

Echocardiography: An Overview

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Editorial

An echocardiography is a type of heart ultrasound that is also known as an echocardiogram, cardiac echo, or just an echo. It's a type of heart medical imaging that involves the use of either standard ultrasonography or Doppler ultrasound. Echocardiography is now routinely used in the diagnosis, treatment, and follow-up of patients with any suspected or confirmed cardiac condition [1-2]. It is one of the most widely used diagnostic imaging modalities in cardiology. It can disclose a number of vital information, including the size and shape of the heart (internal chamber size quantification), pumping capability, the site and extent of any tissue damage, and the location and extent of valve and cardiac mass damage. Additional information about heart function, such as cardiac output, ejection fraction, and diastolic function, can be obtained using echocardiography (how well the heart relaxes) [3]. Echocardiography is a useful tool for detecting abnormalities in wall motion in patients with suspected heart disease. It's a technique that identifies localised heart wall motion anomalies to help diagnose myocardial infarction early. In the management and follow-up of heart failure patients, the ejection fraction is also crucial.

Cardiomyopathies such as hypertrophic cardiomyopathy, dilated cardiomyopathy, and others can be diagnosed via echocardiography. Stress echocardiography can also be performed to see if heart illness is the source of chest pain or other symptoms [4]. The most significant benefit of echocardiography is that it is non-invasive (no skin breaking or bodily cavity access is necessary) and has no known hazards or side effects. An echocardiogram can perform Doppler echocardiography, which uses pulsed- or continuous-wave Doppler ultrasound to estimate blood flow through the heart, in addition to providing ultrasound images of cardiac architecture [5]. This enables the assessment of both normal and abnormal blood flow through the heart. Color and spectral Doppler are used to assess if there is a problem.

Echocardiography was the first ultrasound specialisation to use intravenous contrast. The procedure is performed by cardiovascular sonographers, cardiac physiologists (UK), or physicians educated in echocardiography [6]. When a patient's clinical status changes and fresh data from an echocardiogram requires the physician to adapt the patient's care, health societies recommend that echocardiography be used first [7]. When a patient's clinical status has not changed or when a physician is unlikely to amend the patient's care based on the test results, health societies do not recommend routine testing. Overuse of echocardiography in response to a patient's diagnosis of moderate valvular heart disease is a common example of unnecessary testing [8]. Individuals

in this situation are frequently asymptomatic for years before worsening, and the echocardiogram results would not lead to a change in therapy if no other clinical changes occurred [9]. Echocardiography is increasingly commonly used in paediatrics to diagnose valvular heart disease and other congenital defects. Fetal echocardiography, or an echocardiogram of an unborn foetus, is a new branch of medicine.

The three main types of echocardiography are transthoracic, transesophageal, and intracardiac echocardiography. In stress testing, transthoracic echo is used in conjunction with a workout modality (e.g., a treadmill) [10]. Intravascular ultrasound is seen below, however it is more of an "ultrasound" than an "echocardiography" because it includes imaging the vessel walls rather than the heart, as the name implies.

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