and culture MTB were also negative, thus, diagnosis of lymph node (stage 1) sarcoidosis was made, and no treatment was required. Regular follow-up for three years yielded stable symptoms, spirometry parameters and yearly CT scan findings.

During follow-up at year 4, she complained of a new persistent chronic dry cough. A repeat chest radiograph showed new left upper lobe reticular shadows. The CT thorax revealed new multiple nodules and left upper lobe consolidation, while the existing mediastinal lymphadenopathies were stable. She was again investigated to rule out infection. Sputum and bronchoalveolar lavage were negative for respiratory bacterial pathogens culture, acid fast bacilli with Ziehl-Nielsen stain and mycobacterium culture. To ascertain the aetiology, a CT guided lung biopsy was arranged but unfortunately she developed severe thrombocytopenia (platelets was less than 20 mm) refractory to repeated platelet transfusion prior to the procedure. A bone marrow trephine aspiration instead was performed, and it showed non-caseating granuloma but again was negative for Ziehl-Nielsen stain and mycobacterium culture.

At this point, the diagnosis of recrudescence of sarcoidosis with multi-organs involvement of the lungs, lymph nodes and bone marrow was suspected. Because of the multi-organ involvement, oral prednisolone intensive therapy was commenced at 0.5mg/kg (40mg) for 1-month for the initial period, the symptoms had all improved. The repeat full blood count, full lung function test and CT thorax similarly showed remarkable improvement. The dose of prednisolone was then gradually reduced by 5mg every 2 weeks with the aim of lowest maintenance dose for minimum for 6 months. This cautious approach was made in view of her underlying diabetes and the potential effect of steroid on her bones and gastrointestinal system as her BMI was only 23.

CR 49

A FATAL CASE OF MULTIPLE MYCOTIC PULMONARY ARTERY ANEURYSMS DUE TO *ASPERGILLUS TERREUS* IN A POST COVID-19 PATIENT.

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Introduction: Multiple mycotic pulmonary artery aneurysms due to invasive aspergillosis secondary to *Aspergillus Terreus* infection is rare. It carries a significant morbidity and mortality especially in immunocompromised patients.

Case: Here, we present an interesting case of a 17-year-old male who has been dialysis dependent since the age of 10-years-old due to FSGS. He was recently hospitalized for Covid19 pneumonia category 3 and was discharged well. He presented to our hospital with history of fever, chest discomfort and dyspnoea 1 day post discharge. There was pus at his permanent catheter which later was identified as *Aspergillus Terreus.* He was initiated with Amphotericin B. Unfortunately, on day 6 of admission he developed respiratory distress requiring mechanical ventilation. CT scan showed subsegmental pulmonary embolism (PE) with consolidation and he was treated with antibiotics as well as anticoagulation.

Few days later he had bouts of haemoptysis hence anticoagulant discontinued. Repeat CT scan revealed multiple mycotic pulmonary artery aneurysm and endovascular coil embolization was performed at the descending branch of right pulmonary artery. BAL was positive for Galactomannan; therefore, Amphotericin B was changed to Voriconazole.

One-week later he had another episode of haemoptysis. Third CT Thorax showed worsening of the aneurysm and Voriconazole was changed to Anidulafungin. Unfortunately, he succumbed after one week of admission due to ruptured aneurysm.

Conclusion: This case illustrates the difficulties in managing mycotic aneurysm in a patient who is relatively immunosuppressed with complications from COVID 19 pneumonia.

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SUCCESSFUL SURGICAL TREATMENT OF EMPYEMA THORACIS IN POST COVID - 19 INFECTION.

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Introduction:

COVID-19 is a serious infection causing worldwide pandemic. Respiratory system confers the most predominant manifestation presenting as interstitial and alveolar pneumonia. Empyema related to COVID-19 is uncommon and has been reported in those who are critically ill or had multisystem inflammatory syndrome. Here we report a case of empyema thoracis in a relatively stable COVID-19 patient and successfully underwent video assisted thoracoscopic surgery (VATS) decortication.

Case:

This is a 48 years old lady with underlying hypertension and multinodular goitre who was hospitalized with COVID 19 Category 4 which only required nasal prong. She was discharged home at day 15 of illness with completion of 10 days dexamethasone. Two days later, she returned with complaint of shortness of breath and fever. HRCT thorax showed post covid-19 pneumonia changes, consolidations with air bronchograms over the medial segment of right middle lobe and right lower lobe.

She was initiated with Piperacillin/tazobactam and was later switched to Augmentin when her blood culture returned as *Klebsiella pneumoniae*. She still had persistent temperature spikes and six days later, there was worsening consolidation over the right lung. Repeated CT Thorax showed a huge enhancing pleural collection in the right hemithorax with split pleura sign. There was also necrotizing component of right lung collapsed consolidation. Chest tube was inserted but only drained minimal amount of hemoserous fluid. She then underwent VATS decortication. Several factors predisposed this patient to develop pleural empyema which are the presence of risk factors, exposure to steroid and prolonged hospital stay.

Conclusion:

To date, there is no guidelines in managing empyema thoracis related to COVID-19. Prompt antibiotic initiation is crucial and source control is fundamental. In this challenging case, this patient was subjected to surgical therapy although decortication and pleurectomy are high risk procedures. Early surgical therapy will improve patient outcomes.

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RHODOCOCCUS EQUI CAVITATING PENUMONIA MIMICKING PULMONARY TUBERCULOSIS

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Pneumonia cause by *Rhodococcus equi* has been increasingly reported in an immunocompromised patients. We describe a HIV positive patient who was treated as smear negative pulmonary tuberculosis based on clinical and radiological sign but eventually diagnosed as Rhodococcus cavitating pneumonia.

A 29 year old Malay man, newly diagnosed HIV presented with productive cough, fever and loss of weight for 4 months. He has no history of hemoptysis, night sweats or contact with tuberculosis patients. CT thorax showed consolidation with cavity at the right upper lobe and multiple nodules over the left upper lobes and right lower lobe. Bronchoscopy was normal and bronchoalveolar lavage for acid fast bacilli and Tuberculosis PCR were negative. He was treated as smear negative pulmonary tuberculosis with Akurit-4 and has some improvement clinically and radiologically. However, it was complicated with drug induced liver injury that required an interruption of his antituberculosis treatment. After 1 month, his fever recurred and he complained of reduced effort tolerance. Sputum AFB and GeneXpert were negative and sputum culture was mixed growth. His blood culture grew *Rhodococcus equi* and he was treated with Vancomycin, Levofloxacin and Azithromycin.

Rhodococcus equi is a gram positive coccobacilli that can be mislabeled as “mixed flora” on Gram-stained sputum due to its variable rod-to-coccus appearance. Pneumonia cause by *Rhodococcus equi* usually follow a subacute course with symptoms of progressive cough, pleuritic chest pain, fever accompanied by weight loss and fatigue. The common radiographic abnormality is cavitation which predominantly in the upper lobes. Majority of the immunocompromised patients develop bacteremia and is associated with high mortality rate. As *R. equi* pneumonia can mimic pulmonary tuberculosis, it should be considered in a HIV positive patients presenting with cavitating pneumonia.

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CLINICAL OUTCOMES OF SLIDE TRACHEOPLASTY IN CONGENITAL TRACHEAL STENOSIS: HOSPITAL SERDANG EXPERIENCE

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Background

Congenital tracheal stenosis (CTS) is a rare condition that often presents in infancy with respiratory failure and requires surgical intervention. This is a single-institution review on our experience with slide tracheoplasty for management of tracheal stenosis in children.

Objectives

To review the patient characteristics, associated anomalies, hospital course, and outcomes of slides tracheoplasty in children with congenital tracheal stenosis.

Methodology

Retrospective case series study of 6 children underwent slide tracheoplasty for congenital tracheal stenosis in Hospital Serdang, from June 2013 until September 2021.

Result

The median age was 5 months (range, 1-11months) and the median body weight was 3.74kg (range, 2.72-6.1kg) at operation. All patients (100%) were on mechanical ventilation prior to surgery. The median stenotic segment length was 2.0cm (range, 1.2-3.4cm) and median minimum tracheal diameter measured by computed topography scan was 3.0mm (range, 2.6-9.0mm). Four of six patients (67%) had associated malacic airway. All patients had cardiac anomaly and two of them had associated pulmonary artery sling. Four patients were syndromic and two were born premature. Slide tracheoplasty was performed on cardiopulmonary bypass in all patients with median time of 233minutes (range, 168-396minutes). There was one early death, died six days postoperative and one died after 5months postoperative period. None of them required dilatation for tracheal restenosis. Tracheostomy was performed in a patient for prolonged ventilation.

Conclusion

Slide tracheoplasty outcomes is promising for congenital tracheal stenosis. Postoperative morbidity and mortality, related not only to the reconstruction of the trachea, but also to associated anomalies. Successful management of CTS depends on an attentive, multidisciplinary team approach and postoperative management.