and MVP was analyzed off-line. Results: 1) Wall motion score index (WMSI) assessed by 2DE decreased significantly in 9 of 12 patients (75%) reflecting improvement of regional wall motion abnormality. 2) In 4.97 cm/s, p < 0.001) and transmyocardial velocity gradient (0.06 vs 3.26 s^-1, p < 0.06) obtained by MVP at the region suspected to be viable increased significantly.

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Background: Recent studies have established that left bundle branch block (LBBB) is a strong predictor for mortality in patients with heart failure (HF). Aim of the study was to assess if different electro-mechanical pattern due to LBBB, established by Tissue Doppler Imaging, had an influence on mortality in patients with HF. Methods: We studied 21 patients with LBBB and dilated cardiomyopathy with 2D echocardiography and Tissue Doppler Imaging (TDI). We analyzed quantitatively color coo-sea-mo of interventricular septum (IVS) and the following electro-mechanical patterns were identified: mildly unsynchronized (IIA), severely unsynchronized (IIIB), reversed late in systole (IIIA) reversed throughout all the systole (IVA). All patients were divided into three groups, according to left ventricular function (LVEF): Group I: <30%; Group II: 30-40%; Group III: >40%. We considered also age, NYHA functional class, QRS narrowing and mitral regulation for multivariate analysis. Results: The highest mortality rate (100%) was observed in patients with AIBA electrical-mechanical pattern and LVEF <30% while in patients with IIA B A (75%) assessed by PDE decreased significantly in 9 of 12 patients (75%) reflecting improvement of regional wall motion abnormality. In contrast, 11 of 12 patients (92%) the peak systolic myocardial velocity (1.17 vs 4.97 cm/s, p < 0.001) and transmyocardial velocity gradient (0.06 vs 3.26 s^-1, p < 0.001) obtained by MVP at the region suspected to be viable increased significantly.

Conclusion: Accurate and quantitative Doppler assessment of myocardial strain can be achieved with TDI. The reproducibility of the AACT method for LVEF measurement was assessed by two blinded observers and compared to that of manual tracing methods. Results: In 25% of the patients (10% with and 15% without regional wall motion abnormalities) no satisfactory images of the heart were obtained.

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Background: The left ventricular (LV) systolic function in the long-axis direction has been evaluated by pulsed tissue Doppler mitral annular motion velocity. However, it could not avoid the effect of cardiac translation. A prototype software (ApioQ, Toshiba Corp.) was recently developed to obtain tissue strain imaging (TSI). In this program, the velocity values from the same region of moving myocardium were automatically defined and interrogated over time to yield displacement by 2D tissue Doppler tracking technique. TSI was finally obtained as a spatial derivative of the tissue displacement. Purposes: To evaluate longitudinal LV myocardial strain rates in hypertrophic heart using TSI. Methods: Subjects consisted of 20 normal (N), 20 hypertrophic (HHD) and 12 asymmetric septal hypertrophy (ASH). Color tissue Doppler image was recorded from apical four chamber view and the TSI at the base of ventricular septum was analyzed off-line. Results: Peak systolic displacement (Dp) and peak systolic strain rate (SRp) decreased and time to Dp prolonged in hypertrophied heart (table). Conclusions: Longitudinal myocardial fiber contraction was depressed in hypertrophied ventricular septum especially in asymmetric hypertrophy. 1/s with Doppler imaging (Dp) and tissue Doppler imaging (TSI) were computed for estimating myocardial strain rate in hypertrophied heart.

Design: 65 patients with LV hypertrophy (LVM) were prospectively enrolled in the study (mean age: 52±14 years, 48 male, 17 female). Results: The mean difference between AACT and QGS was 0.4±5.5% (meanSD). The mean time required for analyzing one set of image by the AACT method was much shorter than that by manual tracing method (7±1 vs. 37±4 sec, p<0.0001). The observer variabilities for LVEF assessment were also significantly reduced in the AACT method compared to manual tracing method (intrarater variability: 0.9±0.8 vs. 3.2±1.0 %, interobserver variability 5.0±5.6 vs. 13.7±6.4 %, p<0.05). Conclusion: The biplane AACT method provides accurate and quick measurement of LVEF in patients with LHD.

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Background: Myocardial acceleration during isovolumic contraction (ICT) has been reported as an index of contractility. Methods: We studied 8 sheep using tissue Doppler imaging (VingMed Vivid Five) in apical 4-chamber views to evaluate 6 left ventricular wall segments and 2 mitral annulus sites. We analyzed peak myocardial acceleration during isovolumic contraction and relaxation by tissue Doppler imaging, Dobutamine and Metoprolol conditions during ICT in all segments (p<0.05) but pV/A during ICT showed the strongest correlation with peak positive dP/dt (r=0.96, p<0.0001), and negative dP/dt (r=0.80, P<0.0001). There were significant differences in pV/A between dobutamine and metoprolol conditions during ICT in all segments (p<0.05), but pV/A was less sensitive to blood loading. pV/A during ICT showed little difference between the 4 different hemodynamic conditions. Conclusions: pV/A during ICT is a sensitive, preload independent marker for evaluation of dP/dt; the pV/A of basal lateral wall during ICT showed the strongest correlation with peak positive dP/dt; pV/A of septal mitral valve annulus during ICT showed a good correlation with peak negative dP/dt.