Assessment of Ventricular Diastolic Function in Myocardial & Pericardial Diseases

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Assessment of left ventricular (LV) diastolic function is an integral part of the routine evaluation of patients presenting with symptoms of dyspnea or heart failure. LV diastolic dysfunction is usually the result of impaired LV relaxation, reduced restoring forces, increased LV chamber stiffness and increased LV filling pressure. Relative signs of such diastolic dysfunction should be searched in echocardiographic study. Recommended key variables for identifying diastolic dysfunction are annular e' velocity: septal e' <7 cm/sec, lateral e' <10 cm/sec, average E/e' ratio >14, LA volume index >34 mL/m^2, and peak TR velocity >2.8 m/sec. LV diastolic dysfunction can be diagnosed if more than half of the available parameters meet the cutoff values. However, such guideline for diastolic dysfunction are often challenging and limited in patients with myocardial and pericardial diseases. Variable combinations of altered relaxation and compliance result in significant variations of mitral inflow patterns. Diuretic therapy to relieve dyspnea results in normalization of LA pressure and further difficulties in interpretation. Despite complexities, grade III diastolic dysfunction, that is, restrictive filling pattern, is associated with a poor outcome in patients with various hypertrophic and restrictive cardiomyopathies and pericardial diseases. Recently developed noble techniques including speckle tracking echocardiographic indices are promising and is expected to address uncertainty about diastolic dysfunction.