



A Note on Heart Failure and its Diagnosis

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Description

Heart failure, often referred to as congestive heart failure, is a syndrome, a collection of symptoms brought on by a decrease in the heart's ability to pump blood. Leg swelling, extreme exhaustion and shortness of breath are frequent symptoms. People who have shortness of breath throughout the night may wake up due to it happening during physical activity or when lying down.

Heart failure does not typically result in chest pain, including angina, but it might if the heart failure was brought on by a heart attack. Exercise-induced symptoms are used to gauge the severity of heart failure. Obesity, kidney disease, liver disease, anaemia, and thyroid disease are a few other illnesses that may present with symptoms comparable to heart failure.

Coronary artery disease, heart attacks, high blood pressure, atrial fibrillation, valvular heart disease, excessive alcohol use, infections, and cardiomyopathy are among the common causes of heart failure. These affect the heart's structure, function, or occasionally both, causing heart failure.

Heart failure can come in a variety of forms, including biventricular heart failure, which affects both the left and right sides of the heart, right-sided heart failure, which affects the right heart, and left-sided heart failure. Ejection fraction can be lowered or preserved while still having left-sided heart failure. Heart failure is different from cardiac arrest, in which blood flow entirely stops because the heart is unable to pump properly.

Diagnosis

There is no established gold standard for diagnosing heart failure. The National Institute for Health and Care Excellence in the UK advises monitoring brain natriuret-

ic peptide 32 and, if results are positive, performing a cardiac ultrasound. Those who experience breathlessness are advised to do this. Both a test of BNP and of troponin is advised in patients with progressive heart failure to help predict expected outcomes.

Electrophysiology: Arrhythmias, ischemic heart disease, right and left ventricular hypertrophy, and the presence of conduction delay or anomalies can all be detected with an electrocardiogram (ECG/EKG). A normal ECG essentially precludes left ventricular systolic dysfunction even though these results are not unique to the diagnosis of heart failure.

Blood tests: Electrolytes, assessments of kidney, liver, and thyroid function, a complete blood count, and frequently C-reactive protein are among the blood tests that are frequently carried out when an infection is suspected. A unique test that identifies heart failure is an increased brain natriuretic peptide 32 (BNP) level. BNP can also be utilised to distinguish between causes of dyspnea brought on by heart failure and other types of dyspnea. Several cardiac indicators may be employed if myocardial infarction is suspected.

For the diagnosis of symptomatic heart failure and left ventricular systolic dysfunction, BNP performs better than N-terminal pro-BNP. BNP's performance decreased with age, with a sensitivity of 85% and a specificity of 84% for identifying heart failure in symptomatic individuals.

Angiography: By injecting contrast chemicals into the bloodstream using a tiny plastic tube that is inserted right into the blood artery, angiography is the X-ray imaging of blood vessels. Angiograms are X-ray pictures. The prognosis of heart failure, which may be caused by coronary artery disease, is partially based on the coronary arteries' capacity to provide blood to the myocardi-

al. As a result, coronary catheterization can be utilised to find potential candidates for revascularization via bypass surgery or percutaneous coronary intervention.

Histopathology: Heart failure can be identified by histopathology in autopsies. Although it is not specific for it, the presence of siderophages suggests persistent left-sided heart failure. Congestion in the pulmonary circulation is another sign.

Chest X-ray: X-rays of the chest are commonly used to help diagnose CHF. This may manifest as cardiomegaly in a compensated person, as measured by the cardiothoracic ratio. Vascular redistribution, Kerley lines, bronchial cuffing, and interstitial edoema may all be signs of left ventricular failure. Kerley lines may also be visible using lung ultrasound.