**THE USING OF ECHOCARDIOGRAPHY FOR ASSESSMENT SYSTOLIC AND DIASTOLIC FUNCTION OF THE LEFT VENTRICLE**

**Justin Jeena, Pytetska N.**

**Kharkhiv National Medical University**

**Department of propedutic of internal medicine**



**Echocardiogram**, often referred to cardiac echo or simply an echo is a sonogram of the heart. (It is not abbreviated as ECG, which in medicine usually refers to an electrocardiogram.) Echocardiography uses standard two-dimensional, three-dimensional, and Doppler ultrasound to create images of the heart.

Echocardiography has become routinely used in the diagnosis, management, and follow-up of patients with any suspected or known heart diseases. It is one of the most widely used diagnostic tests in cardiology. It can provide a wealth of helpful information, including the size and shape of the heart (internal chamber size quantification), pumping capacity, and the location and extent of any tissue damage. An Echocardiogram can also give physicians other estimates of heart function such as a calculation of the cardiac output, ejection fraction, and diastolic function (how well the heart relaxes).

Echocardiography can help detect cardiomyopathies , such as hypertrophic cardiomyopathy, dilated cardiomyopathy , and many others. The use of Stress Echocardiography may also help determine whether any chest pain or associated symptoms are related to heart disease. The biggest advantage to echocardiography is that it is noninvasive (doesn't involve breaking the skin or entering body cavities) and has no known risks or side effects.

**Diastolic function.** The assesment of left ventricular function should be an integral part of a routine examination, particularly in patients presenting with dyspenea or heart failure. About half of patients with new diagnosis of heart failure have normal or near normal global ejection fractions. These patients are diagnosed with “diagnostic heart failure” or “heart failure with preserved EF”. The assesment of LV diastolic function and filling pressure of paramount clinical importance to distinguish this syndrome from other diseases such as pulmonary disease resulting in dyspnea, to assess prognosis, and to identify underlying cardiac disease and its best treatment.

 Asyptamatic diastolic dysfunction in the general population is common, even in patients without conjustive heart failure, and the previlence of moderate to severe diastolic dysfunctions in asyptamatic patients increase in patients > 65 year old with assosiated hypertension and coronary heart disease. Evaluation of diastolic function consist of assesing myocardial relaxation, filling pressures and left ventricular compliance. Although diastolic dysfunction can be diagnosed invasively by cardiac catherisation. Cardiac structures are usually normal in patients with DHF, two dimensional echocardiography is useful in motion of identyfying changes, although subtle, assosiated with cardiac disease that result primarily in diastolic dysfunction. These changes include reduced motion of the mitral inflow pattern, pulmonary and hepatic vien Doppler velocities, tissue Doppler imaging of the mitral annulus, and color flow imaging of mitral inflow.

**Systolic function.** The electrocardiographic assessment of LV systolic functions playsa pivotal role in the diagnosis, risk startification and theraeutic guidance of proven medical and interventional therapy in patients with suspected or known cardiac disease. For example, an accurate assessment of LV function is now recommended as a part of the management of acute coronary syndrome , it is mandatory before the initiation of proven medical therapy in Heart Failure and in the selection of those patients for complex pacing devices. Furtgher more is also vital in monitoring LV function in response to cardio toxic medication.

 The development of microbubble contrast and 3D echocardiography has resulted in the more precise and reproducable assessment of LV function and even newer techniques such as strain rate, velocity vector and speckale tracking imaging are providing more sensitive and detailed and detailed information or ventricular performance.