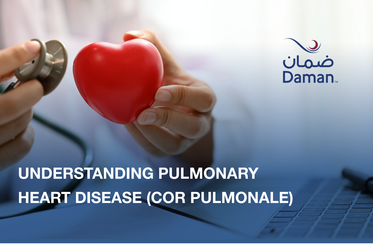


UNDERSTANDING PULMONARY HEART DISEASE (COR PULMONALE)

What is Pulmonary Heart Disease?

Pulmonary Heart Disease, also known as Cor Pulmonale, is a serious condition in which the right side of the heart fails due to high blood pressure in the lungs (pulmonary hypertension), usually caused by chronic lung diseases.

Chronic lung diseases like COPD or interstitial lung disease reduce oxygen levels in the blood (hypoxia). In response, the pulmonary arteries constrict to improve oxygen delivery, which increases resistance in lung circulation.

As a result, pulmonary artery pressure rises (pulmonary hypertension), forcing the right ventricle of the heart to work harder. Over time, the right ventricle thickens (hypertrophy), but eventually weakens and enlarges (dilation), leading to right-sided heart failure, the key feature of Pulmonary Heart Disease.

Read more

Causes of Pulmonary Heart Disease (PHD) The 5 Groups

Pulmonary Heart Disease (PHD) can result from a variety of underlying conditions. To better understand and manage it, doctors categorise the causes into five main groups

01 Pulmonary Arterial Hypertension (PAH)
Narrowing small arteries in the lungs increases pressure. PAH may be genetic, linked to diseases like liver disease or HIV, or idiopathic (no known cause).

02 Heart Disease
Here, the left side of the heart fails to pump efficiently, causing blood to back up into the lungs and raise pressure — leading to PHD.

03 Lung Diseases
Chronic lung conditions such as COPD, emphysema, and sleep apnea reduce oxygen levels, triggering pulmonary hypertension. Smoking and obesity are key risk factors.

04 Unclear or Multifactorial Causes
Some conditions — like sickle cell anemia, sarcoidosis, or metabolic disorders — are associated with PHD, but the exact mechanisms remain uncertain.

05 Chronic Blood Clots (CTEPH)
Old or unresolved blood clots in the lungs increase pulmonary pressure, forcing the right heart to work harder.

Symptoms of Pulmonary Heart Disease

Symptoms can vary depending on the severity of the disease, but some common signs include:

- Shortness of breath, especially with physical activity
- Fatigue or feeling unusually tired
- Swelling in the ankles, legs, or abdomen due to fluid buildup
- Chest pain or discomfort
- Dizziness or fainting, especially during exercise
- Bluish colour in the lips or skin, indicating low oxygen levels
- Irregular heartbeats or palpitations

Being able to recognise these signs early can help prevent serious complications.

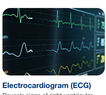
Key Investigations for Cor Pulmonale

Laboratory and imaging tests aim to:

- Identify the underlying cause
- Confirm pulmonary hypertension and right ventricular dysfunction
- Evaluate complications

Diagnostic Tools

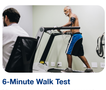
Chest X-ray
May show pulmonary artery enlargement and right-sided heart enlargement (cardiomegaly).



Electrocardiogram (ECG)
Reveals signs of right ventricular hypertrophy or enlargement.

Doppler Echocardiography
Primary non-invasive tool for detecting pulmonary hypertension; estimates pulmonary artery pressure via tricuspid regurgitation jet.

Chest CT Angiography
Helps rule out pulmonary embolism; a pulmonary artery >29 mm suggests pulmonary hypertension.



6-Minute Walk Test
Measures exercise tolerance and overall cardiopulmonary function.

MRI (Cardiac)
Offers precise images of right ventricle size and function, though it is not routinely used.

Pulmonary Function Tests (PFTs)
Assess the extent of lung disease.

Ventilation/Perfusion Scan (V/Q)
Useful for detecting chronic thromboembolic pulmonary hypertension (CTEPH).

Right Heart Catheterisation (Gold Standard)
Confirms pulmonary hypertension (mean Pulmonary Artery Pressure (PAP) >25 mmHg) Differentiates right-sided from left-sided heart disease.

- Pulmonary Capillary Wedge Pressure (PCWP) <15 mmHg right sided origin
- Right Ventricle (RV) dysfunction is confirmed with elevated PAP and low PCWP.

Treatment for Pulmonary Heart Disease

The treatment for PHD focuses on managing the underlying lung and heart issues and easing the strain on the heart. Treatment depends on the severity of the condition

Treating Lung Diseases

- **Medications:** Inhalers, steroids, and bronchodilators help manage lung diseases like COPD and asthma.
- **Oxygen Therapy:** For those with low oxygen levels, oxygen therapy helps ensure the body gets enough oxygen, reducing heart strain.
- **Pulmonary Rehabilitation:** Includes exercises and breathing techniques to improve lung function

Managing Pulmonary Hypertension (PH)

- **Vasodilators:** These medications relax blood vessels in the lungs, reducing blood pressure and easing heart strain.
- **Diuretics:** Help remove excess fluid from the body to reduce swelling.
- **Blood Thinners:** Prevent blood clots, which can worsen PH.

Supporting Heart Function

- **Heart Medications:** Beta-blockers or ACE inhibitors can help lower blood pressure and reduce heart strain.
- **Digoxin:** Helps the heart pump more effectively in cases of heart failure.

Lifestyle Changes

- **Quit Smoking:** Smoking cessation is essential for managing lung and heart health.
- **Exercise:** Under medical supervision, regular exercise can improve lung and heart function.
- **Healthy Diet:** A low-salt, balanced diet helps control fluid retention and reduces strain on the heart and lungs.

Surgical Treatments

In severe cases, surgery may be necessary:

- **Lung Transplant:** Considered for patients with severe lung disease.
- **Heart-Lung Transplant:** For individuals with both heart and lung damage.
- **Balloon Pulmonary Angioplasty:** A procedure that helps widen narrowed blood vessels in the lungs in cases of pulmonary arterial hypertension.

Regular Monitoring

- Ongoing checkups are important to track the progression of the disease and adjust treatment as needed.

Conclusion:

While there is no cure for Pulmonary Heart Disease, treatment can help improve quality of life, reduce symptoms, and prevent further damage to the heart and lungs. Early diagnosis, appropriate treatment, and lifestyle changes can make a significant difference in managing the disease. Consult with your healthcare provider to develop a personalised treatment plan.

Learn more

Pulmonary heart disease: The heart-lung interaction and its impact on patient phenotypes - PMC

Pulmonary Heart Disease Program | Advocate Heart Institute | Advocate Health Care

Pulmonary heart disease: The heart-lung interaction and its impact on patient phenotypes - PMC