

## Doppler echocardiography and hemodynamics

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Hemodynamics is an important part of cardiovascular physiology dealing with the forces the heart has to develop to circulate blood through the cardiovascular system. A significant majority of cardiovascular disorders and diseases is related to systemic hemodynamics. In order to properly understand and assess developments in the heart, healthy or sick, we need to understand hemodynamic events. Echocardiography helps us a lot in that assessment, particularly Doppler methods, as well as newer strain imaging methods. <sup>1-2</sup>

Echocardiography has an important role in evaluation of morphology of the heart's structure, valve function and systolic and diastolic cardiac function. There is standard 2 D (two dimensional) echocardiography which help us in evaluation of structure (dimension of heart's chamber, thickness of the myocard and pericard, morphology of the valves) and partially in function of the heart (especially systolic function). Without using Doppler methods and tissue Doppler it is impossible to get a glimpse of diastolic left ventricular function, because that is known the mitral inflow pattern represents the cornerstone in the assessment of diastolic function.

Without using Doppler echocardiography we could not assess valvular defects, and additional use of tissue Doppler allows us to shed light on events in complex situations where there is valvular disease associated with heart failure or pericardial diseases (such as differentiation restrictive cardiomyopathy from constrictive pericarditis), as well as differentiation hypertrophic cardiomyopathy of left ventricular hypertrophy. Moreover, the use of tissue Doppler and strain imaging methods helps us in quantification of regional and global left ventricular function in ischemic diseases and other cardiomyopathies. In addition, tissue Doppler and strain imaging methods today are unavoidable in the assessment of cardiac dyssynchrony and the results of cardiac resynchronization therapy.

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### LITERATURE

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