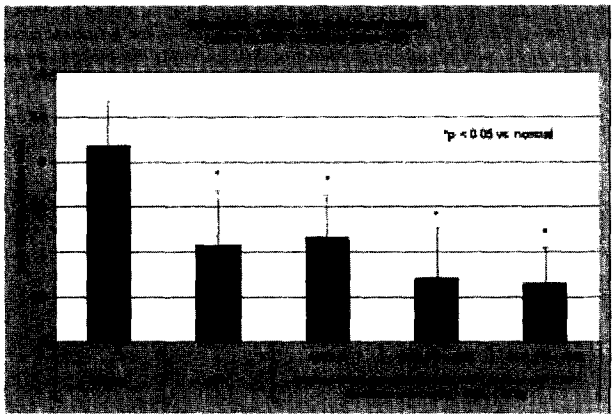
which worsens in the presence of CHF, is as great as in CMY. Our study suggests systolic dysfunction may play a greater role in cardiac amyloid than previously thought.



1044-40 Strain Rate Imaging in Idiopathic Cardiomyopathy: More Sensitive Than Tissue Doppler and Potential Application as a Contractility Index

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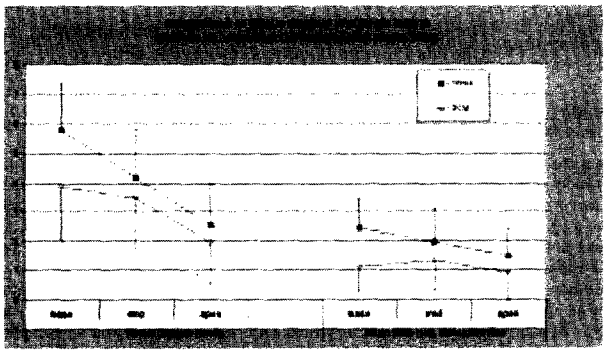
Background: The elimination of the "tethering' effect has made strain rate imaging (SRI) a powerful tool beyond tissue Doppler (TVI) for assessing segmental LV dysfunction such as coronary disease. However, if SRI is constant throughout a homogeneous LV, then patients with idiopathic cardiomyopathy (CMY) may benefit as well from SRI by having a novel index of global myocardial contractility.
Methods: 10 patients with CMY (negative cardiac catheterization, LVEF < 30%) and 5 normal subjects were recruited. Peak systolic strain rate and tissue Doppler were measured at the base, mid, and apex of all walls in the apical 4 and 2 chamber views (septum, lateral, anterior, inferior).
Results: A highly statistically significant difference between CMY and normal subjects was found particularly at the base for both TVI and SRI ($p < 0.001$); however, only SRI was able to distinguish the two groups at the mid ventricular and apical regions with significance (graph). In normal patients, there appears to be a gradient from base to apex in both TVI and SRI. However, in CMY this gradient is seen in TVI, but no statistical difference persists from base/mid/apex in SRI ($p > 0.05$).
Conclusion : SRI appears more sensitive than tissue Doppler in detection of global LV dysfunction in patients with CMY independent of sampling site. In contrast to normals, the loss of the gradient of strain rates from base to apex in CMY suggests that SRI may provide a useful index of global contractility in this patient population.



1044-41 Right Ventricular Function in Idiopathic Right Ventricular Tachycardia Evaluated by Doppler Myocardial Imaging: Comparison With Magnetic Resonance Imaging

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Right ventricular (RV) function evaluation remains a diagnostic challenge. Doppler myocardial imaging (DMI) is a new modality with the potential to evaluate RV systolic and diastolic function. The aim of this study was to assess whether pulsed DMI of the tricuspid annulus and the basal RV wall could detect RV systolic dysfunction, not observed by conventional echo, in patients (pts) with idiopathic RV tachycardia (IRVT), using magnetic resonance (MR) as gold standard.
Methods: We studied 38 consecutive pts with IRVT, aged 33.2 ± 11.6 years, 19 men, diagnosed by electrophysiologic test, after exclusion of associated heart disease by clinical, conventional echo and catheterization study. All were in sinus rhythm and submitted to: a) DMI study (ATL 5000HDI), performed at the tricuspid annulus (TAn) and at the basal segment of RV wall (RVw) in the apical 4- chamber view; systolic indexes analysed at both positions: peak systolic velocity (Sm); interval from the QRS peak to peak systolic velocity (Q-Sm); isovolumetric contraction time (IVCT); b) MR study (GE, 1.5T), to assess RV volumes and ejection fraction (EF) by Simpson's method, using high resolution cine-MR.
Results: In all patients, a good quality spectral DMI curve was obtained. 1. DMI study: There was no significant difference between Sm at TAn and at RVw (11.7 ± 1.1 vs 12.1 ± 1.2 cm/s) as well as between Q-Sw at TAn and at RVw (189 ± 44 vs 191 ± 47 ms). 2. MR study: RV diastolic volumes were normal in all pts; RV EF was ≥ 50 % in 27 pts and < 50% in 11, mean value of 53.0 ± 7.1 % (44 - 73%) 3. DMI vs MR: good correlation was found between Sm value at TAn and RV EF ($r=0.794$, $p<0.001$) and between Sm at RVw and RV EF ($r=0.782$, $p<0.001$); there was a tendency to negative correlation between Q-Sm at TAn and RV EF ($r=-0.39$, $p=0.051$) and between Q-Sm at RVw and RV EF ($r=-0.38$, $p=0.052$); no correlation was found between EF and IVCT. Pts with EF < 50% had a lower value of Sm acquired at TAn (6.5 ± 1.9 vs 9.2 ± 1.7 cm/s, $p<0.001$) and at RVw (6.2. ± 1.1 vs 8.9 ± 1.4 cm/s, $P<0.001$).
In conclusion, in pts with IRVT, mild degrees of RV dysfunction may occur, as detected by MR. DMI was a sensitive method in the detection of RV dysfunction and is a potentially useful method for screening and long-term monitorization of these pts.

1044-42 Different Diastolic Regional Myocardial Motion of Pacing-Induced Left Bundle Branch Block Versus Idiopathic Left Bundle Branch Block With or Without Left Ventricular Dysfunction

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Systolic asynchrony is one of the mechanisms of LV dysfunction in idiopathic left bundle branch block(LBBB), and QRS duration is currently being used as a selection criterion for resynchronization therapy. To further characterize the regional asynchrony in LBBB, Doppler myocardial imaging (DMI) at apical 4 chamber view was recorded in normal controls (n=9), pacing-induced LBBB (group 1, n=15), idiopathic LBBB with normal ejection fraction (group 2, n=5), and idiopathic LBBB with systolic dysfunction (group 3, n=17). Time interval from onset of QRS to peak systolic velocity and to the peak of early diastolic relaxation were measured at both septal and lateral walls, and their differences were calculated($Diff_{sys}$ and $Diff_{dia}$, respectively). The 3 groups showed significantly longer QRS duration and larger $Diff_{sys}$ compared to the controls($p<.001$). Despite the similar QRS duration and $Diff_{sys}$, only group 3 (LBBB with LV dysfunction) showed markedly prolonged $Diff_{dia}$($p<.001$). In patients with wide QRS (group 1-3), $Diff_{dia}$ was the only variable showing significant correlation with EF ($r=-0.53$, $p<.001$). Idiopathic LBBB with LV dysfunction is characterized by not only systolic but also diastolic asynchrony and DMI provides valuable information regarding diastolic regional myocardial motion, which is useful for differential diagnosis of LV dysfunction in patients with wide QRS in ECG. The role of diastolic asynchrony to the development of advanced heart failure needs to be clarified.

	Number	EF (%)	QRS duration (msec)	$Diff_{sys}$ (msec)	$Diff_{dia}$ (msec)
Control	9	62±5	80±9	14±29	24±28
Group 1	15	64±5	162±23	80±42	24±21
Group 2	5	57±5	144±13	41±29	26±12
Group 3	17	28±5	157±23	61±34	73±40

1044-43 New Regional Systolic and Diastolic Myocardial Performance Indices From Tissue Doppler Echocardiography

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Systolic and diastolic dysfunction is usually assessed by global indices including ejection fraction, deceleration time, pulmonary vein, Tei index, and others. However, systolic and diastolic dysfunction may occur on a regional basis, especially in coronary artery disease (CAD) and regional performance can be assessed by Tissue Doppler Echocardiography (TDE). **Methods:** Apical 4- and 2-chamber views of LV were obtained in 102 normal subjects (43±15 years, 54 male) and 30 pts with ischemic cardiomyopathy. Isovolumic contraction time (IVCT), ejection time (ET), isovolumic relaxation time (IVRT) and diastolic filling time (DFT) were measured from myocardial tissue Doppler velocity curves, of basal and apical wall segments, averaged over 3 cardiac cycles. From these DTE data, we derived a systolic myocardial performance index (SMPI) from IVCT/ET, and a diastolic myocardial performance index (DMPI) from IVRT/DFT. **Results:** The value of LV basal SMPI and DMPI are lower than that of the apex, and increase with the age. The value of LV basal and apical SMPI and DMPI of patients with CAD are significantly higher than the age matched control group ($p<0.0001$).

Age(Years)	LV baseSMPI	LVapexSMPI	LV baseDMPI	LVapexDMPI
18-29 (19)	0.20±0.04	0.22±0.05	0.14±0.06	0.20±0.06
30-39 (22)	0.20±0.04	0.24±0.05	0.15±0.05	0.21±0.06
40-49 (25)	0.22±0.03	0.24±0.07	0.17±0.07	0.24±0.07
50-59 (14)	0.23±0.04*	0.25±0.07*	0.18±0.05*	0.27±0.06*
60-69 (12)	0.22±0.05*	0.27±0.07**	0.18±0.05*	0.28±0.09**
>70 (10)	0.21±0.04*	0.27±0.04**	0.23±0.07**	0.34±0.07**
CAD pts (30)	0.72±0.28***	0.83±0.34***	0.53±0.23***	0.57±0.22***

*Compared with age < 30 years group $p<0.05$, **$p<0.001$.***Pts compared with age