

Stimuli

Ischemia, LV strain, Age, Arrhythmia, Systolic LV dysfunction, CPB (Cardio-Pulmonary Bypass) or ↓ activity of SERCA



Impaired diastolic filling



Increased end diastolic pressure of LV



Upwards and to the left shift of LV pressure/volume relationship



Diagnosis



Symptoms of Heart failure with elevated end-diastolic pressure: 24 ± 8 mmHg, normal EF, normal chamber size & LVH

non-invasive (Doppler, MR-myocardial tagging, radionuclide ventriculography) and invasive (micromanometry, angiography).



Prolonged relaxation pattern $E/A=1$

time constant of LV relaxation is longer $> 50-55$ msec

Pseudonormal pattern

LV passive –stiffness constant is high > 0.025

Restrictive pattern

$E/A = 2$ and $DT=150$ ms

E-wave deceleration 350 ± 140 ms