What does it mean?

In heart failure, the heart can no longer pumps enough blood around the body. The heart muscle is either too weak (systolic dysfunction) or not elastic enough (diastolic dysfunction). The type of medication people use for the treatment of heart failure will depend on the type of heart failure they have (whether systolic or diastolic, left sided or right sided).

Heart failure can affect the left or right side alone, but can affect both. Doctors differentiate between three types of heart failure, accordingly:

- **Left-sided heart failure**: The left ventricle of the heart no longer pumps enough blood around the body. As a result, blood builds up in the pulmonary veins (the blood vessels that carry blood away from the lungs). This causes shortness of breath, trouble breathing or coughing – especially during physical activity. Left-sided heart failure is the most common type.
- **Right-sided heart failure**: Here the right ventricle of the heart is too weak to pump enough blood to the lungs. This causes blood to build up in the systemic veins (the blood vessels that carry blood from the organs and tissue back to the heart). The increased pressure inside the veins can push fluid out of the veins into surrounding tissue. This leads to a build-up of fluid in the legs, or less commonly in the genital area, organs or the abdomen (belly).
- **Biventricular heart failure**: In biventricular heart failure, both sides of the heart are affected. This can cause the same symptoms as both left-sided and right-sided heart failure, such as shortness of breath and a build-up of fluid.

Symptoms

Heart failure can be ongoing (chronic), or it may start suddenly (acute).
Heart failure signs and symptoms may include:

- Shortness of breath with activity or when lying down
- Fatigue and weakness
- Swelling in the legs, ankles and feet
- Rapid or irregular heartbeat
- Reduced ability to exercise
- Persistent cough or wheezing with white or pink blood-tinged mucus
- Swelling of the belly area (abdomen)
- Very rapid weight gain from fluid buildup
- Nausea and lack of appetite
- Difficulty concentrating or decreased alertness
- Chest pain if heart failure is caused by a heart attack

Causes:

- **Coronary artery disease and heart attack.** Coronary artery disease is the most common form of heart disease and the most common cause of heart failure. The disease results from the buildup of fatty deposits in the arteries, which reduces blood flow and can lead to heart attack. A heart attack occurs suddenly when a coronary artery becomes completely blocked. Damage to your heart muscle from a heart attack may mean that your heart can no longer pump as well as it should.
- **coronary heart disease** – where the arteries that supply blood to the heart become clogged up with fatty substances **(atherosclerosis)**, which may cause angina or a heart attack
- **High Blood Pressure** – this can put extra strain on the heart, which over time can lead to heart failure
- conditions affecting the heart muscle (cardiomyopathy)
- heart rhythm problems (**arrhythmias),** such as atrial fibrillation
- damage or other problems with the heart valves
- **congenital heart disease** – birth defects that affect the normal workings of the heart
- Sometimes obesity, **anemia,** drinking too much alcohol, an overactive thyroid or high pressure in the lungs **(pulmonary hypertension)** can also lead to heart failure.

Causes of sudden (acute) heart failure also include:

- Allergic reactions
- Any illness that affects the whole body
- Blood clots in the lungs
- Severe infections
- Use of certain medications
- Viruses that attack the heart muscle

Risk factors

A single risk factor may be enough to cause heart failure, but a combination of factors also increases your risk.

Risk factors for heart failure include:

- **Coronary artery disease.** Narrowed arteries may limit your heart's supply of oxygen-rich blood, resulting in weakened heart muscle.
- **Heart valve disease.** Having a heart valve that doesn't work properly raises the risk of heart failure.
- **High blood pressure.** Your heart works harder than it has to if your blood pressure is high.
- **Irregular heartbeats.** These abnormal rhythms, especially if they are very frequent and fast, can weaken the heart muscle and cause heart failure.
- **Congenital heart disease.** Some people who develop heart failure were born with problems that affect the structure or function of their heart.
- **Diabetes.** Having diabetes increases your risk of high blood pressure and coronary artery disease. Don't stop taking any medications on your own. Ask your doctor whether you should make changes.
- **Some diabetes medications.** The diabetes drugs rosiglitazone and pioglitazone have been found to increase the risk of heart failure in some people. Don't stop taking these medications on your own, though. If you're taking them, ask your doctor if you need to make any changes.
- **Certain other medications.** Some medications may lead to heart failure or heart problems. They include nonsteroidal anti-inflammatory drugs (NSAIDs); certain anesthesia medications; and certain medications used to treat high blood pressure, cancer, blood

conditions, irregular or abnormal heartbeats, nervous system diseases, mental health conditions, lung and urinary problems, inflammatory diseases, and infections.

- **Alcohol use.** Drinking too much alcohol can weaken the heart muscle and lead to heart failure.
- **Sleep apnea.** The inability to breathe properly while you sleep results in low blood-oxygen levels and an increased risk of irregular heartbeats. Both of these problems can weaken the heart.
- **Smoking or using tobacco.** If you smoke, quit. Using tobacco increases your risk of heart disease and heart failure.
- **Obesity.** People who have obesity have a higher risk of developing heart failure.
- **Viruses.** Certain viral infections can cause damage to the heart muscle.

Complications

Complications of heart failure depend on the severity of heart disease, your overall health and other factors such as your age. Possible complications can include:

- **Kidney damage or failure.** Heart failure can reduce the blood flow to your kidneys, which can eventually cause kidney failure if left untreated. Kidney damage from heart failure can require dialysis for treatment.
- **Heart valve problems.** The valves of the heart, which keep blood flowing in the right direction, may not work properly if your heart is enlarged or if the pressure in your heart is very high due to heart failure.
- **Heart rhythm problems.** Heart rhythm problems may lead to or increase your risk of heart failure.
- **Liver damage.** Heart failure can cause fluid buildup that puts too much pressure on the liver. This fluid backup can lead to scarring, which makes it more difficult for your liver to work properly.

Tests for heart failure

Tests you may have to diagnose heart failure include:

- Blood tests – to check whether there's anything in your blood that might indicate heart failure or another illness. The most important one is pro PNB test
- An electrocardiogram (ECG) – this records the electrical activity of your heart to check for problems.
- An echocardiogram – a type of ultrasound scan where sound waves are used to examine your heart.
- Breathing tests – you may be asked to blow into a tube to check whether a lung problem is contributing to your breathlessness; common tests include spirometry and a peak flow test.
- A chest X-ray – to check whether your heart's bigger than it should be, whether there's fluid in your lungs (a sign of heart failure), or whether a lung condition could be causing your symptoms.

Prevention

The key to preventing heart failure is to reduce your risk factors. You can control or eliminate many of the risk factors for heart disease by making healthy lifestyle changes and by taking the medications prescribed by your doctor.

Lifestyle changes you can make to help prevent heart failure include:

- Not smoking
- Controlling certain conditions, such as high blood pressure and diabetes
- Staying physically active
- Eating healthy foods
- Maintaining a healthy weight
- Reducing and managing stress

Treatment

The main treatments are:

- healthy lifestyle changes
- Medications
- devices implanted in your chest to control your heart rhythm or prevent sudden arrest
- surgery
- In many cases, a combination of treatments will be required.
- Treatment will usually need to continue for the rest of your life.

Medicines for heart failure

- Often you'll need to take at least 4 different medicines.
- Some of the main medicines for heart failure include:
- ARNI or ACE inhibitors
- beta blockers
- mineralocorticoid receptor antagonists
- SGLT-2 inhibitors
- Diuretics to relieve pulmonary or systemic congestion if present