

Difference Between Right Sided and Left Sided Heart Failure

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Key Difference – Right Sided vs Left Sided Heart Failure

Cardiac diseases have been topping the list of killer diseases for the last 2-3 decades thanks to the stressful and unhealthy lifestyle we have got used to. Heart failure is the inability of the heart to pump blood adequately to fulfill the demand of the body. **When this inability is due to the impairment of the functional capacity of the [right cardiac chambers](#), we call it a right heart failure.** On the other hand, **if the heart failure is due to the incompetence of the left cardiac chambers that is called a left heart failure.** This is the difference between right sided and left sided heart failure.

What is a Right Sided Heart Failure?

When the heart fails to pump blood adequately to the body tissues owing to the decrease in the pumping capacity of the right heart chambers, that condition is identified as the right heart failure.

The right sided heart failure occurs secondary to the left sided heart failure on most occasions. When the left side of the heart, specifically the [left ventricle](#), fails to pump blood sufficiently into the aorta, blood starts to pool inside the left heart chambers. Consequently the pressure inside these chambers increases. This impairs the drainage of blood into the left [atrium](#) from the lungs via the [pulmonary veins](#). As a result, the pressure inside the pulmonary vasculature also rises. Therefore the right ventricle has to contract more vigorously against a higher resistive pressure to pump blood into the lungs. With the long-term prevalence of this condition, heart muscles of the right chambers start to wear down ultimately resulting in the right sided heart failure.

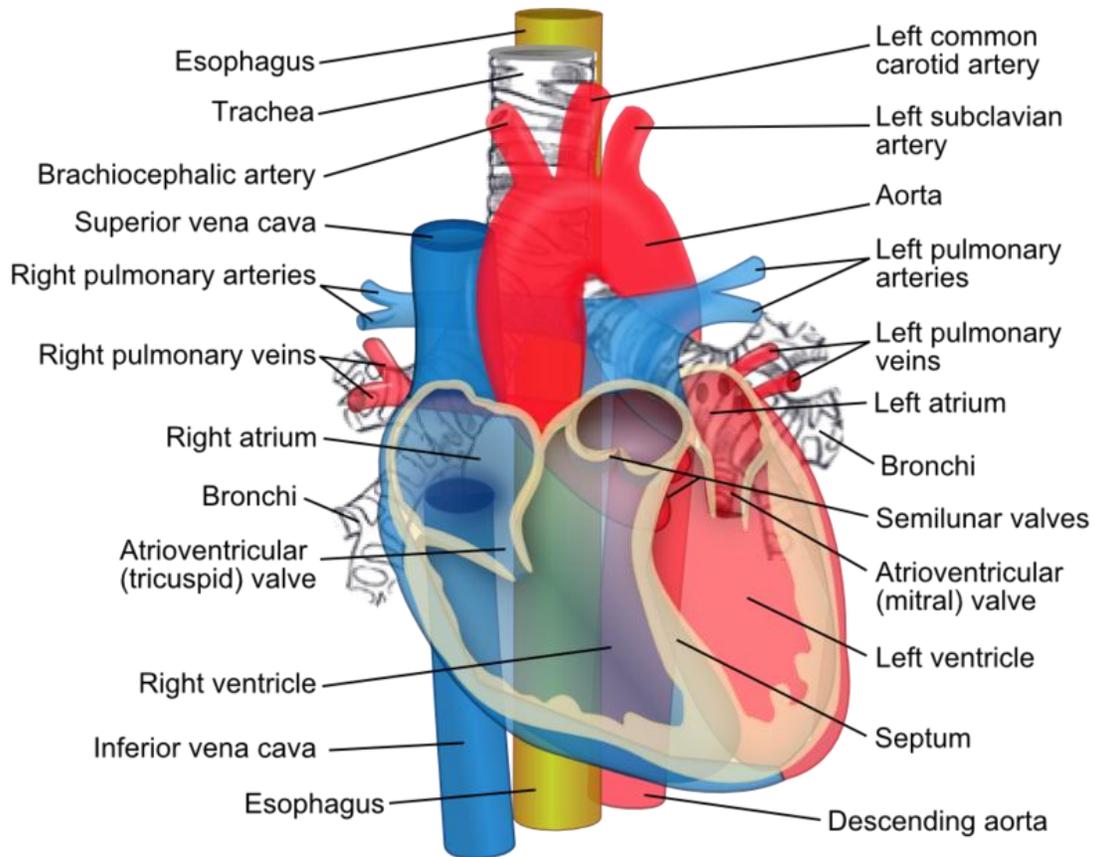


Figure 01: Heart

Although not frequently seen, right sided heart failure can also be caused by different intrinsic pulmonary pathologies such as [COPD](#), [bronchiectasis](#), and pulmonary thromboembolism.

Effects

- [Edema](#) in the dependent regions of the body such as ankles. In the more advanced stages, patient can also get ascites and pleural effusion.
- Congestive organomegaly such as hepatomegaly.

What is Left Sided Heart Failure?

The inability of the heart to pump blood to adequately fulfill the metabolic demand of the body is called a heart failure. When this failure is due to the faltering of the pumping capacity of the left heart chambers, this is known as left sided heart failure.

Causes

- Ischemic heart diseases
- [Hypertension](#)
- Aortic and mitral valve diseases
- Other myocardial diseases such as [myocarditis](#)

Left sided heart failure is accompanied by certain morphological changes in the heart. The left ventricle undergoes compensatory hypertrophy, and both the left ventricle and atrium are dilated due to the transmission of increased pressure. The dilated left atrium particularly is susceptible to get [atrial fibrillation](#). A fibrillating atrium is at a higher risk of having thrombi formed inside it.

Effects

- In the most advanced cases, the reduction of blood supply to the brain can result in hypoxic encephalopathy
- [Pulmonary edema](#) due to the secondary pooling of blood inside the lungs.
- As previously mentioned, long-standing left heart failure can give rise to right heart failure as well.

Clinical Features of Heart Failure

Most of the clinical features of left and right heart failure are similar to each other. As explained before, left heart failure is most often the cause of right heart failure. Thus, the concurrent presence of both conditions gives a clinical picture with a plenty of shared symptoms and signs. The frequently seen symptoms that give the physicians a clue about the disease are,

- Exertional [dyspnea](#)
- Orthopnea
- Paroxysmal nocturnal dyspnea
- Fatigue and faintishness
- Cough
- Edema in the dependent regions of the body such as ankles. In bed bound patients, edema will be seen in the sacral regions. This is more pronounced in the right sided heart failure due to the decrease in the venous return which leads to the pooling of blood in the dependent regions of the body.
- Organomegaly

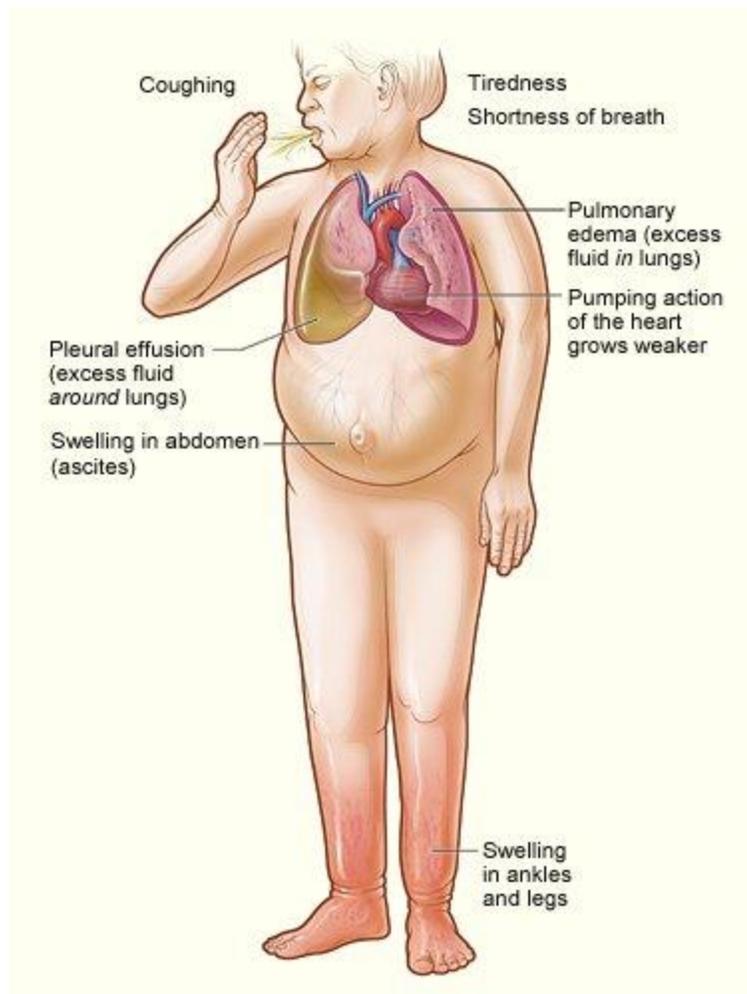


Figure 02: Major Signs and Symptoms of Heart Failure

This is also due to venous congestion. Consequently, features of organomegaly are seen in right heart failure or when the right heart failure is present together with the left heart failure. Liver enlargement (hepatomegaly) is associated with the abnormal distension of the stomach, the appearance of veins around the umbilicus (caput medusae) and failure of the liver functions.

Diagnosis of Heart Failure

A clinical suspicion of heart failure is confirmed through the following investigations.

- Chest X-ray
- Blood tests

This includes FBC, liver biochemistry, cardiac enzymes released in acute cardiac failure and BNP.

- Electrocardiogram
- Echocardiogram
- Stress echocardiography
- Cardiac MRI. This is also called CMR
- Cardiac biopsy. This is carried out only when a cardiac myopathy is suspected
- Cardiopulmonary exercise testing

Treatment of Heart Failure

Lifestyle modifications play a key role in preventing further deterioration of the heart muscles while reducing the risk of complications such as cardiac arrhythmias. Every patient after being diagnosed with heart failure, are advised to minimize the consumption of alcohol and to control their body weight. A small, low sodium and low salt diet is ideal for a heart patient. Bed rest is usually recommended since it minimizes the stress on the cardiac muscles.

The drugs given in the management of heart failure include

- Diuretics
- Angiotensin-converting enzyme inhibitors
- Angiotensin II receptor antagonists
- Beta-blockers
- Aldosterone antagonists
- Vasodilators
- Cardiac glycosides
- Nonpharmacological interventions used in managing heart failure are,
- Revascularization
- Use of biventricular pacemaker or implantable cardioverter defibrillator
- Cardiac transplantation

What are the Similarities between right sided and left sided heart failure?

- Clinical features and the management of both conditions are similar to each other.
- The pumping ability of the heart is compromised on both occasions.

What is the Difference Between Right Sided and Left Sided Heart Failure?

Right Sided vs Left Sided Heart Failure

When the heart fails to pump blood adequately to the body tissues owing to the decrease in the pumping capacity of the right heart chambers, this condition is identified as the right heart failure.

When the heart failure is due to the faltering of the pumping capacity of the left heart chambers, this is known as left sided heart failure.

Pumping Capacity

In right sided heart failure, pumping capacity of the right heart chambers is decreased.

It is the pumping capacity of the left heart chambers that is decreased in the left sided heart failure.

Causes

Right sided heart failure most often occurs secondary to the left sided heart failure.

Pulmonary diseases such as bronchiectasis, thromboembolism, and COPD are the other causes of this condition.

Causes of left sided heart failure are,

- Ischemic heart diseases
- Hypertension
- Aortic and mitral valve diseases
- Other myocardial diseases such as myocarditis

Summary – Right Sided vs Left Sided Heart Failure

When the heart fails to pump blood adequately to the body tissues, owing to the decrease in the pumping capacity of right heart chambers, that condition is identified as the right heart failure. On the other hand, when the heart failure is due to the faltering of the pumping capacity of the left heart chambers, it is known as

left sided heart failure. Thus, the difference between right sided and left sided heart failure is that in right heart failure, the function of right heart chambers is impaired whereas the function of left heart chambers is impaired in the left heart failure.

References:

1. Kumar, Parveen J., and Michael L. Clark. Kumar & Clark clinical medicine. Edinburgh: W.B. Saunders, 2009.

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