SAPH2022

THE 15TH ANNUAL CONFERENCE OF THE SAUDI ASSOCIATION FOR PULMONARY HYPERTENSION

ORGANIZED BY:

IN COLLABORATION WITH:

PVRI
Pulmonary Vascular Research Institute

17-19 February 2022

Jeddah Hilton, Saudi Arabia

FINAL PROGRAM

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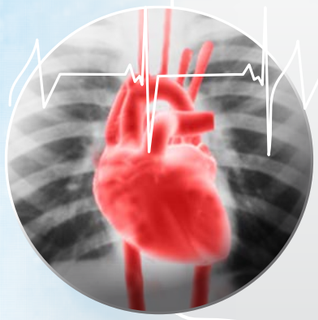
SAUDI ASSOCIATION FOR PULMONARY HYPERTENSION

SAPH

المجموعة السعودية لمرض إرتفاع ضغط الشريان الرئوي



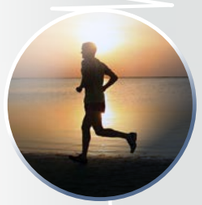
SGTS is a Subsidiary of The

Saudi Thoracic Society

www.saudithoracic.com

About Us

The Saudi Association for Pulmonary Hypertension (SAPH) is a medical and research body that is considered as a part of the Saudi Thoracic Society (STS) and is devoted to increase the awareness and knowledge of Pulmonary Vascular Diseases (PVD), and to facilitate advances in the treatment of affected people within the Kingdom of Saudi Arabia.



Objectives

- To investigate the local incidence, prevalence and pathobiology of PVD in Saudi Arabia
- To identify local characteristics of the illness including its morbidity and mortality
- To develop national guidelines for the diagnosis and treatment of PVD
- To provide expertise that will address issues related to the education and training of healthcare professionals in the field of PVD
- To focus on improving the treatment of PVD, by promoting basic and clinical research
- To promote public awareness through different means including print and electronic media and public seminars

WELCOME MESSAGE

SAPH2022
THE 15TH ANNUAL CONFERENCE OF
THE SAUDI ASSOCIATION FOR PULMONARY HYPERTENSION

17-19 FEBRUARY 2022 | Jeddah Hilton, Saudi Arabia

Dear Colleagues,

It gives me great pleasure to welcome you all to the 15th Annual Conference of the Saudi Association for Pulmonary Hypertension (SAPH2022) which will be held in Hilton Jeddah, KSA from 17-19 February 2022.

SAPH is maintaining the quest for development and progress year after year. SAPH2022 aims to create a platform for regional medical professionals to engage in exchange for knowledge and expertise on the latest and best practice methods in Pulmonary Hypertension.

As a continuation of successful collaboration between the Saudi Association for Pulmonary Hypertension (SAPH) and the Pulmonary Vascular Research Institute (PVRI), it has been proven that it is highly successful and helped in introducing physicians in The Middle East and North African countries to the world experts in the field of Pulmonary Hypertension and to the most advanced developments in understanding and managing Pulmonary Hypertension.

The scientific committee is planning a comprehensive Scientific Program covering all aspects of Pulmonary Vascular Diseases in both Adult & Children, from the basics of Pathobiology and Pathophysiology, Diagnosis, Classification and Management to the most advanced development in Therapies and Interventional Modalities. The program will be covered by the internationally recognized leaders in the field of Pulmonary Hypertension.

We are much appreciative to all our distinguished speakers and chairpersons. My hope is that all those who are practicing physicians will make an effort to attend and benefit from this Conference.

With my best regards,

Abdullah M. Aldalaan, MD
Chairman, the 15th Annual Conference of
Saudi Association for Pulmonary Hypertension (SAPH2022)
President, Saudi Association for Pulmonary Hypertension
Consultant, Pulmonary Medicine
Director, Pulmonary Hypertension Program
Lung Health Center
King Faisal Specialist Hospital and Research Centre
Riyadh, Saudi Arabia

Red Mermaid, this is what this modern city is called. It is the largest city in Makkah Province, the largest sea port on the Red Sea, and the second-largest city in Saudi Arabia after the capital city, Riyadh. With a population of about 4 million people (as of 2014), Jeddah is an important commercial hub in Saudi Arabia and that's why considered as the country's commercial capital. Jeddah is considered also a big Islamic tourist destination in Saudi Arabia and the principal gateway to Makkah, Islam's holiest city, which Muslims are required to visit at least once in their lifetime. It is also a gateway to Madina, the second holiest place in Islam. Jeddah is the most easygoing city in the kingdom and cosmopolitan part of the country with much diversity in its expat population. Historically, politically and culturally, Jeddah was a major city of Hejaz Vilayet, the Kingdom of Hejaz and other regional political entities according to Hijazi history books. It is the 100th largest city in the world by land area. Jeddah is located in the western region of Saudi Arabia (called Hejaz Tihamah) which is in the lower Hijaz Mountains and lies with Red Sea coast.

Red Sea

The Red Sea is one of the world's main navigation routes, connecting three continents: Africa, Asia, and Europe. The Red Sea known in Arabic (Al-Ba□r Al-A□mar) and historically, it was also known to western geographers as Mare Mecca (Sea of Mecca). Narrow strip of water extending southeastward from Egypt, for about 1,200 miles (1,930 km) to the Bab el-Mandeb Strait, which connects with the Gulf of Aden and thence with the Arabian Sea. Its maximum width is 190 miles, its greatest depth 9,974 feet (3,040 meters), and its area approximately 174,000 square miles. The Red Sea is a rich and diverse ecosystem, the 2,000 km long coral reef system in the Red Sea ranks among the top five coral reefs in the world. The Red Sea is known for its picturesque diving areas which considered also one of the best dives in Saudi Arabia. The importance of the Red Sea lies in its being a major transit point for the export of oil from the Arabian Gulf to the world markets.

Tourism in Jeddah

Jeddah is a modern city with a high potential to spend the most amazing times, whether for recreation or work. It is a city that beats with vibrant and pleasure when everyone enjoys a visit, both young and old through entertainment and cultural events throughout the year. In term of urban development, Jeddah has done much to improve its image over the years. North Jeddah in particular has undergone massive redevelopment to make the Corniche (Beach) more attractive to visitors, while upscale department stores and malls have expanded shoppers' choices. The city has many popular hotels and resorts as well as famed for its international cuisine and seafood, and it remains a sweet spot for seasoned and novice scuba divers. The Al Balad district, the heart of old Jeddah, is a nostalgic testament to the city's by gone days, with the beautiful coral architecture of historic buildings casting some welcome shade over the bustling souqs where shopkeepers hawk their goods. There are some listed attractions; you might have the interest to visit: - Jeddah Regional Museum of Archaeology & Ethnography - Humane Heritage Museum - Nasseef House - Al Tayibat City Museum for International Civilization - Floated Mosque (Alrahmah Mosqe) - Fakieh Aquarium - King's Fountain - Aljoharah Stadium

Transportation in Jeddah

Jeddah, relies on air and sea transportation (King Abdulaziz Airport & Islamic Jeddah port) which are the most important means of transporting passengers to and from the city. In addition to air and sea traffic, Jeddah is connected to Saudi Arabia's most important road, the Highway 40, which crosses the entire Arabian Desert to Dammam. Adventurous expats can board an overland bus to Abha, Dammam, Ji'zan, Najran, Riyadh, Taif, or Yanbu. On the end of 2017, the Saudi Government will start operate Al Haramain Express Train Project, one of the important elements in the expansion of the railway network in the kingdom. Which is specifically designed for Hajj Season due to the growing number of pilgrims from inside and outside the kingdom. It will be connected between Makkah and Madinah through Jeddah City with a length of more than 450 km equipped with modern signaling and communication system. Although the Saudi government has instigated a plan to develop a public transport system in Jeddah, which includes a metro, busses and ferries, it will take at least seven years to be up and running. Until this point, the Short-term visitors rely on taxis to get around (white limousines recognizable by the taxi sign on top of the car), rental car, or via a shuttle service to most international hotels in town.

GENERAL INFORMATION

Badges:
Name badges must be visible and used at all times, anywhere at the conference venue, and off- site social activities.

Badges Color Coding:

FACULTY

DELEGATE

EXHIBITOR

STAFF

CME Certification:
This Conference is accredited by The Saudi Commission for Health Specialties (SCFHS) for 12 CMEs. In order to receive the CMEs, it is required to fill in the Evaluation and CME Acquisition Form which will be available at the Registration Desk at the end of the conference.

Though Certificate of Attendance hard copies are not accepted by the SCFHS, but if you like to have one, kindly request through our website.

Conference Packets:
Conference Packets will be distributed to registered participants at the Registration Desk.

Food & Beverage:
Coffee breaks and lunch will be open to registered delegates with conference badge. The hotel also offers a variety of all-day dining restaurants to choose from.

Automated Teller Machines (ATM):
There is an ATM located at hotel lobby.

Rules:
Smoking Policy in the Hotel: The entire hotel is non smoking.
Mobile Phones: Delegates are kindly requested to keep their mobile phones in the off mode in meeting rooms when scientific sessions are in progress.

Parking:
Parking is available for in-house guests and delegates, free of charge, in the basement.

Prayer Room:
Hilton Jeddah Hotel has a Mosque within the complex.

Evacuation Assembly Point:
In case of an emergency evacuation procedure, please proceed to the tennis court area beside the mosque. Please follow the instructions of the hotel staff at all times.

Saudi Thoracic Society
الجمعية السعودية لطب وجراحة الصدر

Saudi Thoracic Society (STS) is a scientific foundation and a leading resource for improvement of lung health in Saudi Arabia. Its mission is to promote the prevention, diagnosis, and treatment of chest diseases through leadership, education, research, and communication. STS was established in 2002 and it is affiliated with King Saud University in Riyadh.

The specific aims of the Society are:

- Promoting and coordinating activities in the field of respiratory medicine.
- Fostering research activities in the field of respiratory medicine.
- Organizing and coordinating regular national and regional meetings.
- Publishing a newsletter and a journal of international repute.
- Publishing and updating clinical practice guidelines in the field of respiratory medicine.

You are invited to become a member of the Joint STS-ERS Membership. You will be a valuable member of our mailing list and it is important to keep you informed on relevant updates, articles, news and announcements.

To Register, kindly visit our website (www.saudithoracicsociety.org)

SUBSIDIARIES

SINA Saudi Initiative for Asthma

Saudi Lung Cancer Association

SAPH

SAVTE Saudi Association for Venous Thromboembolism

SPPA

SGIP

Saudi Sleep Medicine Association

SGTS Saudi Group For Thoracic Surgery

STIG Saudi Thoracic Imaging Group

SAILD Saudi Association for Interstitial Lung Disease

SICAD The Saudi Initiative for Chronic Airway Disease

Saudi Intensive Care Association

NTBC National Tuberculosis Committee

SABRONA.COM Saudi Bronchiectasis Association

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Helping people with PAH walk farther, breathe easier.

By developing breakthrough medicines to treat Pulmonary Arterial Hypertension, we're improving the lives of people who suffer from this rare, fatal disease. And getting closer to creating a future where disease is a thing of the past. Learn more at www.janssen.com

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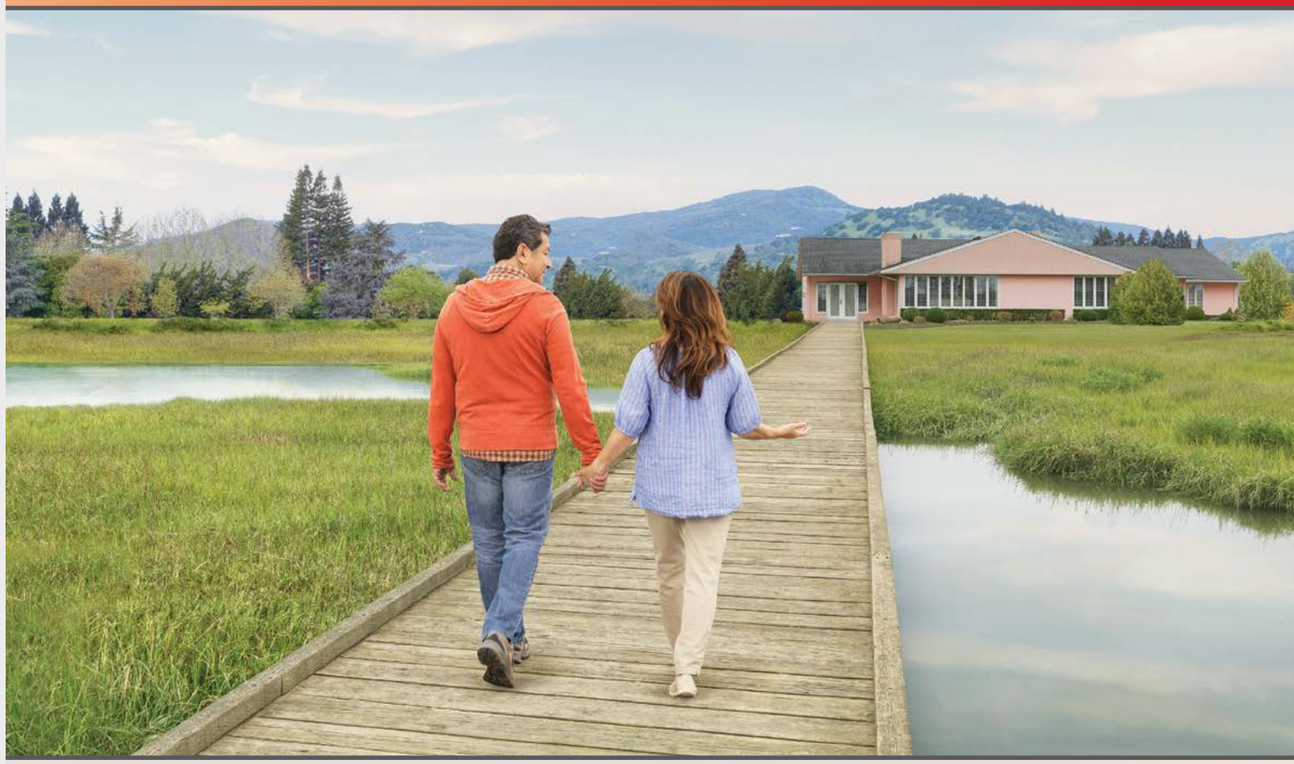
EM-47787

BREAKING NEWS

REPLACE Study Results



- More patients achieved clinical improvement[1]
- Adempas significantly reduced clinical worsening events and delayed time to clinical worsening[1]
- Adempas helped patients achieve improvements in 6MWD, WHO FC, and NT-proBNP[1]

Adempas ® Each tablet contains 0.5 mg, 1 mg, 1.5 mg, 2 mg or 2.5 mg riociguat. Indications: Riociguat is a type of medicine called a guanylate cyclase (sGC)-stimulator.It works by widening the pulmonary arteries (the blood vessels that connect the heart to the lungs), making it easier for the heart to pump blood through the lungs. Adempas ® can be used to treat adults with certain forms of pulmonary hypertension, a condition in which these blood vessels become narrowed, making it harder for the heart to pump blood through them and leading to high blood pressure in the vessels. Because the heart must work harder than normal, people with pulmonary hypertension feel tired, dizzy and short of breath. By widening the narrowed arteries, Adempas ® leads to an improvement in patients' ability to carry out physical activity. Adempas ® is used in either of two types of pulmonary hypertension: chronic thromboembolic pulmonary hypertension (CTEPH). In CTEPH, the blood vessels of the lung are blocked or narrowed with blood clots. Adempas ® can be used for patients with CTEPH who cannot be operated on, or after surgery for patients in whom increased blood pressure in the lungs remains or returns. certain types of pulmonary arterial hypertension (PAH). In PAH, the wall of the blood vessels of the lungs are thickened and the vessels become narrowed. Adempas ® is only prescribed for certain forms of PAH, i.e. idiopathic PAH (the cause of PAH is unknown), heritable PAH and PAH caused by connective tissue disease. Patients' doctor will check this. Adempas ® can be taken alone or together with certain other medicines used to treat PAH. Posology: Treatment should only be started and monitored by a doctor experienced in the treatment of CTEPH or PAH. During the first weeks of treatment patients' doctor will need to measure the blood pressure at regular intervals. Adempas ® is available in different strengths and by checking the blood pressure regularly at the beginning of patients' treatment, the doctor will ensure that patients are taking the appropriate dose. Crushed tablets: if patients have difficulty swallowing the whole tablet, patients should talk to their doctor about other ways to take Adempas ®. The tablet may be crushed and mixed with water or a soft food such as applesauce immediately before patients take it. Dose: The recommended starting dose is a 1-mg tablet taken 3 times a day for 2 weeks. The tablets should be taken 3 times a day, approximately 6 to 8 hours apart. They can generally be taken with or without food. However, if patients are prone to having low blood pressure (hypotension), patients should not switch from taking Adempas ® with food to taking Adempas ® without food because it may affect how patients react to this medicine. Patients' doctor will increase the dose every 2 weeks to a maximum of 2.5 mg 3 times a day (maximum daily dose of 7.5 mg) unless patients experience any side effects or very low blood pressure. In this case, Patients' doctor will prescribe Adempas ® at the highest dose patients are comfortable on. For some patients lower doses three times a day might be sufficient, the optimal dose will be selected by the doctor. Special considerations for patients with kidney or liver problems Patients' dose may need to be adjusted. If patients have severe liver problems (Child Pugh C), they should not take Adempas ®. 65 years or older If patients are 65 years or older patients' doctor will take extra care in adjusting the dose of Adempas ®, because patients may be at greater risk of low blood pressure. Special considerations for patients who smoke patients should tell their doctor if they start or stop smoking during treatment with this medicine. Their dose may be adjusted. Contraindications: if patients are taking certain medicines called PDE-5 inhibitors (e.g. sildenafil, tadalafil, vardenafil). These are medicines used for the treatment of high blood pressure in the arteries of the lungs (PAH) or erectile dysfunction. if patients have severe liver problems (severe hepatic impairment, Child Pugh C), if patients are allergic to riociguat or any of the other ingredients of this medicine, if patients are pregnant, if patients are taking nitrates or nitric oxide donors (such as amyl nitrite) in any form, medicines often used to treat high blood pressure, chest pain or heart disease. This also includes recreational drugs called poppers. if patients have low blood pressure (systolic blood pressure less than 95 mmHg) before starting first treatment with this medicine. if patients have increased pressure in your pulmonary circulation associated with scarring of the lungs, of unknown cause (idiopathic pulmonary pneumonia). Warnings and Precautions: patients have recently experienced serious bleeding from the lung, or if patients have undergone treatment to stop coughing up blood (bronchial arterial embolisation). patients take blood-thinning medicines, (anticoagulants) since this may cause bleeding from the lungs. The doctor will regularly monitor patients. patients feel short of breath during treatment with this medicine; this can be caused by a build-up of fluid in the lungs. Patients have problems with their heart or circulation. patients are older than 65 years. Patients' kidneys do not work properly (creatinine clearance < 30 ml/min) or if patients are on dialysis as the use of this medicine is not recommended. patients have moderate liver problems (hepatic impairment, Child Pugh B). patients start or stop smoking during treatment with this medicine, because this may influence the level of riociguat in patients' blood. Patients will receive Adempas ® only for special types of pulmonary arterial hypertension (PAH). There is no experience in the use of Adempas ® in other types of PAH. Use of Adempas ® in other types of PAH is therefore not recommended.Children and adolescents The use of Adempas ® in children and adolescents (under 18 years of age) should be avoided. Other medicines and Adempas ® Patients should tell their doctor or pharmacist if they are taking, have recently taken or might take any other medicines, in particular, medicines used for: high blood pressure or heart disease (such as nitrates and amyl nitrite) in any form, as patients must not take those medicines together with Adempas ®. high blood pressure in the lung vessels (the pulmonary arteries), as patients must not take certain medicines (sildenafil and tadalafil) together with Adempas ®. Other medications for high blood pressure in the lung vessels (PAH), such as bosentan and iloprost, can be used with Adempas ®, but patients should still tell their doctor. erectile dysfunction (such as sildenafil, tadalafil, vardenafil), as patients must not take those medicines together with Adempas ®. fungal infections (such as ketoconazole, itraconazole). HIV infection (such as ritonavir). epilepsy (e.g. phenytoin, carbamazepine, phenobarbitone). depression (St. John's Wort). preventing rejection of transplanted organs (ciclosporin). joint and muscular pain (niflumic acid). cancer (such as erlotinib, gefitinib). stomach disease or heartburn (antacids such as aluminium hydroxide/magnesium hydroxide). These antacid medicines should be taken at least two hours before or one hour after taking Adempas ®. nausea, vomiting (feeling or being sick) (such as granisetron). Smoking If patients smoke, it is recommended that they stop, as smoking may reduce the effectiveness of these tablets. Pregnancy and breast-feeding: patients should not take Adempas ® during pregnancy. If there is a chance patients could become pregnant, patients should use reliable forms of contraception while they are taking these tablets. patients are also advised to take monthly pregnancy tests. If patients are breast-feeding or planning to breast-feed, patients ask their doctor or pharmacist for advice before taking this medicine because it might harm patients' baby. Driving and using machines Adempas ® has moderate influence on the ability to drive and use machines. It may cause side effects such as dizziness. Side effects: Like all medicines, this medicine can cause side effects although not everybody gets them.The most serious side effects are; coughing up blood (common side effect) acute bleeding from the lungs may result in coughing up blood, cases with fatal outcomes were observed (uncommon side effect). Overall list of possible side effects: Very common: may affect more than 1 in 10 people headache, dizziness, indigestion, swelling of limbs, diarrhea, feeling or being sick Common: may affect up to 1 in 10 people inflammation in the digestive system, reduction of red blood cells (anaemia) seen as pale skin, weakness or breathlessness, awareness of an irregular, hard, or rapid heartbeat, feeling dizzy or faint when standing up (caused by low blood pressure), coughing up blood, nose bleed, difficulty breathing through patients' nose, pain in the stomach, intestine or abdomen, heartburn, difficulty in swallowing, constipation, bloating.
Reporting of side effects: If patients get any side effects, patients should talk to their doctor or pharmacist; This includes any possible side effects not listed in this leaflet. By reporting side effects, patients can help provide more information on the safety of this medicine.

To report any side effect(s):
The National Pharmacovigilance Centre (NPC): Fax: +966-11-205-7662, SFDA Call Center: 19999 - E-mail: npc.drug@sfda.gov.sa.
Website: https://ade.sfda.gov.sa.

Please refer to the product package insert leaflet for full prescribing information and data.

Marketing Authorization holder: Bayer AG 51368 Leverkusen, Germany

KSA PIL version: Feb., 2019

References:

1. Hoeper MM, Al-Hiti H, Benza RL, et al. Switching from phosphodiesterase type 5 inhibitors to riociguat in patients with pulmonary arterial hypertension: The REPLACE study. Poster presented at: ERS 2020

For further information, please contact,

Bayer

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P.O. Box 16207, Jeddah 21464, Saudi Arabia
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Fax: +9661(2)6534992
For Safety, Send to: pv.me@bayer.com
For Med-Info, Send to: med-info.me@bayer.com

Adempas® riociguat

Make personal goals possible

PP-ADE-SA-00024-1

INTERNATIONAL OUTREACH PROGRAM

PURPOSE:

SAPH International Outreach Program (SIOP) was founded to establish line of communication and collaboration with our colleagues and friends from different international societies, organizations, or institutions who are providing Pulmonary Hypertension Services. International Outreach Program will entail, but not limited to, conducting

- Conferences
- Symposia
- Workshops
- Referrals
- Masterclasses
- Telemedicine
- Consultations
- Visiting Professor
- Onsite Demonstrations
- Joint Research Activities
- Expertise Exchange Program

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SCIENTIFIC PROGRAM

SAPH2022
THE 15TH ANNUAL CONFERENCE OF THE SAUDI ASSOCIATION FOR PULMONARY HYPERTENSION

17-19 FEBRUARY 2022 | Jeddah Hilton, Saudi Arabia

DAY 1 - THURSDAY, 17 FEBRUARY 2022 | EVENING SESSION

17:00 - 18:45 Registration

18:45 - 19:00 Welcome Note
Abdullah M. Aldalaan - KSA (SAPH Chairman)

Session 1: Keynote

Chair: Omar Al Tamimi - KSA | Luke Howard - UK

19:00 - 19:45 | Respiratory Pandemics from Dark Ages to Recent Times
Abdulrahman Al Rajhi - KSA

19:45 - 20:30 | PH; Year in Review
Luke Howard - UK

20:30 Dinner

END OF 1st DAY

DAY 2 - FRIDAY, 18 FEBRUARY 2022 | MORNING SESSIONS

07:30 - 08:30 Registration

Session 2: Bench and Bedside PAH Science

Chair: Abdullah Aldalaan - KSA | Majdy Idrees - KSA

09:00 - 09:20 | **Role of CLIC Proteins in the Regulation of Mitochondrial Function in PH**
Mai Alzaydi - KSA

09:20 - 09:40 | **Genetic Basis of PAH: From Highly Inbred Population**
Faiqa Ahmad - KSA

09:40 - 10:00 | **BMPR2: How to Target this Pathway in PAH?**
Marc Humbert - France

10:00 - 10:10 | **Q & A Panel Discussion**

10:10 - 10:30 COFFEE BREAK

Session 3: Clinical PH

Chair: Nasser Al Busaidi - Oman | Hussam Sakkijha - KSA

10:30 - 10:50 | **Risk Reduction; Which Goal has Maximum Impact**
Olivier Sitbon - France

10:50 - 11:10 | **Severe Cpc-PH; A Distinct Phenotype, Treatment Update**
Jean-Luc Vachiéry - Belgium

11:10 - 11:30 | **SGLT2 Inhibitor New Treatment in the Block for HFpEF**
Abdullah M. Alkhodair - KSA

11:30 - 11:40 | **Q & A Panel Discussion**

11:40 - 13:30 LUNCH BREAK

SCIENTIFIC PROGRAM
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DAY 2 - FRIDAY, 18 FEBRUARY 2022 | AFTERNOON SESSION

Session 4: Current Update on Management of PH

Chair: Saleh Aldammas - KSA | Mohammed Bader Alsaiari - UAE

13:30 - 13:50 | **Initial Triple Oral Combination Therapy in PAH: Update and Lessons Learned**
Nazzareno Galiè - Italy

13:50 - 14:10 | **Early IV Prostanoids in PAH, Impact on Outcome?**
Shaya Alshaya - KSA

14:10 - 14:30 | **PAH Treatment, Any Emerging Role for Immunotherapy and Antifibrotics**
H. Ardeschir Ghofrani - Germany

14:30 - 14:50 | **RV Remodeling; Target for Treatment & Potential Risk Stratification Parameter** - Anton Vonk Noordegraaf - Netherlands

14:50 - 15:00 | **Q & A Panel Discussion**

15:00 - 15:30 COFFEE BREAK

Session 5: PAH Challenging Cases

Chair: H. Ardeschir Ghofrani - Germany | Badr R. Al Ghamdi - KSA | Khalid Al Najashi - KSA

15:30 - 16:00 | **PAH Case, RV ICU Management!!!**
Hussam Sakkijha - KSA

16:00 - 16:30 | **Intermixture Pulmonary Hypertension Case**
Yuriy Sirenko - Ukraine

16:30 - 17:00 | **Medical History Matters!**
Nawal Al Gubaisi - KSA

17:00 - 17:30 | **Subacute Severe PAH Case**
Fayez Alahmadi - KSA

19:30 - 22:00 GALA DINNER

END OF 2nd DAY

DAY 3 - SATURDAY, 19 FEBRUARY 2022 | MORNING SESSIONS

Session 6: PAH - Miscellaneous

Chair: Mostafa Elshazly - Egypt | Ragdah Arif - KSA

09:00 - 09:20 | **Group III PH; A Clinical Burden & Treatment Update**
Ragdah Arif - KSA

09:20 - 09:40 | **Post-surgical Complex CHD-PAH; Treatment Response**
Hani Sabbour - UAE

09:40 - 10:00 | **Scleroderma-Associated PAH; Early Detection and Intervention Impact on Outcome -** Seham Alrashidi - KSA

10:00 - 10:20 | **Timing for Lung Transplant; a Critical Decision**
Imran Y. Nizami - KSA

10:20 - 10:30 | **Q & A Panel Discussion**

10:30 - 11:00 COFFEE BREAK

Session 7: CTEPH

Chair: Badr Alzahrani - KSA | Manal Alhazmi - KSA | Mnahi Bin Saeedan - KSA

11:00 - 11:20 | **CTEPH; A Small Vessel Disease Beyond Mechanical Obstruction**
Majdy Idrees - KSA

11:20 - 11:40 | **Role of Extramedullary Hematopoiesis in CTEPH in MPD**
Hazzaa Alzahrani - KSA

11:40 - 12:00 | **Medical Therapy for CTEPH: Current and Beyond**
Nick Kim - USA

12:00 - 12:20 | **PRO & CON: CTEPH Management; First Intervention: BPA vs PEA**
BPA: Irene Lang - Austria | **PEA:** David Jenkins - UK

12:20 - 12:40 | **Rebuttal**

12:40 - 12:50 | **Q & A Panel Discussion**

12:50 - 13:45 LUNCH BREAK

SCIENTIFIC PROGRAM
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DAY 3 - SATURDAY, 19 FEBRUARY 2022 | AFTERNOON SESSIONS

Session 8: International Update on PH

Chair: Abdallah M. Alasiri- KSA | Ahmed Krimly - KSA

13:45 - 14:00 | **Report from PVRI**
Stephanie Barwick - UK

14:00 - 14:15 | **Current Status of PH Management in Egypt**
Ayman Farghaly - Egypt

14:15 - 14:30 | **Current Status of PH Management in Malaysia**
Ashari Bin Yunus - Malaysia

14:30 - 14:45 | **Current Status of PH Management in Philippines**
Maria Paz B. Mateo - Philippines

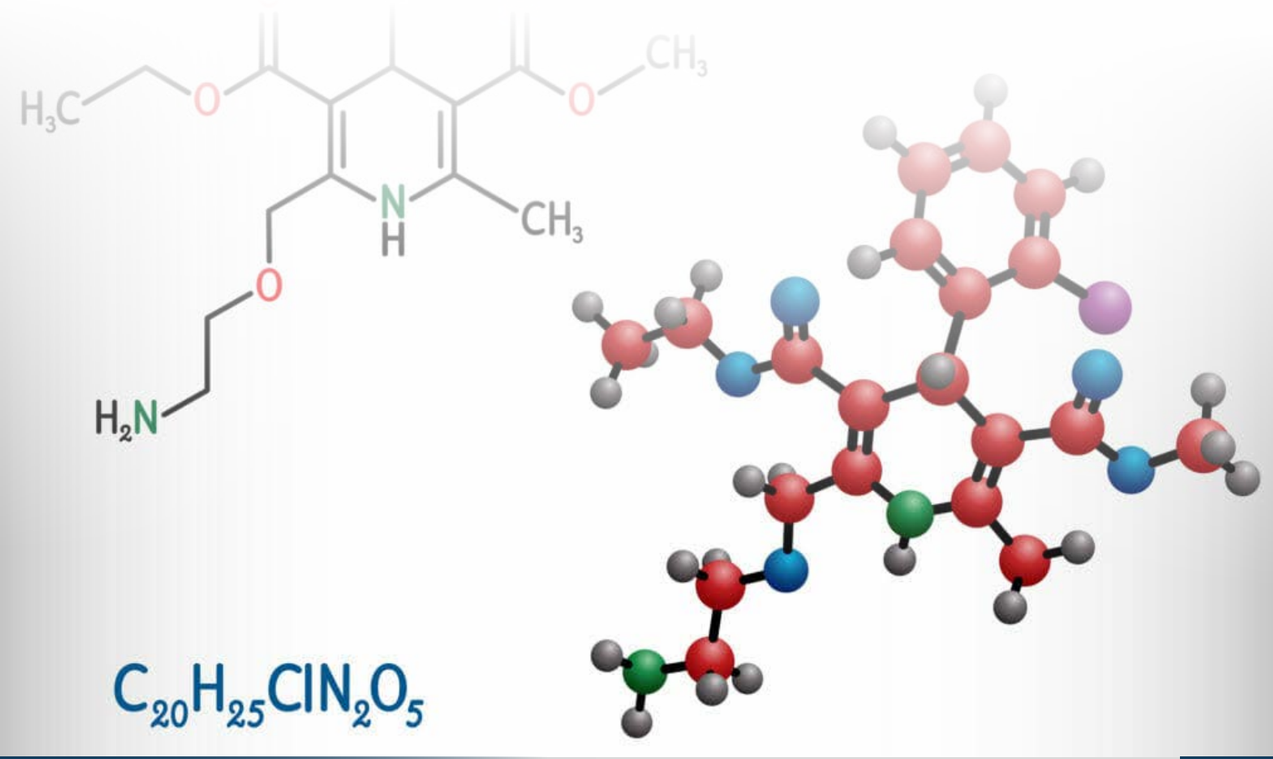
14:45 - 15:00 | **Current Status of PH Management in Ukraine**
Yuriy Sirenko - Ukraine

15:00 - 15:15 | **Current Status of PH Management in Kyrgyzstan**
Talantbek Sooronbaev - Kyrgyzstan

15:15 - 15:30 | **Q & A Panel Discussion**

15:30 Closing Remarks

WORKSHOP
TREPROSTINIL
ADMINISTRATION
(INTRAVENOUS ROUTE)



FACTS ABOUT TREPROSTINIL NA

Mechanism of Action	It is a prostacyclin, a potent pulmonary vasodilator and has antiproliferative effect
Half life	Relatively short ~4 hours[1] The longest among all parenteral prostacyclin approved for PAH
Routes of Administration	Continuous SubQ (undiluted) & stable for 14 days[1] continuous IV (diluted with NS) infusion stable for 24 hours[1]
Available Strengths	Two strengths: 5mg/mL and 10 mg/mL
Shelf life	Shelf life of the medicinal product as packaged for sale: 3 years Shelf-life of vial after first opening: 30 days at 30 °C

THERAPEUTIC INDICATIONS

Treatment of idiopathic or heritable pulmonary arterial hypertension (PAH) to improve exercise tolerance and symptoms of the disease in patients classified as New York Heart Association (NYHA) functional class III.

POSOLOGY AND METHOD OF ADMINISTRATION

Trisuva is administered by continuous subcutaneous or intravenous infusion. Due to the risks associated with chronic indwelling central venous catheters, including serious blood stream infections, subcutaneous infusion (undiluted) is the preferred mode of administration and continuous intravenous infusion should be reserved for patients stabilized with treprostinil subcutaneous infusion and who become intolerant of the subcutaneous route, and in whom these risks are considered acceptable

Since treprostinil Na is thermostable at room temperature which means no need to use ice bags or refrigeration

The treatment should be initiated and monitored only by clinicians experienced in the treatment of Pulmonary hypertension.

ADMINISTRATION BY CONTINUOUS INTRAVENOUS INFUSION

Trisuva is administered by continuous intravenous infusion, via a central venous catheter, using an ambulatory infusion pump. It may also be administered temporarily via a peripheral venous cannula, preferably placed in a large vein. Use of a peripheral infusion for more than a few hours may be associated with an increased risk of thrombophlebitis (see section 4.8).

In order to avoid potential interruptions in drug delivery, the patient must have access to a backup infusion pump and infusion sets in the event that the administration equipment malfunctions.

In general, the ambulatory infusion pump used to administer diluted Treprostinil Na intravenously should:

1. be small and lightweight,
2. be capable of adjusting infusion rates in increments of approximately 0.05 ml/h. Typical flow rates would be between 0.4 ml and 2 ml per hour;
3. have occlusion / no delivery, low battery, programming error and motor malfunction alarms,
4. have delivery accuracy of ±6% or better of the hourly dose
5. be positive pressure driven. The reservoir should be made of polyvinyl chloride, polypropylene or glass.

Trisuva should be diluted with either sterile Water for Injection or 0.9% (w/v) Sodium Chloride for Injection and is administered intravenously by continuous infusion, via a surgically placed indwelling central venous catheter or temporarily via a peripheral venous cannula, using an infusion pump designed for intravenous drug delivery.

When using an appropriate infusion pump and reservoir, a predetermined intravenous infusion rate should first be selected to allow for a desired infusion period. The maximum duration of use of diluted Trisuva should be no more than 24 hours

MINIMIZING THE RISK OF CATHETER RELATED BLOOD STREAM INFECTIONS

Particular attention must be given to the following to help minimize the risk of catheter related blood stream infections in patients that are receiving treprostinil via intravenous infusion (see section 4.4). This advice is in accordance with the current best practice guidelines for the prevention of catheter-related blood stream infections, and includes:

General Principles

- Use of a cuffed and tunneled central venous catheter (CVC) with a minimum number of ports.
- Insertion of the CVC using sterile barrier techniques.
- Use of proper hand hygiene and aseptic techniques when the catheter is inserted, replaced, accessed, repaired or when the catheter insertion site is examined and/or dressed.
- A sterile gauze (replaced every two days) or sterile, transparent, semi-permeable dressing (replaced at least every seven days) should be used to cover the catheter insertion site.
- The dressing should be replaced whenever it becomes damp, loosened, or soiled or after examination of the site
- Topical antibiotic ointments or creams should not be applied, as they may promote fungal infections and antimicrobial-resistant bacteria.

Duration of use of diluted Trisuva solution

- The maximum duration of use of the diluted product should be no more than 24 hours

Use of in-line 0.2-micron filter

- A 0.2-micron filter must be placed between the infusion tubing and the catheter hub and replaced every 24 hours at the time of changing the infusion reservoir

Two further recommendations, that are potentially important for the prevention of water-borne Gram-negative blood stream infections, relate to management of the catheter hub. These include:

Use of a split septum closed hub system

- The use of a closed-hub system (preferably a split septum rather than a mechanical valve device), ensures that the lumen of the catheter is sealed each time the infusion system is disconnected. This prevents the risk of exposure to microbial contamination
-The split-septum closed-hub device should be replaced every 7 days.

Infusion system Luer lock inter-connections

The risk of contamination with water-borne Gram-negative organisms is likely to be increased if a Luer lock inter-connection is wet at the time of exchanging either the infusion line or the closed hub Therefore:

- Swimming and submersion of the infusion system at the site of connection with the catheter hub should be discouraged
- At the time of replacing the closed hub device there should not be any water visible in the Luer-Lock connection threads
- The infusion line should only be disconnected from the closed hub device once every 24 hours at the time of replacement.

SUMMARY OF ESSENTIAL PATIENT TRAINING:

- Hand hygiene
- Area preparation
- Maintenance and observation of catheter insertion site and its dressing
- The importance and use of in-line filters & closed-hub systems
- The importance of maintaining dry connection hubs and the use of waterproof dressings or wraps when bathing or showering1
- The importance of avoiding swimming or other direct risks of water contact with the infusion connections or dressing
- Awareness of the signs of suspected CR-BSIs and system-related drug adverse events, and timely reporting of these to their Healthcare Professional

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WORKSHOP

6 MINUTES WALKING TEST

The 6MWT is a practical, and simple walking test that assesses the submaximal level of functional exercise capacity. Also marker of disease severity and prognosis. Monitoring and evaluating the efficiency of therapeutic interventions including pharmaceutical management, surgery, and rehabilitation outcome results.

INSTRUCTOR

Essam AlHarbi, RCP, PFT
Pulmonary Function Technologist
Respiratory Care Service
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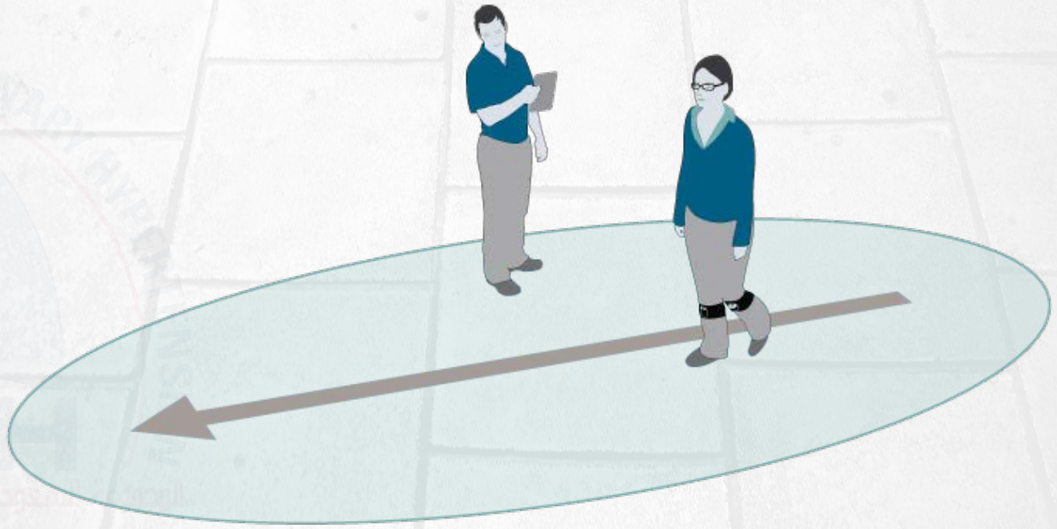

EQUIPMENT:

6MWT Protocol and Data Collection and Goal Setting Form on clipboard	Measured and marked 30-metre walkway
Pulse oximeter Heart rate (HR) monitor Blood pressure (BP) cuff	Oxygen therapy should be available in the testing location for all tests.
BORG Scale	Stopwatch
Length counter	An emergency plan

PRECAUTIONS:

- Absolute contraindications for the 6MWT include:
  1. Unstable angina
  2. Myocardial infarction during the previous month
- Relative contraindications for the 6MWT include:
  1. Resting heart rate of more than 120
  2. A systolic blood pressure of more than 180 mm Hg
  3. Diastolic blood pressure of more than 100 mm Hg

PATIENT PREPERATION

1. Comfortable clothing should be worn.
2. Appropriate shoes for walking should be worn.
3. Patients should use their usual walking aids during the test (cane, walker, etc.).
4. The patient's usual medical regimen should be continued.
5. A light meal is acceptable before early morning or early afternoon tests.
6. Patients should not have exercised vigorously within 2 hours of beginning the test.

6MWD CALCULATION:

Calculate the distance walked;
Number of labs ---------- x 100 meter + final partial lab ---------- = total distance walked in 6 minutes: ---------- meter.
Calculate the normal distance (in meters) for their gender, age, height, and weight using these equations:
(For adults 40 – 80 years old).
Male: distance = (7.57 x height cm) – (5.02 x age) – (1.76 x weight kg) -309 m.
Female: distance = (2.11 x height cm) – (2.29 x weight kg) – (5.78 x age) + 667 m.
(For children 4 to 14 years old).
Male: distance = 196.78 + (39.81 x Age) – (1.36 x Age2) +(132.28 x Height Meters)
Female: distance = 188.61 + (51.50 x age) – (1.86 x age2) +(86.10 x Height Meters)

Male:
Lower limit = 6MWD – 153.

Female:
Lower limit = 6MWD – 139.

THE BORG SCALE

0 Nothing at all
2 Slight (light)
3 Moderate
4 Somewhat severe
5 Severe (heavy)
6
7 Very severe
8
9
10 Very, very severe (maximal)

TECHNIQUE:

Pre Test:
The 6MWT is best performed in a building with unobstructed level corridors. A distance of 30 meters (100 ft) is considered suitable and the laps are then counted.

Prior to start of the test, the patient should rest (at least 10 minutes) quietly in a chair placed by the starting position. During this time, the following resting measurements should be obtained: oxygen saturation (Spo2), heart rate, baseline dyspnea and fatigue, and systemic blood pressure.

Medications: The type of medication, dose, and number of hours taken before the test should be noted. Significant improvement in the distance walked, or the dyspnea scale, after administration of bronchodilators has been demonstrated in patients with COPD.

After the subject has been at rest for 10 minutes, direct the subject to the 'start line' of the walking track, then describe the walking track to the subject, and then instruct to the subject of this test is to walk as far as possible for 6 minutes, you will walk back and forth in this hallway, you will probably get out of breath or become exhausted. You are permitted to slow down, to stop, and to rest as necessary. You may lean against the wall while resting, but resume walking as soon as you are able.

DURING THE TEST:

If patient on oxygen or needed it during the test, then during all walks by the patient oxygen should delivered in the same way with the same flow. If flow needs to increased during the walk this should be noted on the worksheet and considered during interpretation of the change noted in 6MWD. Measurements of pulse and SpO2 should be made after waiting at least 10 minutes after any change in oxygen delivery and should be documented.

DURING THE TEST:

The technologist should be avoiding to walk behind the subject pulling the oxygen tank. Set the lap counter to zero, and the timer to 6 minutes (or stopwatch to zero).

Start the timer when the patient begins to walk, monitor the subject for any signs and symptoms during the test. Do not talk to anyone during the walk. Use an even tone of voice when using the standard phrases of encouragement. Do not get distracted and lose count of the laps. Ensure you keep count of the number of lengths or laps as the subject completes them, throughout the duration of the test. Each time the participant returns to the starting line, click the lap counter once (or mark the lap on the worksheet),

Use the following standard encouragements during the test, using an even tone of voice:

- At minute one: “You are doing well. You have five minutes to go.”
- At minute two: “Keep up the good work. You have four minutes to go.”
- At minute three: “You are doing well. You are halfway done.”
- At minute four: “Keep up the good work. You have only two minutes left”
- At minute five: “You are doing well. You have only one minute to go.”

When the time reaches exactly 6 minutes, say: “Stop!”. Consider taking a chair over to the subject if they look exhausted. Mark the spot where they stopped by placing a marker on the floor, then seat the patient and immediately record oxygen saturation (SpO2) %, heart rate and Blood pressure, then after patient relaxed take the BORG scale score.

6MWT TERMINATION CRITERIA

- Onset of angina or angina-like symptoms
- Tachycardia above predicted heart rate maximum. i.e. Heart rate > (220 - age).
- Intolerable dyspnea
- Excessive diaphoresis
- Extreme paleness/ashen appearance
- SpO2 <80%. Clinical discretion by the supervising clinician should be utilized in this instance, as the test may be continued safely in some patients. If the test is stopped
- Signs of poor perfusion including light headedness, confusion, ataxia, pallor, central cyanosis, Nausea, and sweating.
- If the test is stopped for the above reasons, stay with and observe the patient, and use your clinical judgement to initiate the required action.

Is this a medical emergency?

- Yes Immediately initiate local protocol for medical emergency management.
- No Initiate clinical action as required and continue to directly monitor patient.
- If symptoms resolve sufficiently within the duration of the 6MWT, the patient may continue the test.
- If symptoms resolve sufficiently but outside the duration of the 6MWT, consider repeating the test at a later date/time.

Abdullah M. Aldalaan, MD
Chairman, the 15th Annual Conference of
Saudi Association for Pulmonary Hypertension (SAPH2022)
President, Saudi Association for Pulmonary Hypertension
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Dr. Abdullah M. Aldalaan graduated from King Saud University in Riyadh. He received his residency training at Duke University Medical Center in North Carolina, USA; and completed his fellowship training in Pulmonary and Critical Care at University of Virginia, USA. He obtained American Board of Internal Medicine, Pulmonary Medicine and Critical Care Medicine. Since then he has been practicing as a Pulmonologist and Intensivists at King Faisal Specialist Hospital and Research Center in Riyadh, Saudi Arabia.

He established the Lung Transplant Program in 2003 and the Pulmonary Hypertension Program at King Faisal Specialist Hospital & Research Centre. The Pulmonary Hypertension Program is the main program in the area which provides comprehensive diagnostic and therapeutic protocols for patients with pulmonary hypertension, which includes all available internationally recognized medical interventions in this field.

In addition to his clinical responsibilities, he held administrative positions such as Section Head of Pulmonary Medicine, Department of Medicine; Director Pulmonary Fellowship program, Director of Ambulatory Care Services.

His main area of interest is Pulmonary Hypertension. He established and runs the Saudi Pulmonary Hypertension Registry from which the analysis of the clinical characteristics and outcome of PH patients among Saudi Citizens was published; also the first incidence of genetic mutations in Saudi patients with pulmonary hypotension has also been published.

Within the Pulmonary Hypertension Program, he also runs a comprehensive CTEPH management program including medical as well as pulmonary endarterectomy treatments.

His research interest is focused on Pulmonary Hypertension where he published several papers. He was awarded recognition awards at KFSH&RC for his work and research on Pulmonary Hypertension.

Fayez K. Alahmadi, MD
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Dr. Fayez Alahmadi is a consultant, adult pulmonary medicine section at King Faisal Specialist Hospital and Research Centre. He has completed his clinical fellowship training in balloon pulmonary angioplasty at National Hospital Organization Okayama Medical Center in Okayama, Japan and clinical fellowship in pulmonary hypertension at Vancouver General Hospital at the University of British Columbia in Vancouver, Canada. He had received certificates on clinical fellowship in balloon pulmonary angioplasty, Japan 2021, clinical fellowship in pulmonary hypertension, Canada 2020 and Saudi board of respiratory Medicine, 2019.

Dr. Fayez Alahmadi have attended several conferences including SAPH 2021 virtual and presented a presentation about "Idiopathic Pulmonary Arterial Hypertension in Pregnancy" in the 12th annual conference of the Saudi Association for Pulmonary Hypertension (SAPH 2019), Bahrain 2019. He presented a poster "King Faisal Specialist Hospital & Research Centre CTEPH experience" in the European pulmonary hypertension conference, Vienna 2018. He has completed four research works including "Does community size or commute time affect severity of illness at diagnosis or quality of care in a centralized care model of pulmonary hypertension" which was published at International Journal of Cardiology, March 2021.

Faiqa Imtiaz Ahmad, PhD
Senior Clinical Scientist,
Clinical Genomics,Centre for
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Dr. Faiqa Imtiaz Ahmad is a Senior Clinical Scientist in the Clinical Genomics section at the Centre for Genomic Medicine, KFSH&RC, Riyadh, Saudi Arabia. She received her Ph.D. in Human Genetics from University College London in 2002 and has completed three research fellowships, including one from Harvard Medical School. Her current focus is on the clinical molecular diagnosis of inherited diseases in both patient and prenatal samples but also is active in research that has resulted in over 70 publications in peer-reviewed journals.

Ragdah Hussain Arif, MD, FRCPC, ABIM
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Dr. Ragdah Arif is an Internal Medicine and Pulmonary Medicine Consultant, she is also currently the Pulmonary Hypertension Consultant and Assistant Professor at King Abdulaziz University, Jeddah, Saudi Arabia. She is a certified American board of internal medicine (ABIM), fellow of the Royal College of the Physicians of Canada (FRCPC) in Internal Medicine and Pulmonary Medicine. Her recent publication in European Respiratory Journal open access 2021 (The treatment of Pulmonary Hypertension associated with Chronic Obstruction Airway Disease). Dr. Ragdah has presented herself as speaker and chair at several local and International Conferences including Saudi Thoracic Society in Riyadh 2021 And Pulmonary Hypertension Master Class 2021.

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President, Oman Respiratory Society
Muscat, Oman

Dr. Nasser Al Busaidi is a senior consultant in pulmonology at Royal Hospital, Oman, former head of the Department of Respiratory Medicine, chairman of Internal Medicine program; Oman Medical Specifically Board (OMSB), local Advisor for Royal College of Edinburgh in Oman and President of Oman Respiratory Society; Received his MBBS in King Faisal University, KSA, and earned his Master's degree in Pulmonary Hypertension from University of Bologna, Italy. Fellow of Chest College of Physicians of America, and Fellow of Royal College of Physicians of Ireland. He has been very active in international conferences and has a number of published articles to his name, the latest of which was published; titled "Burden of Asthma in Oman".

Saleh Aldammas, MD
Senior Consultant, Internal Medicine
Pulmonary and Sleep Medicine,
Lung Transplantation Medicine
Prince Sultan Military Medical City
Associate Professor, Alfaisal Medical School
Riyadh, Saudi Arabia

Dr. Saleh Aldammas is currently a Senior Consultant of Internal Medicine at Prince Sultan Military Medical City, Riyadh, Saudi Arabia. He is specialized in Pulmonary, Sleep Medicine, and Lung Transplantation Medicine. Also, he is working as an Associate Professor at Alfaisal Medical School. Dr. Aldammas is an active member of the Saudi Association of Pulmonary Hypertension and has attended all past conferences.

Manal Al-Hazmi, MD, MSHA, FCCP, FACP
Consultant, Adult Pulmonary & Critical Care Medicine
Specialized in Internal Medicine
King Fahad Specialist Hospital
Dammam, Saudi Arabia

Dr. Manal Alhazmi is a consultant pulmonologist and intensivist working in King Fahad Specialist Hospital Dammam. She had done her residency training at King Faisal Specialist and Research Center Hospital, Riyadh. K.S.A. Then she got her subspecialty training in Pulmonary and Critical Care at University of Manitoba, Canada. Lately she obtained a Master of Science in Health Administration, University of Alabama, USA.

Dr. Al-Hazmi is a Fellow American College of Chest Physicians (FCCP), Fellow American College of Physicians (FACP), executive member of Saudi Association of Pulmonary Hypertension (SAPH) and active member of Saudi Thoracic Society. She has long experience in establishing clinical practice guideline in the field of Medicine, Pulmonary Hypertension, Pulmonary and Critical care. She is also the chair of VTE Prophylaxis Task Force, Virtual Health Lead and Program Director of adult Pulmonary Fellowship at KFSHD.

Prof. Luke Howard, MA, MB, BChir, DPhil, FRCP
Consultant Pulmonologist, Hammersmith Hospital,
Imperial College Healthcare NHS Trust, London
Honorary Senior Lecturer,
National Heart & Lung Institute
London, United Kingdom

Dr. Luke Howard is a consultant respiratory physician who specializes in cardiopulmonary medicine and exercises physiology. He specializes in diseases of the pulmonary circulation, in particular, Pulmonary Hypertension and pulmonary embolism, and through his interest in exercise physiology has specific expertise in unexplained breathlessness. He works in close collaboration with his colleagues in cardiology, rheumatology, and hematology to provide a comprehensive assessment of conditions leading to exercise limitation. He consults for patients and athletes alike and has close links with the GB Rowing Team.

He undertook his undergraduate training at the University of Oxford where he also completed his doctorate in altitude physiology and then his clinical training at the University of Cambridge, qualifying in 1996. He trained in London and Cambridge, being appointed to the National Pulmonary Hypertension Service at Hammersmith Hospital in 2006 as a consultant with an honorary senior lecturer position at the National Heart and Lung Institute, Imperial College London. His research interests include iron physiology, cardiopulmonary hemodynamics, exercise physiology, Pulmonary embolism, and remote patient monitoring.

Prof. Marc Humbert, MD, PhD
Université Paris-Saclay
Director of the Department of Respiratory
and Intensive Care Medicine
French Pulmonary Hypertension Reference Center
Hôpital Bicêtre, Assistance Publique Hôpitaux de Paris
President, European Respiratory Society
Paris, France

President of the European Respiratory Society, Marc Humbert, MD, PhD, is Professor of Respiratory Medicine, Vice Dean for Research and Director of the Inserm Unit 999 at the Université Paris-Saclay Faculty of Medicine in Le Kremlin-Bicêtre, France. He is the Director of the Department of Respiratory and Intensive Care Medicine, French Pulmonary Hypertension Reference Centre and Severe Asthma Clinic, Hôpital Bicêtre, Assistance Publique Hôpitaux de Paris, France. Marc Humbert was the Chief Editor of the European Respiratory Journal from 2013 to 2017 and he is currently Section Editor in charge of Pulmonary Vascular Medicine. He is a Fellow of the European Respiratory Society (FERS Foundation Fellow) and has received several distinctions including the Cournand Lecture Award, the Rare Disease Award of the Fondation de France, and the ERS Award for Lifetime Achievement in Pulmonary Arterial Hypertension. Since 2017, Marc Humbert is the vice-coordinator of the European Reference Network for rare and low prevalence respiratory diseases (ERN-LUNG). Clarivate Analytics listed Marc Humbert as one of the world's highly cited researchers in the field of Clinical Medicine.

Prof. Majdy Idrees, MD, FRCPC, FPVRI
Head, Pulmonary Vascular Unit
Prince Sultan Military Medical City
Riyadh, Saudi Arabia

Majdy Idrees is an Adjunct Professor of Pulmonary Medicine at the University of British Columbia, Vancouver, Canada and the Former Head of Pulmonary Division and the Director of the Pulmonary Vascular Disease Unit at Prince Sultan Military Medical City (Armed Forces Hospital), Riyadh, Saudi Arabia. He was the first to establish the nucleus of pulmonary vascular diseases/pulmonary hypertension medicine in the Arab Gulf countries and is the founder, and the former head, of the Saudi Association for Pulmonary Hypertension.

He received his MBBS degree from King Saud University in Riyadh, Saudi Arabia, and did his postgraduate training in both Internal Medicine and Pulmonary Medicine at the University of British Columbia, Canada from 1992 – 1997. He had his American Board degree in Pulmonary Medicine in 1996, and the Canadian Board in Pulmonary Medicine in 1997. His major area of research is related to pulmonary hypertension and pulmonary vascular diseases, and also to airways diseases.

He has more than 50 publications in peer reviewed journals that include book chapters, original papers, and review articles. He is the primary author of the Saudi Guidelines for the management of Pulmonary Hypertension and a coauthor of the Saudi Guidelines in both Asthma and COPD. He is a manuscript reviewer and co-editor of many medical journals. He was awarded and recognized for his achievements in the field of pulmonary vascular diseases by the Pulmonary Vascular Research Institute, and his name was added to the "Pulmonary Hypertension Committee of Honor" chosen by the Spanish Ministry of Health. He has been invited as a guest speaker in many national and International meetings and gave more than 450 lectures in different fields of pulmonary medicine.

David Jenkins, MS, FRCS (CTh)
Cardiothoracic Surgeon and Director of UK
Pulmonary Endarterectomy Programme
Royal Papworth Hospital, Cambridge
Cambridge, UK

Dr. David Jenkins graduated in 1989 and trained in surgery in London. He completed a period of research into myocardial protection at the Hatter Institute at UCL and was awarded the degree of Master of Surgery from The University of London. Dr. Jenkins trained in cardiac surgery on the west London rotation and was appointed as consultant at Royal Papworth Hospital in 2001. He has experience in all aspects of adult cardiac surgery. Specialist experience includes heart and lung transplantation, mechanical circulatory support including ventricular assist devices and ECMO (artificial hearts and lungs). Dr. Jenkins is the lead surgeon for the national pulmonary endarterectomy programme. His research interests are related to pulmonary hypertension and pulmonary endarterectomy surgery.

Abdullah M. Alkhodair, MD, FRCPC
Consultant, Interventional Cardiology /
Pulmonary Hypertension
Adult Cardiology Program Director
King Fahad Medical City
Riyadh, Saudi Arabia

Dr. Abdullah Alkhodair is a consultant in interventional cardiology, Structural heart diseases and Pulmonary Hypertension and the adult Cardiology program director at King Fahad Medical City, Riyadh, Saudi Arabia. He graduated with honors from King Saud University, Riyadh.

He completed his Internal medicine and cardiology training in Canada and holds the American Board of Internal Medicine, and Cardiovascular diseases, and is certified by the Royal College of Physicians amd Surgeons of Canada Certificate in internal medicine and Cardiology. He did a fellowship in pulmonary hypertension followed by interventional and structural heart disease fellowship at the University of British Columbia. He has over 15 publications in high impact journals.

Prof. Nick H. Kim, MD
Professor of Medicine
Section Chief, Pulmonary Vascular Medicine
Medical Director, PTE Program
Division of Pulmonary, Critical Care, and Sleep Medicine
University of California, San Diego
California, USA

Nick Kim, MD, is a board-certified pulmonologist and director of the pulmonary vascular medicine program at UC San Diego Health. He specializes in the treatment of people with pulmonary hypertension and chronic thromboembolic pulmonary hypertension (CTEPH). Dr. Kim serves as medical director of the Pulmonary Thromboendarterectomy Program. He also has expertise in using balloon pulmonary angioplasty to treat CTEPH. UC San Diego is an internationally recognized center for the treatment of all forms of pulmonary hypertension. As a professor in the UC San Diego School of Medicine, Dr. Kim is active in clinical research related to risk factors, diagnosis, and medical and surgical treatment for CTEPH. He is widely published in peer reviewed medical journals. See Dr. Kim's publications.

Dr. Kim is also involved in training medical students, residents, and practicing physicians in pulmonary critical care and treatment of pulmonary hypertension. He serves as director of the Fellowship Training Program. Dr. Kim completed his fellowship training at UC San Diego School of Medicine. He completed his residency and earned his medical degree at University of Chicago, Pritzker School of Medicine. Dr. Kim is board certified in internal medicine, pulmonary disease and critical care medicine.

Hussam Sakkijha, MD
Consultant, Pulmonary,
Critical Care and Sleep Medicine
King Fahad Medical City, Riyadh
Riyadh, Saudi Arabia

Dr. Sakkijha is a consultant pulmonologist, intensivist and a sleep physician at King Fahad Medical City in Riyadh, Saudi Arabia. He is the Chairman of the Institutional Review Board at King Fahad Medical City . He is the co-chair of CTEPH taskforce in the SAPH and contributed extensively to the PH services in the region. He has many publications in the field and a Co-author of the Saudi Guidelines of the management of PH. He is an active member of Saudi Association of Pulmonary Hypertension and have been attending all the past conferences.

Mnahi Bin Saeedan, MD
Cardiothoracic Radiologist,
King Faisal Specialist Hospital
and Research Center
Riyadh, Saudi Arabia

Dr. Mnahi Bin Saeedan is a Cardiothoracic Radiologist at King Faisal Specialist Hospital and Research Center (KFSH&RC) in Riyadh, Saudi Arabia. He completed Bachelor of Medicine Bachelor of Surgery (MBBS) from King Saud University College of Medicine, Riyadh, Saudi Arabia (2011). Then he obtained a Master of Public Health (MPH) from University of Miami, USA (2012-2013). He completed his Diagnostic Radiology Residency at KFSH&RC and was granted the Saudi Board of Diagnostic Radiology by Saudi Commission for Health Specialties (2017).

He did his fellowship training in Cardiovascular and Thoracic Imaging at Cleveland Clinic, Ohio, USA (2018- 2020) Dr. Mnahi Bin Saeedan received Resident of the Year, Radiology Residency Program from King Faisal Specialist Hospital and Research Centre, Riyadh, 2015-2016. He was the Chief Resident of Radiology Residency Program in Riyadh, 2016-2017.

He has written dozens of publications including "Morphologic and Functional Dual Energy Computed Tomography Parameters in Patients with Chronic Thromboembolic Pulmonary Hypertension and Chronic Thromboembolic Pulmonary Disease" and "CTBased Biomarkers for Prediction of Chronic Thromboembolic Pulmonary Hypertension After an Acute Pulmonary Embolic Event".

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Mostafa Elshazly, MD
Chairman, Respiratory Crtical Care Unit
Kasr AlAnyini School of Medicine,
Cairo University
Cairo, Egypt

Dr. Mostafa Elshazly was the Chairman of Respiratory Crtical Care Unit at kasr Alaini School of Medicine, Cairo, Egypt. And also served as the director of Sleep Disorded Breathing unit in the same institute of Kasr Alaini. Dr. Elshazly is now the chairman of Pulmonary Hypertension Working Group at the Egyptian Society of Broncology. He is also the chairman & founder of pulmonary hypertension unit at Abbasissa Chest Hospital at Cairo, Egypt. He has attended several conferences including Saudi Association of Pulmonary Hypertension past conferences.

Shaya Ahmed Alshaya, MD
Consultant Adult Pulmonary, Pulmonary Hypertension
Program Director, Adult Pulmonary Fellowship Program
Co-director, Internal Medicine Residency Program,
Adult Pulmonary Section, Medical Specialties Department,
King Fahad Medical City
Riyadh, Saudi Arabia

Shaya Ahmed Alshaya is currently a consultant pulmonologist and pulmonary hypertension specialist at King Fahad Medical City (KFMC), Riyadh, Saudi Arabia. He is a directory of pulmonary hypertension clinical program at the same center. Also, he is a director of Adult Respiratory medicine fellowship program as well as co-director of internal Medicine residency program at KFMC, following Saudi counsel for health specialist (SCFHS), Riyadh, Saudi Arabia.

He is a member of the scientific committee in the SCFHS of Adult Respiratory medicine fellowship program. He did his clinical fellowship in Pulmonary Hypertension at University of British Colombia, Vancouver, Canada, 2019. He completed his training in Internal medicine residency program and Respiratory Fellowship at KFMC following SCFHS programs, Riyadh, Saudi Arabia. He received his MBBS from king Saud University, Riyadh, Saudi Arabia.

Prof. Talantbek M. Sooronbaev, MD
Chief Pulmonologist, Ministry of Health Kyrgyz Republic
Head of Respiratory Medicine, Intensive Care,
and Sleep Medicine Department at National
Center of Cardiology and Internal Medicine(NCCIM)
Head of International Primary Care Respiratory
Group (IPCRG) Team
National Coordinator, Global Alliance for
Respiratory Disease (GARD, WHO)
President of Kyrgyz Thoracic Society (KTS)
National Coordinator, FRESH AIR Study
Chief Scientific Coordinator of Euro-Asian Respiratory Society
Head of Kyrgyz-Swiss High Altitude Research Center
Co-Chair, Central Asia PVRI Task Force (CAPH)
Bishkek, Kyrgyz Republic

Prof. Talantbek M. Sooronbaev is the Chief Pulmonologist, Ministry of Health Kyrgyz Republic and Head of Respiratory Medicine, Intensive Care and Sleep Medicine Department at National Center of Cardiology and Internal Medicine (NCCIM). Prof. Talantbek is also the Head of International Primary Care Respiratory Group (IPCRG) Team. He is assigned as the National Coordinator at Global Alliance for Respiratory Disease (GARD,WHO).

Prof. Talantbek is currently the President of Kyrgyz Thoracic Society (KTS), also the National Coordinator, FRESH AIR Study. He is the Chief Scientific Coordinator of Euro-Asian Respiratory Society, Head of Kyrgyz-Swiss High Altitude Research Center and also the Co-Chair, Central Asia PVRI Task Force (CAPH) at Bishkek, Kyrgyz Republic.

Imran Y. Nizami, MD
Consultant, Lung Transplant Section
Organ Transplant Center
King Faisal Hospital and Research Centre
Riyadh, Saudi Arabia

Dr. Imran Nizami, MD, graduated from Dow Medical College in Karachi Pakistan in 1987. Residency training in internal medicine at The Wayne State University in Detroit Michigan.Fellowship in pulmonary medicine at The Wayne State University Detroit Michigan. Fellowship in lung transplant and critical care medicine at The Baylor College of medicine in Houston Texas. American Board certified in internal medicine, pulmonary and critical care medicine. Worked as the assistant professor of medicine at The Baylor college of medicine from 1997-2001. Chief of lung transplant program at The NazihZuhdi Transplant Institute in Oklahoma from 2001-2006. Worked as chairman of medicine at The National Guard Hospital Al Hassa from 2006-2008. Currently working as the section head of the lung transplant section at The King Faisal Specialist Hospital and Research Center Riyadh Saudi Arabia.

Maria Paz B. Mateo, MD
Consultant, Pulmonary Medicine
Philippines Heart Center
Manila, Philippines

Dr. Maria Mateo completed her fellowship Training on Adult Pulmonary and Critical Care Medicine from the Philippine Heart Center. She was posted as a Doctoral Fellow in the Division of Pulmonary and Critical Care Medicine and the Pulmonary Vascular Medicine at the University of California, La Jolla, San Diego, California, USA.

She worked as the Medical Specialist III and Section Chief in the Medical Intermediate Care Unit (MICU) at the Veterans Memorial Medical Center. Dr. Maria is also the Chairman, Philippine College of Chest Physicians (PCCP) Council on Critical Care and Pulmonary Vascular Diseases and the Coordinator of Pulmonary Vascular & Pulmonary Hypertension Clinic, Philippine Heart Center.

Ahmed Krimly, MD
Consultant, Adult Congenital
Heart Disease and Interventional Cardiology,
King Faisal Cardiac Center,
King Abdul Aziz Medical City
Jeddah, Saudi Arabia

Dr. Ahmed Krimly is a Consultant Interventional Cardiologist at King Faisal Cardiac Centre at the King Saud Bin Abdulaziz Medical City, Jeddah, Saudi Arabia. He is specialized in Adult, Adult congenital heart disease, Interventional and Obstetric cardiologist. Dr. Krimly was a consultant of Adult, Congenital Heart Disease and Interventional Cardiology in Jeddah, Saudi Arabia since 2013. He is also the Adjunct Assistant Professor of Internal Medicine and Cardiology King Saud bin Abdul Aziz University for Health Sciences in Jeddah, KSA.

Abdallah M. Alasiri, MD
Consultant Pulmonology and Internal Medicine,
Head of Respiratory and TB unit,
Director of GIM Training Program,
Aseer Central Hospital
Abha, KSA

Dr. Abdallah M. Alasiri is currently working as a Consultant Pulmonology and Internal medicine at the Head of Respiratory and TB unit at the Aseer Central Hospital. He is also the Director of GIM Trainging Program at Abha, KSA. He has attended several conferences and is also part of Saudi Association of Pulmonary Hypertension (SAPH) board member.

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Prof. Yuriy M. Sirenko, MD, PhD
Professor and Head of Department
National Scientific Center M.D.
Strazhesko Institute of Cardiology
Kyiv, Ukraine

Prof. Yuriy Sirenko is graduated in Bogomolets Kyiv's Medical University at 1982. In the period of 1982-1984, he postgraduated clinical course in cardiology in Bogomolets at Kyiv's Medical University. He was the ordinator in intensive care unit in MD Strazhesko National Institute of Cardiology in 1984. And then served as a Senior Consultant in intensive care unit in MD Strazhesko National Institute of Cardiology in 1987-1992. He continued his service as a Chief of laboratory of extracorporeal therapy in MD Strazhesko National Institute of Cardiology , also the head of department of the arterial hypertensions in MD Strazhesko National Institute of Cardiology. Recently worked as an Executive Director of National Program of Arterial Hypertension Prophylaxis, Detection and Treatment. Prof. Yuriy Sirenko worked as a senior Adviser of Ukrainian Ministry of the Public Health and Head of Pulmonary Arterial Hypertension Center, also the head of department of secondary and pulmonary hypertensions in MD Strazhesko National Institute of Cardiology.

Ayman A. H. Farghaly, MD
Professor of Pulmonology,
Military Medical Academy
Director of PH Programme
Air Forces Specialized Hospital & International Medical Center
Cairo, Egypt

Dr. Ayman Abdel Hamid Farghaly is currently Professor of Pulmonology at the Military Medical Academy in Cairo, Egypt. He is also the director of PH programme at the Air Forces Specialized Hospital and the International Medical Center in Cairo, Egypt. He has attended several conferences including SAPH past conferences.

Prof. Nazzareno Galiè, MD
Full Professor of Cardiology Chief of Cardiology,
IRCCS-S.Orsola University Hospital, Bologna
Director, Post-graduate School of Cardiovascular Diseases
Alma Mater Studiorum, University of Bologna
Bologna, Italy

Prof. Nazzareno Galiè heads the Pulmonary Hypertension Centre at the Institute of Cardiology and is Associate Professor of Cardiology at the Medical Faculty of the University of Bologna, Italy. He also teaches at the Postgraduate Medical Schools of Cardiology, Pulmonary Diseases, and Rheumatology at the University of Bologna. He is Director of the International Master Degree in Pulmonary Vascular Diseases of the University of Bologna. He has authored 107 scientific publications indexed in Pub - Med on heart failure, heart transplantation, and Pulmonary Hypertension. Professor Galiè is a Scholar of the Italian Society of Cardiology, Fellow of the European Society of Cardiology (FESC), and Honorary Fellow of the Royal College of Physicians (FRCP), UK. He is a Past-Chairman of the working group on Pulmonary Circulation of the European Society of Cardiology and of the joint task force of the European Society of Cardiology and the European Respiratory Society for the guidelines on Pulmonary Hypertension.

Prof. Badr R. Al-Ghamdi, MD
Professor and Consultant Pulmonologist
Department of Medicine
College of Medicine, King Khalid University
Abha, Saudi Arabia

Badr R. Al-Ghamdi is a Professor and Consultant Pulmonologist at the Department of Medicine & College of Medicine in King Khalid University, Abha, Saudi Arabia. He has been an active member of Saudi Association for Pulmonary hypertension since the beginning, and have attended all the past conferences.

Bader J. Alghamdi, MD
Consultant, Pulmonary Medicine, Pulmonary
Hypertension, and Clinical Cardiopulmonary Exercise Testing
Assistant Professor in King Saud bin Abdulaziz
University for Health Sciences (KSAU-HS)
Section Head of Respirology and Director of
Respirology Fellowship Training Program
Ministry of National Guard
Jeddah, Saudi Arabia

Dr. Alghamdi attended medical school at King Abdulaziz University in Jeddah. Following this, he completed his residency training in Internal Medicine at King Abdulaziz Medical City (KAMC)-Jeddah. Then, he completed his fellowship in pulmonary medicine, pulmonary hypertension and advanced clinical cardiopulmonary exercise testing at Queen`s University Kingston-Ontario-Canada. Currently, Dr Alghamdi is a consultant in pulmonary medicine and pulmonary hypertension at KAMC.

He is the section Head of respirology and Chairman of joint training program of respirology fellowship in Western Region. He is an Assistant Professor in Internal medicine and pulmonary in King Saud bin Abdulaziz for Health Science (KSAU-HS) Jeddah. He has many publications in a well-respected journals with special interest in pulmonary hypertension and airway diseases.

Prof. Hossein Ardeschir Ghofrani, MD
Professor, Pulmonary Vascular Research,
Justus Liebig University, Giessen, Germany
Head, Pulmonary Hypertension Division,
Pulmonary Vascular Research Institute
University Hospital in Giessen
Giessen, Germany

Hossein A.Ghofrani received his medical degree from the Medical School at Giessen University in Germany. He is Professor for Internal Medicine at University Hospital Giessen and Marburg GmbH. He currently is Head of the Pulmonary Hypertension Division, Department of Internal Medicine, at Giessen. He also leads a collaborative group on Cardiopulmonary Vascular System research. In addition, he is Director of Pneumology at the Kerckhoff Heart and Lung Center in Bad Nauheim, Germany.

Prof. Ghofrani has participated in the therapeutic development of surfactant for the treatm ent of acute respiratory distress syndrome (ARDS); prostanoids, PDE inhibitors, combination therapies, and soluble guanylate cyclase activators and stimulators for pulmonary hypertension; endothelin antagonists for chronic lung disease and pulmonary hypertension; and tyrosine kinase inhibitors for pulmonary vascular diseases. He has received four awards for investigations in pulmonary vascular science and is a reviewer for several medical scientific journals including the American Journal of Respiratory and Critical Care Medicine, European Respiratory Journal, Circulation, and Lancet.

Nawal Al Gubaisi, MD, SSC-Med, SF-PD
Consultant Pulmonologist
Pulmonary Hypertension Specialist
The Head of Pulmonary Medicine Unit
King Fahad Medical Military Complex
Dhahran, Saudi Arabia

Dr. Nawal Al Gubaisi received her Medical Degree from King Faisal University. Following this, she did her postgraduate trainingboth in Internal Medicine Program and Pulmonary Medicine from Saudi Board. Also, she got a HERMES European Diploma in Respiratory Medicine.

She did her fellowship from UBC Canada along with training in Right Heart Catheterization. Currently, Dr. Nawal al Gubaisi is the Head of Pulmonary Medicine Unit at King Fahd Medical Military Complex, Dhahran, Saudi Arabia. She is working as a Consultant Pulmonologist and is specialized in Pulmonary Hypertension.

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Prof. Irene M. Lang, MD
Clinical Cardiologist
Professor of Vascular Biology
Department of Cardiology
AKH-Vienna, Medical University of Vienna
Vienna, Austria

Irene Marthe Lang is a senior staff member at the Department of Cardiology, and Deputy Chair of the Department, at the Medical University of Vienna, Vienna, Austria. She carried out her medical education and residency at the University of Vienna, before taking on a 5-year postdoctoral research fellowship at the University of California, CA, USA, which included a joint appointment with the Scripps Research Institute, La Jolla, CA. She has been a Professor of Vascular Biology at the Medical University of Vienna since 2004, where she leads a clinical and experimental group in vascular medicine focussing on pulmonary vascular biology and right ventricular function.

She directs an outpatient unit for pulmonary vascular disease at the Medical University of Vienna . She is an active interventional and structural cardiologist, recently very active as balloon pulmonary angioplasty interventionist, and an active researcher. She was nominated by the World Medical Association as a 'Caring Physician of the World' in 2006, 'Teacher of the Year' at MUV in 2013, and is past president of the Austrian Society of Cardiology. In April 2016, she was awarded the Großes Ehrenzeichen der Republik Österreich and an honorary doctorate from the University of Cyril and Methodius in Skopje, Macedonia. She is part of the International CTEPH Association (ICA) whose objectives are to increase awareness for CTEPH, foster worldwide collaboration between CTEPH centers, serve as platform for surgical centers and facilitate training of emerging CTEPH centers, as well as to advance research and education in CTEPH

Khalid Al Najashi, MD, MBBS
Consultant, Interventional ACHD and
Pediatric Cardiology
Prince Sultan Cardiac Center
Prince Sultan Military Medical City
Riyadh, Saudi Arabia

Dr. Khaled Al Najashi is a consultant, Interventional ACHD and Pediatric Cardiology at Prince Sultan Cardiac Center in Prince Sultan Military Medical City, Riyadh, Saudi Arabia. He is specialized in Pediatric Cardiology, being the Director of Pediatric Cardiology, he has already attended several complex cases that are referred to PSCC from a hospital in Riyadh area as the PSCC is considered to be a highly specialized cardiac center. He is also an active member of Saudi Association of Pulmonary Hypertension and have attended all past conferences.

Prof. Anton Vonk Noordegraaf, MD
Full Professor & Chair, Division of
Pulmonary Sciences,
Amsterdam University Medical Center
Amsterdam, Netherlands

Anton Vonk Noordegraaf, MD, PhD, is Full professor and Chair of the division of Pulmonary Sciences at the Amsterdam University Medical Center, a tertiary referral centre for pulmonary arterial hypertension (PAH) in The Netherlands. Professor Vonk Noordegraaf obtained his medical degree with honours from the Vrije Universiteit Medical Centre, Amsterdam, in 1995. Between 1995 and 1997 he studied for his PhD, exploring the function of the right ventricle in chronic obstructive pulmonary disease-related PAH. He then spent a year as a postdoctoral fellow at The University of Pennsylvania, PA, USA, where he was dedicated to the research of the pulmonary circulation in acute respiratory distress syndrome (ARDS). After completing a 6-year fellowship in pulmonary medicine at Vrije Universiteit, he joined the division of Pulmonary Sciences at the University in 2003, where he remains to the present day. Professor Vonk Noordegraaf has published over 300 articles in peer-reviewed journals. His research is focused on the mechanisms and treatment of pulmonary arterial hypertension, right ventricular failure, pulmonary haemodynamic, and clinical studies in the field of pulmonary hypertension. Additionally, in 2009 he received the 'Pulmonary Hypertension Research Award' from the European Respiratory Society. In 2016 he received the ERS Award for Lifetime Achievement in PAH. He is nucleus member of the working group 'Pulmonary Circulation' of the European Society of Cardiology and secretary of Assembly 13: Pulmonary Vascular Diseases of the 'European Society of Respiratory Medicine'.

Abdulrahman Alrajhi, MD, MPH, FIDSA, FACP
Consultant, Infectious Diseases,
Department of Medicine
King Faisal Specialist Hospital and Research Centre
Riyadh, Saudi Arabia

Dr. Abdulrahman Alrajhi is a Consultant, Infectious Diseases at the Department of Medicine in King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia. He is qualified for the American Board of Infectious Diseases and American Board of Internal Medicine, also completed Masters of Public Health, International Health, Epidemiology and Control of Infectious Diseases from Harvard University, Boston. His special interests and researched are based on Tuberculosis in the immunocompromised. In his publications, 71 are peer reviewed and 1 Book Chapters.

Hani Sabbour, MD, FACC, FHRS, FASE
Consultant Cardiologist
Cleveland Clinic Abu Dhabi
Abu Dhabi, UAE

Dr. Hani Sabbour graduated with a Bachelor's Degree in Basic Medical Sciences and Bachelor's Degree in Medicine and Surgery from Kuwait University Faculty of Medicine in 1994 with first class honors and was twice awarded His Highness the Emirs Gold Medal for academic excellence in both degrees. He subsequently went on to train in Internal Medicine and Cardiovascular Disease at SUNY Stony Brook in New York and was elected resident and fellow of the year several times. He then completed his training in Clinical Cardiac Electrophysiology at Massachusetts General Hospital and was appointed Clinical Instructor in Cardiology at Harvard Medical School in 2001 as well as SUNY Stony Brook. He is currently American Board of Internal Medicine Certified in Internal Medicine, Cardiology, Electrophysiology, and Board Certified in Echocardiography and Nuclear Cardiology. He has always been heavily involved in teaching and been on the teaching faculty at Brown University since 2006.

He was recently promoted to Clinical Assistant Professor of Medicine and Cardiology at Brown University Warren Alpert School of Medicine. Dr. Sabbour has been active in research and is currently an active PI in two International multicenter trials in the field of pacing and ICDs and has had several publications in the field. He was also appointed the Internal medicine residency program director at Al Ain Hospital as well as Arab Board Cardiology fellowship site director. He has been in practice in Rhode Island for 11 years and recently moved to the UAE to be on staff as Consultant Cardiologist at SKMC, Al Ain Hospital, and Tawam Hospitals. His main clinical interests are the management of Arrhythmias and Advanced CHF and Pulmonary HTN as well as cardiac imaging.

Prof. Olivier Sitbon, MD, PhD
Professor of Respiratory Medicine,
Pulmonary Hypertension Reference Center (PulmoTension)
Department of Respiratory and Intensive Care Medicine
Bicêtre Hospital, Paris-Saclay University
Le Kremlin-Bicêtre, France

Olivier Sitbon, MD, PhD, is Professor of Respiratory Medicine at Université Paris-Saclay and a consultant at the French Referral Center for Pulmonary Hypertension (PH), Department of Respiratory and Intensive Care Medicine, Hôpital Bicêtre in Le Kremlin-Bicêtre, France. He also led until this year the team "Medical and surgical therapeutic innovations in pulmonary arterial hypertension (PAH)" of the INSERM Research Unit "Pulmonary Hypertension: Pathophysiology and Innovative Therapies". Professor Sitbon has conducted extensive research in PAH and he is the scientific leader of the French PH Registry.

His investigational activities include clinical studies on factors associated with PAH, identification of prognostic factors, studies on risk stratification and treatment goals in PAH, and the development of new strategies for the treatment of PAH. He co-chaired the working group on "Trials Design & New Therapies for PAH" at the 6th World PH Symposium in 2018. He is a task force member of the next ESC-ERS Guidelines for the diagnosis and treatment of pulmonary hypertension. He has authored more than 370 peer-reviewed articles on PH and related topics in New England Journal of Medicine, Circulation, Journal of the American College of Cardiology, American Journal of Respiratory and Critical Care Medicine, European Respiratory Journal and Chest, amongst other scientific journals.

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Prof. Jean-Luc Vachiéry, MD
Clinical Professor of Cardiology,
Director, Pulmonary Vascular Diseases and
Heart Failure Clinic,
Hôpital Erasme – Cliniques
Universitaires de Bruxelles
Brussels, Belgium

Jean-Luc Vachiéry is a Clinical Professor of Cardiology and a Director of the Pulmonary Vascular Diseases and Heart Failure Clinic at the Hôpital Erasme - Cliniques Universitaires de Bruxelles, Belgium. He received his board certification in Internal Medicine in 1992 and in Cardiology in 1995. He has authored several articles, book chapter and participated in many collaborative research projects. This led to the creation of a clinical unit dedicated to Patient Management and clinical research in Pulmonary Hypertension and heart failure in 2008.

He has co-chaired the Pulmonary Hypertension Council at the International Heart and Lung Society (2002 - 2005), the Working Group on Pulmonary Circulation and Right Ventricular Function at the European Society of Cardiology (2006 - 2008) and the Working Group on Heart Failure at the Belgian Society of Cardiology (2008 - 2008). He was a Task Force member and section editor of the European Guidelines on Pulmonary Hypertension (2009 and 2015).

He is the current chair of the PH Council at the ISHLT (2018 - 2020). He has also been involved in the World Symposium on Pulmonary Hypertension as task force member in 2003, (co-chair of the PH due to heart and lung diseases task force) 2013 and was the co-chair of the Task Force on Pulmonary Hypertension due to left heart diseases for the upcoming World Symposium on Pulmonary Hypertension in 2018. He acts as an expert for several regulatory agencies and Scientific Organizations for matters related to medicines for Pulmonary Hypertension

Mai Alzaydi, PhD
Research Assistant Professor,
In Mitochondrial, Vascular Biology and Nanomedicine
King Abdulaziz City for Science and Technology
Riyadh, Saudi Arabia

Dr. Mai Alzaydi is an Assistant Research Professor in the National Centre for Biotechnology at KACST. Her research interests focus on identifying signalling mediators linked to pathophysiology of cardiovascular and mitochondrial diseases using data from proteomic, genomic and metabolomic screening of patient samples across Saudi population. In addition, carrying out deep investigations upon utilizing nano-scale materials to develop novel therapeutic strategies and personalized medicines for cardiovascular and mitochondrial diseases.

She graduated with a master's degree (MSc) in Bionanotechnology from the University of Sheffield, UK. During her master's, she worked on three-dimensional (3D) cell growth on cell-instructive materials, a completely novel 3D system was synthesised in the lab of Prof Battaglia by applying different nano-scaled block-co-polymer surfactants to polystyrene foams.

Following completion of her MSc, she joined KACST and was selected to be part of the Nanotechnology research group. She was invited by Prof Adah Almutairi to visit her laboratory at the University of California San Diego (UCSD) (June-July, 2013) for intensive individual hands-on training in nanoparticle formulation methods including electrospray and emulsion-evaporation. She joined the Advance Training Program (ATP) in Nanomedicine and became a member of the Centre of Excellence in Nanomedicine (UCSD-KACST). She completed a research internship offered by Prof Adah Almutairi for the period from May to October, 2014. During the internship, she worked on examining the phenotypes of neural progenitor cells cultured within 3D gradient hydrogels designed to orient neurite growth and migration.

Working with very talented researchers enabled her to sharpen her technical and interpersonal skills. Dr. Alzaydi received her PhD from one of the top ranking universities, Imperial College London. The novel findings during her PhD studies regarding the role of chloride intracellular channels (CLICs) in the regulation of energy metabolism are of key importance in pulmonary arterial hypertension (PAH) and cancer. She is a board member of the Saudi Association for Pulmonary Hypertension (SAPH) and a member of the European Vascular Biology Organization (EVBO).

Omar Al Tamimi, MD
Chairman, Scientific Committee
Consultant, Pediatric Cardiology
King Salman Heart Center
King Fahad Medical City
Riyadh, Saudi Arabia

Dr. Omar Al Tamimi is a Consultant of Paediatric Cardiology at the King Salman Heart Center in King Fahad Medical City, Riyadh, Saudi Arabia. He is an active member of Saudi Association of Pulmonary Hypertension and have attended all the past conferences. His interest is in paediatric and congenital heat related Pulmonary Hypertension. He has several publications in the field of congenital heart and pulmonary vascular disease.

Badr Alzahrani, MD, FACC
Consultant Interventional Cardiology
American Board of Internal medicine,
Cardiology and Interventional Cardiology,
Prince Sultan Cardiac Center
Riyadh, Saudi Arabia

Dr. Badr Alzahrani is a Consultant Interventional Cardiology at the Prince Sultan Cardiac Center, Riyadh, Saudi Arabia. He is certified for American Board of Internal medicine and specialized in both Cardiology and Interventional Cardiology. He has attended several conferences.

Hazzaa Alzahrani, MD
Head, Adult Hematology/HSCT, Oncology Centre,
King Faisal Specialist Hospital and Research Center
Riyadh, Saudi Arabia

Dr. Hazzaa Alzahrani is currently the Head of the Adult Hematology/HSCT, Oncology Centre King Faisal Specialist Hospital and Research Center Riyadh, Saudi Arabia. He was an Associate Consultant, Adult Hematology/HSCT Oncology Centre King Faisal Specialist Hospital and Research Center Riyadh, Saudi Arabia from July 1999 to December 2000. He completed faculty of Medicine from King Abdulaziz University, Jeddah. He obtained Board Certification in November 1994 for MRCP (UK) and in April 1995 certified for Arab Board of Internal Medicine.

He received several Awards of distinction and excellence during undergraduate training (three Awards) Highest Score in MRCP (UK) Riyadh Center. Also attended around 82 International Meetings and Conferences including 51st ASH Annual Meeting, New Orleans, Louisiana, 05-08 December 2009, Chronic Myeloid Leukemia, Outcome of Patients on TK1 in KFSH&RC, Dubai and Issues related to CML Patients in Middle East and North Africa, Canada.

Ashari Bin Yunus, MD
Consultant, Pulmonary Medicine
Institut Jantung Negara, National Heart Institute
Chairman, Malaysian Clinical Practice Guidelines
on Management of PAH
Kuala Lumpur, Malaysia

Dr. Ashari Yunus is a Consultant, Pulmonary Medicine at the Institute Jantung Negara, National Heart Institute and is specialized in General Respiratory – Bronchial Asthma, Chronic Obstructive Pulmonary Disease (COPD), Interstitial Lung Disease (ILD), Pulmonary Fibrosis, Pulmonary Hypertension Sleep Disorders and Lung Cancer. His procedures include Bronchoscopy, Sleep Study, Pleuroscopy and Non-Invasive Ventilation. Dr. Ashari Yunus is an active member of Malaysian Medical Council and has also membership in the American Society of Nuclear Cardiology (ASNC), Society of Cardiovascular Computed Tomography (SCCT), Society for Cardiovascular Magnetic Resonance Imaging (SCMR) and the Healthcare Information and Management Systems Society (HIMSS).

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Seham Alrashidi, MD
Consultant Rheumatology
Member, Internal Medicine Residency Program Committee
Member, Malpractice/ Ethical Committee
Prince Sultan Military Medical City
Riyadh, Saudi Arabia

Dr. Seham Alrashidi is a consultant Rheumatology and Committee Member, Internal Medicine Residency Program in Prince Sultan Military Medical City, Riyadh. She attained her Bachelor Degree of Medicine and Surgery at King Saud University in 2000 and Internal Medical Saudi Board Residency Program in 2004 and since then, she worked as a senior registrar in the rheumatology unit and attained RMH/Saudi Rheumatology fellowship program for SCFHS 2009/2010 respectively.

She got promoted and worked as a consultant since 2014. She is an active speaker in numerous conferences and received several awards and an active member in the Saudi Rheumatology Society and Charitable Association for Rheumatic diseases.

Mohammed Bader Alsaiari, MD
Consultant, Pulmonary Medicine
MediClinic
Abu Dhabi, UAE

Dr. Mohammed Bader Alsaiari is currently a consultant of Pulmonary Medicine at MediClinic, Abu Dhabi, UAE. He is one of the active member at SAPH conferences and has attended past conferences of Saudi Association of Pulmonary Hypertension.

Stephanie Barwick, MBA, FRSA
Chief Executive Officer
Pulmonary Vascular Research Institute (PVRI)
London, UK

Stephanie is a passionate, outgoing and innovative business executive with experience spanning over different industries, countries and cultures. She has held senior positions in the public, private and charitable sectors, where she gained extensive senior leadership experience and knowledge in entrepreneurship, business start-up and not-for-profit management. She is an outstanding communicator and skilled networker who can shape organisational strategy into meaningful operational plans and lead organisations through major transformation and change.

Stephanie joined the PVRI in April 2014 as its first external Chief Executive. Since then she has transformed the organisation into a global medical society with an international reputation. She has driven the growth of PVRI memberships from 400 to over 10,000 in 104 different countries, increased the Institute's annual income by over 200% and overseen the publication of more than 800 articles. She is highly skilled at delivering effective governance, managing diverse stakeholders and driving business transformation that increases participation, improves efficiencies and achieves a greater impact on the charitable mission.

In her previous position at the University of Kent, she was awarded the prestigious 'Barbara Morris Prize' in recognition of her outstanding achievements and services to student employability.

Stephanie is fluent in four languages and holds degrees from Munich University in Germany and a recent first-class Executive Master's Degree in Business Administration (MBA) from the University of Warwick, UK, currently ranked 6th best worldwide. With a strong altruistic mindset and purpose-driven attitude, she is a charismatic and caring leader who displays a great sense of integrity, responsibility and humility.

Repurposing artesunate, an anti-malarial drug, as an inhaled formulation for the treatment of PAH

Ahmed Alobaida, Ali Keshavarz, Taslim Alhilal, Fakhrul Ahsan

Introduction:
Artesunate (ARS) is is a water-soluble semi-synthetic artemisinin derivative, has been used to treat malaria. It recommended by the World Health Organization (WHO) as first-line treatment for severe malaria. Recent studies demonstrated that ARS prevents pulmonary fibrosis formation on bleomycin-induced pulmonary fibrosis in rats by inhibiting the profibrotic molecules associated with the disease. Inhaled sustained-release microparticles can be used site-specific drug delivery and prolong the release of the drug, which can minimize the required dose and prolong the dosing interval, which improves the compliance as well as it protects the drug from degradation. PLGA is commonly used as biodegradable materials because it has excellent biocompatibility properties. Since ARS exerts anti-proliferative, anti-oxidant, anti-inflammatory, and antifibrotic properties, it could be a novel target to prevent the progression of PAH.

Our hypothesis stated that chronic artesunate treatments might prevent pulmonary arterial hypertension in PAH rats Sugen 5416 (SU5416)/ hypoxia animal model and study the mechanism of how ARS affect expression of PAH pathogenesis molecule. Rats develop severe PAH with this model, which mimics several major features of PAH on human., including pulmonary vascular remodeling, increase proliferation of pulmonary artery smooth muscle cells (PASMCs) and pulmonary artery endothelial cells (PAECs), oxidative stress, right heart failure and inflammatory markers upregulation.

In this study we investigated Production of porous inhaled PLGA microparticles and studying the underlying mechanisms by which ARS may act on PAECs and PASMCs in the treatment of PAH and pulmonary arterial remodeling, Immunoblotting, Pharmacokinetics of, Hemodynamics measurements, RV hypertrophy measurement (Fulton Index), Immunohistochemistry for α-smooth muscle actin.

Result and Discussion:
Particles prepared by double emulsion method (W1/O/W2) with the particle size of geometric diameter 6.5 µm the mass median diameter. ARS prevents elevation of mean pulmonary arterial pressure, mPAP, and pulmonary in Sugen 5416/hypoxia rats model of pulmonary hypertension. Single-injection of Sugen 5416 into rats followed by three weeks of hypoxia then one week in normoxia developed severe pulmonary hypertension in 28 days. Daily IP and IT ARS treatment significantly prevented pulmonary hypertension development in 5416/ hypoxia rats over 4 weeks. ARS treatment inhibits Pulmonary artery remodeling by significantly decrease the percentage medial wall area and the percentage wall thickness compared to the vehicle-treated group. The results indicate that ARS treatment inhibits pulmonary arterial remodeling and carries cardiopulmonary protective against PAH development. Rats treated with vehicle showed an increase in medial wall hypertrophy.

In contrast, rats pretreated with ARS didn't develop medial hypertrophy. Rat lung sections were stained with H&E, antibodies against α-smooth muscle actin (α-SMA). ARS treatment prevented increases in vascular smooth muscle layers. ARS prevent pulmonary artery remodeling Sugen (5416) / hypoxia-induced rats. ARS inhibits cell proliferation and decreases the growth of high proliferating cells by inducing apoptosis and stimulating G2/M arrest. The data suggest that ARS exerted potent effects on vascular wall proliferation, the IC50s of ARS was 13.75 µM after 24 hrs of treatment and 1.73 after 48hrs of treatment.

Westernblot analysis shows that, ARS inhibits PCNA proliferating cell nuclear antigen in rat lungs, ARS attenuates NOX-4 expression and oxidative stress in the lungs, ARs attenuates inflammatory markers expression. In addition, ARS decreased expression of IL-6 the inflammatory cytokine, ARS treatment decreased RhoA/ROCK signaling in PAH-SMCs by inhibiting pMYPT phosphorylation, ARS restored eNOS expression to a level close to that expressed in normal rats.

Conclusion:
ARS recognized to have antiproliferative by inhibiting pulmonary arterial smooth muscle cells proliferation, anti-inflammatory, and antioxidative actions. Which prevented the development of PAH in sugen 5416/hypoxia rats model. ARS can be the right candidate for translation in humans to be used as effective and safe antiproliferative therapies for pulmonary vascular diseases.

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PAH Case, RV ICU Management!!!

Hussam Sakkijha, MD
Consultant, Pulmonary, Critical Care and Sleep Medicine
King Fahad Medical City, Riyadh
Riyadh, Saudi Arabia

Introduction:
Pulmonary arterial hypertension is a progressive disease that eventually leads to deterioration of the patient functional status and require advanced management usually in the ICU either for stabilisation, intensification of therapy or mechanical support in transition to lung transplantation.

It is expected that pulmonary hypertension patients will encounter an illness that will require intensive care management, the outcome of which will be influenced by the pulmonary hypertension disease state. ICU management of such patients can be challenging and requires great deal of experience caring for these patients.

Case 1:
A 43-year-old woman, known to have CHD-PAH since childhood due to PDA that was corrected at age 15 years. Her pulmonary hypertension was stable for more than 20 years on sildenafil only. Over the last 2 years she started to deteriorate in terms of functional class and, exercise capacity and hemodynamics. Treatment was upgraded to triple therapy within short period of time but failed to attain a favourable risk status and was referred for lung transplantation, after evaluation she was enlisted for transplantation and waiting to be called. She presented to the ED with massive hemoptysis and oxygen desaturation. She had emergency interventional radiology embolization that controlled the bleeding, but she had to be intubated. Her ICU stay was complicated by sepsis and required vasopressor support. Mechanical ventilation support was for 8 days post procedure. She developed delirium which added to the complexity of her management. Eventually she was successfully extubated and was discharged home and later to the lung transplant facility.

This case highlights the complex nature of PH patient in the ICU and the challenging management strategies that are followed in the care of such patients.

Case 2:
A 26-year-old woman, known to have severe PAH, treated with triple combination therapy. She continued to be in functional class 3 and deteriorating despite escalation of therapy. She was referred for lung transplantation and was undergoing evaluation. She declined parenteral prostacyclin therapy for personal reasons. Presented with worsening symptoms of dyspnea and inability to perform her daily activities, she was found to be hypotensive. She was admitted to the ICU where vasopressor agents were required. She later on developed severe respiratory distress and had to be intubated and mechanically ventilated. The patient was unstable to be transferred to the lung transplant facility and we could not secure acceptance for emergency transplantation. ECMO was discussed but not offered. She continued to deteriorate, DNR status was discussed with the family. She passed away 3 days later without chest compression.

This case highlights the importance of advanced PH treatment and sheds light on the ICU management of the end of life of these patients

Case 3:
A 46-year-old woman, known to have severe PAH, treated with triple oral combination therapy. She continued to be in functional class 3 and is being evaluated for lung transplantation. She presented with worsening lower extremity edema and ascites. Few days later she developed fever and cough, she tested positive for COVID-19 infection complicated by lung infiltrate and respiratory failure requiring intensive care management for mechanical ventilation and vasopressor therapy. Her ICU stay was complicated by multi-organ failure and required renal replacement therapy. She sustained cardiac arrest and passed away after 7 days of ICU care.

This case illustrates that pulmonary hypertension patients are considered at high risk for poor outcome when affected by other illnesses.

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Intermixture Pulmonary Hypertension Case

Prof. Yuriy M. Sirenko, MD, PhD
Professor and Head of Department
National Scientific Center M.D.
Strazhesko Institute of Cardiology
Kyiv, Ukraine

Introduction:
Since invention of WHO Evian 1998 PH classification according to the etiology in the last two decades it has become increasingly clear that we observe more and more patients who have in fact a constellation of different and various phenotypes and could be attributed to the different clinical groups simultaneously. So in several cases of PH we have the convergence of the clinical phenotypes and real mixture of the syndromes that one patient can be attributed to the different clinical groups. On the other hand, severe pulmonary hemodynamic compromise often requires a counsel of the specific therapy prescription. And in those cases the role of reference centers increases dramatically because they have to provide proper diagnostic performance and select right treatment strategy.

Case Report:
A 31-year-old white male patient was admitted to the clinic of the Institute of Cardiology on July 23, 2020. Complaints: shortness of breath with minimal physical activity (walking up to 15 m), episode of syncope, severe general weakness, drowsiness, dizziness, increase in abdominal volume, swelling of the legs, diarrhea (up to 20 g / day), dry cough. Medical history: At the age of 20, he underwent surgery for phlegmon of the lower extremity for the first time. Since then, thrombocytopenia and leukopenia have been constantly observed in blood analysis. He had pneumonia 4-5 times a year, he directed to pulmonologists – in 2018 according to radiography and MSCT data the sarcoidosis of the lungs was suspected, later the diagnosis was confirmed in a specialized center in Israel. In 2018-2019 hematologists performed 3 diagnostic bone marrow puncture without clear result. In June 2019, on the background of pneumonia, the edema of the lower extremities appeared, ascites, hydropericardium. According to the description of EchoCG from 2019: expressed the amount of fluid in the pericardium (separation of leaves from 2.5 to 3.3 cm), the calculated pressure in the PA was 85 mm Hg. In January 2020 the immunologist diagnosed a primary deficiency of immune regulation confirmed with genetic tests. Sirolimus was prescribed for the first time. The condition improved shortly: the cough decreased. The last month has seen a significant increase in shortness of breath. Hospitalized for further examinations and clarify the need for specific therapy.

GENERAL BLOOD ANALYSIS:
WBC (leukocytes) - 6.7; % LYM (lymphocytes) - 17.5; % MON (monocytes) - 12.7; % GRA (granulocytes) - 69.8; RBC (erythrocytes) - 6.92; HgB (hemoglobin) - 159; HCT (hematocrit) - 48.9; PLT (platelets) - 107; ESR – 4 mm/h. URINE ANALYSIS: Color - yellow; Transparency - N; pH - 5.0; Specific gravity - 1025; Protein - 1.32 g/l; Glucose, ketone bodies - n/d; WB and RBC – n|d; Epithelial cells – single, Cylinders - hyaline 3-4-5; Salts - urate crystals in small quantities. BIOCHEMISTRY: CREATININE (μmol / l) - 123 (CKD-EPI = 58 ml/min/1,72m2); PROTEIN – 66 g/l; FERRUM - 7.0 μmol / l; TOTAL PROTEIN - 68 g/l; ALBUMIN – 38 g/l; URIC ACID - 545 μmol/l, AST - 20 u/l, ALT -18 u/l, GLUCOSE - 4.5 mmol/l, (N 66-87), ALP - 200 u l, GGT - 40 u/l. NT-proBNP - 6123 pg ml (N <125), Procalcitonin <0.02 ng/ml (N <0.1). COAGULOGRAPH: thrombin time 97% (N 86-117), free heparin 3.0 sec (N 3.0-6.0), fibrinogen 3.5 g / l (N 1.9-3.7), PTI 100 % (N 80-105), INR = 1.0. RHEUMATIC TESTS (SEROLOGY): Antistreptolysin O - 200; C-reactive protein - 18.25; Rheumatoid factor – 8.

ECG:
sinus rhythm, right axis deviation, signs of RA and RV hypertrophy and strain. EchoCG: pericardial effusion up to 4,5 cm, PTGV – 3,9 m/s, RV/LV basal diameter – 2,0, RAA – 29 cm2, PA diameter – 3,3 cm, RVAT – 75 ms, EDPRV – 2,85, eccentricity index (syst/diast) – 2,1/1,51. Spirometry: VCmax – 48,5%, FVC – 50,1%, FEV1 – 49,1%, DLCO – 65%. CT: diffuse pneumofibrosis, enlargement of radix pulmonis and mediastinal lymphatic nodules; pericardial effusion, RA, PA and RV enlargement, no signs of pulmonary embolism. Liver - 12,96×19,98 cm, spleen – 11,58×24,35 cm, ascites. RHC data: mPAP – 58 mm Hg, RAP – 20 mm Hg, PAWP – 9 mm Hg, CO – 3,62 l/min, PVR -13,5 WU, SaO2 – 93%, SvO2 – 52,2%, SI – 19,9 ml/m2.

Clinical Diagnosis: Primary Immunodeficiency due to CD25 Deficiency. Pulmonary Hypertension due to Lung Disease (3rd group) and Associated with Mieloproliferative Disorders (5th group). Syncope (15.03.20). WHO FC III (at admission FC IV). Hydropericardium. Ascites. Right Heart CHF. Trombocytopenia. Leucopenia. Lymphoproliferative Syndrome with Leisure of Mediastinal Nodules. Lung Fibrfosis due Multiple Pneumonias. Respiratory Failure Type 1. Chronic Kidney Disease IIIA (G3, A2). Hyperuricemia. Hypochromic Anemia. Gallstone Disease.

Patients Treatment:
Pericardiocentesis with evacuation of 800 ml transudates. Oxygen Therapy. Furosemide i.v. continuous infusionfor 4 days then 80 mg at morning and 40 mg before dinner with BP and body mass control and decrase dose to 40 mg o.id. Iloprost i.v. Continious infusion for 4 days and following with inhalation of 2 ml (5 mcg) 6-8 times per day. We tried sildenafil 20 mg t.i.d and noted worsening and had to withdraw it. Eplerenone 25 o.i.d. Colchicine 0,5 mg o.i.d. Sirolimus 4 mg o.i.d. according to the hematologist prescription.

Following Patients Data After 3 months:
Dramatic clinical improvement, no symptoms without exertions, no peripheral edema, WHO FC II, reduction of spleen and hepatic sizes. Oxygen saturation- 94%, 6MWT – 350 m, NT-pro BNP – 520 pg/ml, EchoCG: 1 cm of pericardial effusion, TAPSE 18 mm, RA area – 26 cm2, PTRV – 3,1 m/s, inferior vena cava collapse 50%, eccentricity index 1,5/1,8. Unfortunately after 4 month of this improvement patients had Covid-19 infection and died in ICU despite respiratory support.

Conclusion:
This is a case with long-term survival of patient with Immunodeficiency due to CD25 deficiency till adult age. Intermixture of the etiology of PH. Situation when 3rd and 5th group patient has severe precapillary PAH. Surprising long-term effectiveness of specific prostacyclin therapy in manifest patient with 3rd and 5th group of PH.

Medical History Matters!

Nawal Al Gubaisi, MD, SSC-Med, SF-PD
Consultant Pulmonologist
Pulmonary Hypertension Specialist
The Head of Pulmonary Medicine Unit
King Fahad Medical Military Complex
Dhahran, Saudi Arabia

Introduction:
Congenital heart diseases even when repaired at an early age can still be a risk factor for developing pulmonary hypertension in adulthood. Taking meticulous history is essential in such cases, that can be misdiagnosed.

Case:
23-year-old male referred by internal medicine as a case of pulmonary embolism as CTPA showed filling defect in PA when he presented with 2 days history of shortness of breath. His echo showed elevated sPAP He was treated with anti-coagulation for 3 months Despite symptomatic improvement his echo still showed signs of pulmonary hypertension RHC done surprisingly he was found to have a shunt and mPAP of 24 mmHg only.

Upon meeting the parents who only showed up the day of RHC, we found out that the patient was born with complex congenital heart disease that was repaired at the age of 2.(Right Ventriculotomy, Mean Pulmonary Artery connected to RV, Mean Pulmonary Artery opened up to hilum of Left Pulmonary Artery, VSD closed with Dacron Patch, Left Pulmonary Artery Mean Pulmonary Artery and RVOT all enlarged with Bovine pericardium post Blolack-Tussu) We contacted the pediatric cardiologist in the centre he did the surgery in, he advised not to start target therapy & refer the patient for another pulmonary artery dilation procedure.

Conclusion:
Multidisciplinary approach and meticulous review of past history and records is essential in reaching the proper diagnosis & management of PH. CHD even when corrected can still be a potential cause for developing PH in adulthood.

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Just a Cough!

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Consultant, Pulmonary Medicine,
Pulmonary Hypertension and Balloon
Pulmonary Angioplasty, University of British
Columbia, Vancouver, Canada
National Hospital Organization Okayama
Medical Center, Okayama, Japan
King Faisal Specialist Hospital and RC
Riyadh, Saudi Arabia

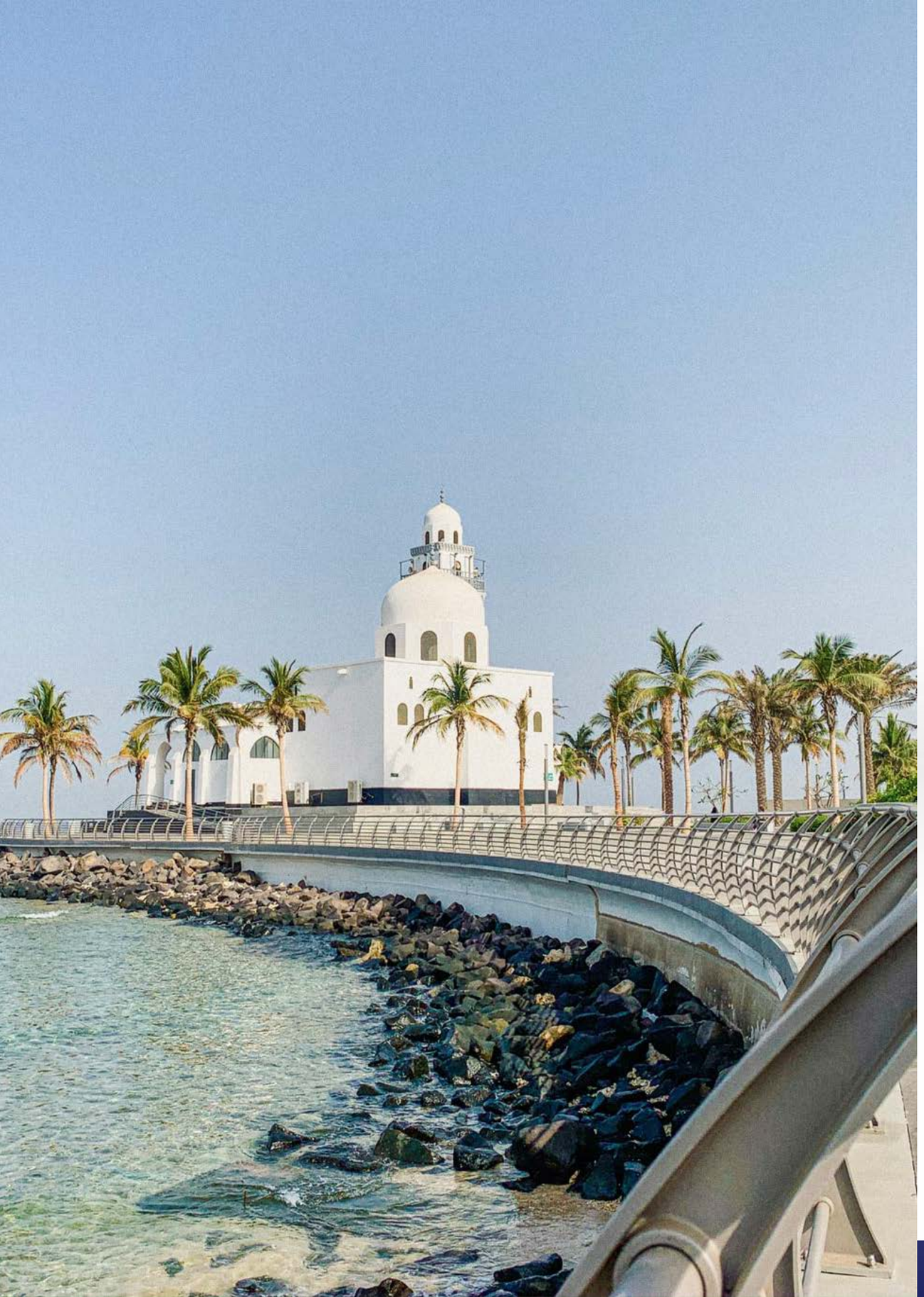
Introduction:
Pulmonary hypertension (PH) is defined as a mean pulmonary artery pressure >20 mmHg, and can be associated with multiple conditions. Determining the cause of pulmonary hypertension (PH) is complex and requires a structured and interdisciplinary approach. Because it is the basis of decisions for treatment, a precise diagnosis is obligatory.

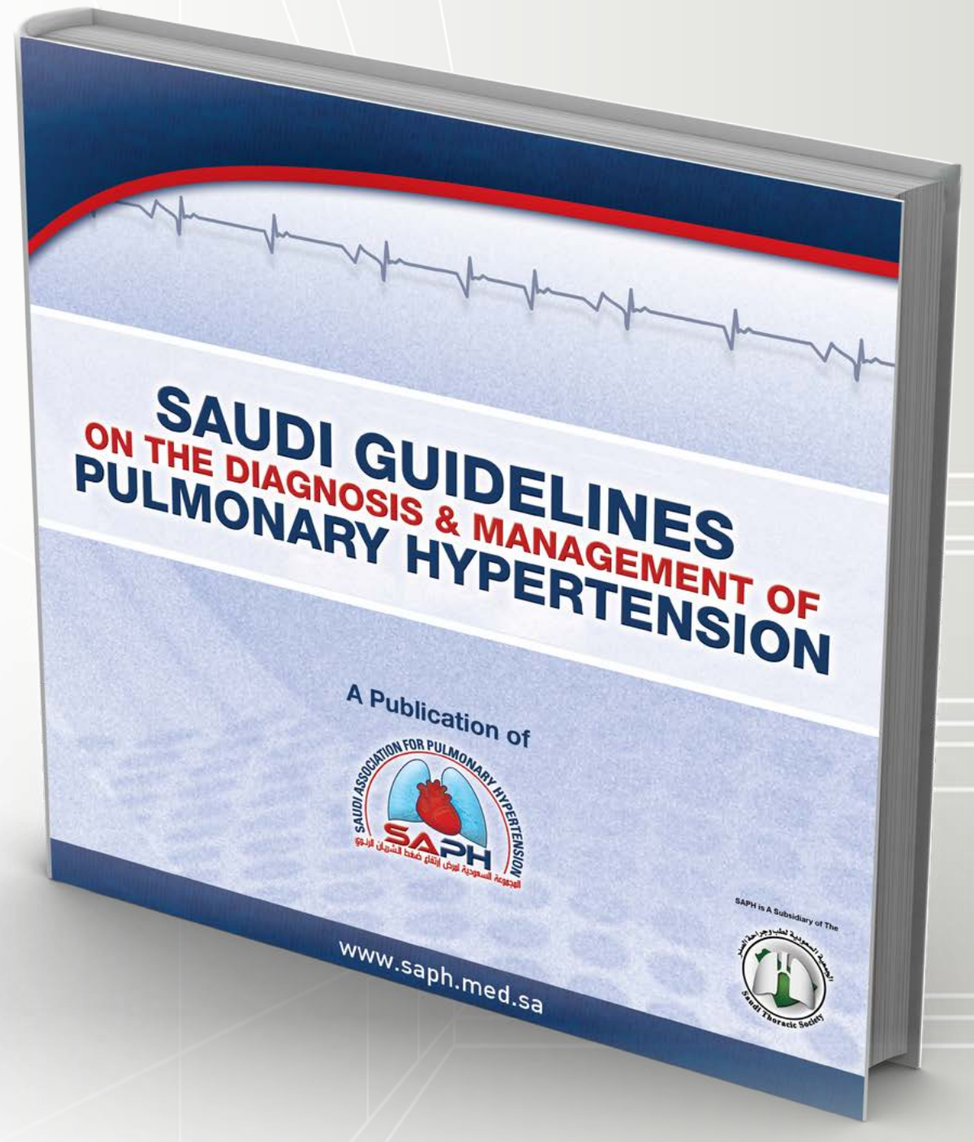
Case Presentation:
A 53-year-old man who was seen first in the clinic as a case of chronic dry cough for 6 weeks (started April 2021). He is ex-smoker with 10 pack-year smoking history, known with IHD status-post PCI to RCA in April 2021 and dyslipidemia. He took his COVID-19 vaccine (Astrazeneca) 2 weeks prior to the beginning of his cough. He has mild exertional dyspnea prior to his unstable angina diagnosis (mMRC of I-II). He reported history of night sweat for 8 months and unintentional weight loss of 4 kgs since his unstable angina. TB was ruled out. All respiratory bacterial and viral cultures were negative. His autoimmune work up was negative. His pro-BNP was 210 pg/ml.

His initial work up were unremarkable including normal ECHO (May 2021), and chest CT. He received multiple courses of antibiotics, steroids and inhalers without improvement. His cough became worse to the point where he cannot finish a sentence due to coughing. Bronchoscopy was attempted but aborted as the patient was desaturating before starting the procedure. Multiple repeated chest CTs showed evolving ground glass opacities, central nodules with evidence of pulmonary hypertension and raised the possibility of pulmonary veno-occlusive disease (PVOD) and a repeated ECHO (Aug 2021) showed normal left side with features suggestive of RV volume overload with reduced RV systolic function, RVSP 77 mmHg. RHC was done and showed mPAP 68 mmHg, PAWP 14, PVR 16.4 WU, CO/CI 3.2/1.8. In September 2021, seen at the PH clinic, he was FC IV and on oxygen at 2L PM. The diagnosis of PVOD was questionable given his acute presentation. He was started on Macitentan with close observation. Pro-BNP had dropped from 3200 down to 311 in one week with slight improvement in SOB, however, no improvement in his cough.

A MDT meeting was conducted and no clear consensus about the diagnosis was reached! Does the patient have an exposure that led to an accelerated ILD with pulmonary hypertension? So, the decision was to start the patient on pulse steroid. A follow up ECHO showed improvement in the right side function with a decrease in RVSP 30-40mmHg (previously was 77 mmHg). In October 2021, he reported progression of his respiratory symptoms (cough and SOB), prednisone was tapered till off and he developed new right sided neck swelling. Lymph node neck biopsy showed metastatic adenocarcinoma, consistent with pancreatic origin (ck7, ck19 & muc-1 were all positive). MRI abdomen showed focal pancreatic neck mass, thoracic and lumbar spine metastasis. The patient then been evaluated by the oncology team. Started on a palliative chemotherapy (Xeloda) and palliative radiotherapy to the right hip. The patient, unfortunately, progressed clinically and radiologically. He was signed as DNAR and referred to palliative team, later on he passed away.

Conclusion:
Our differential diagnoses for this case were metastatic pancreatic CA with pulmonary tumor emboli (i.e. pulmonary tumor thrombotic microangiopathy) & lymphangitic carcinomatosis. PVOD though was raised as a differential diagnosis based on the chest CT, however, was questionable given his acute presentation. A multidisciplinary team meeting and evaluation is always a paramount to approach such cases.





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Our goal is to create value for our customers, stockholders and employees, while also strengthening the company's earning power. We are committed to operating sustainably and addressing our social and ethical responsibilities. Employees with a passion for innovation enjoy excellent development opportunities at Bayer. All this goes to make up our purpose:

AOP HEALTH

AOP Health has acquired excellent expertise and developed a solid market presence thanks to its long term experience. The fact that the company is privately owned ensures long-term commitment, high quality and continuity. AOP Health is also the sole provider of key therapies for several highly specialized indications. AOP Health experts work closely with leading health care professionals on an international level. This enables them to respond quickly to new findings as well as to push both research and development projects forward. In the course of doing so, AOP Health can call upon a global network of qualified partners and, with the help of these strategic alliances, is able to compete with top pharmaceutical companies.

pharma science

Founded in 1983, Pharmascience Inc. is the largest pharmaceutical employer in Québec with over 1,500 employees proudly headquartered in Montréal. With product distribution in over 60 countries. Ranked 56th among Canada's top 100 Research & Development (R&D) investors with over $43 million invested in 2017, Pharmascience Inc. is the third-largest manufacturer of over-the-counter generic drugs in the country.

Pharmascience Inc. is a leading manufacturer and marketer of prescription generic, over-the-counter, and behind-the-counter products as well as FDA-approved Canadian-made injectables. The company commercializes nearly 300 product families in 20 different dosage forms for over 2,000 products. In Canada alone, more than 45 million prescriptions a year are filled with Pharmascience products.

In 2018, Forbes magazine ranked Pharmascience Inc. among its list of top 300 employers. Pharmascience Inc. has strong long-standing philanthropic ties with its communities, both locally and internationally. For more than 20 years, Pharmascience has been working through Health Partners International of Canada (HPIC) as a partner of choice to increase access to medicine. Pharmascience's donations of essential medicine total close to $70 million.

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