increase in the time delay (1.3 ± 0.5 vs. 1.0 ± 0.1, P = 0.038) of CV-IB were observed in patients with cardiac sarcoidosis. In examining the sensitivity of this test for detecting of cardiac involvement in patients with sarcoidosis, the magnitude of CV-IB in the basal septum was able to discriminate 75% of patients with cardiac involvement from patients without cardiac involvement, whereas 2DE parameters were not able to discriminate between these two groups. **Conclusion:** Decrease in CV-IB in the basal septum exists in patients with cardiac sarcoidosis even in the absence of 2DE abnormalities. Analysis of CV-IB may be a useful method to detect early myocardial involvement in patients with sarcoidosis.

1037-146   Velocity Data of Doppler Myocardial Imaging as a Predictor of Functional Recovery After Successful Revascularization

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Background: Doppler myocardial imaging (DMI) is useful to investigate regional myocardial function. However, it was not tested whether velocity data of DMI could predict functional recovery after revascularization. **Methods**: Fifty-two patients (41 males, 60±9 yrs) with regional wall motion abnormality (RWMA) at left anterior descending artery (LAD) territory underwent rest DMI before revascularization and a repeat resting echocardiography ≥3 months later. Peak systolic velocity (Vpeak) and PST velocity (Vpst) were measured in anterior septum, apical inferior, and anterior wall. **Results**: Among 156 ischemic segments, velocity analysis was feasible in 148 segments (95%). Follow-up echocardiography at 3.5±1.4 months revealed improved RWMA in 89 segments (Group A) and no changes in 59 (Group B). Group A showed significantly higher Vpeak and Vpst than Group B (2.19±1.64 vs. 1.23±0.96 cm/s; 1.57±1.50 vs 1.01±0.76 cm/s. respectively). ROC curve of Vpeak showed the best cut-off value to predict myocardial functional recovery in 2.0 cm/s with sensitivity 48% and specificity 86%. Considering the negative correlation between the two (r= -0.345, p=0.002), Vpst 2.0 cm/s was useful in patients with Vpeak < 2.0 cm/s. The algorithm using both Vpeak and Vpst could predict myocardial functional recovery with sensitivity 85% and specificity 75%. **Conclusion:** Velocity data of DMI at rest in ischemic myocardial segments are useful to predict functional recovery after successful revascularization.
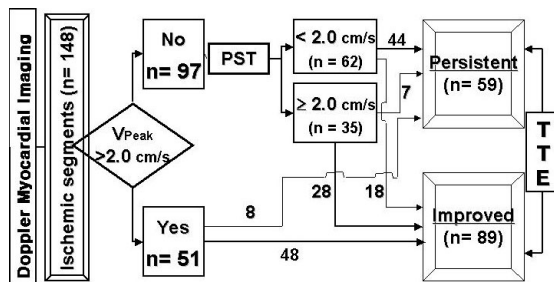
1037-147   Validation Study of Strain Rate in Comparison to Tissue Velocity for Determining Endocardial, Epicardial and Global Left Ventricular Function: An In Vitro Study in Isolated Porcine Left Ventricles

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Background: This study aimed to validate the accuracy of tissue velocity and strain rate (SR) methods for determining endocardial and epicardial layer function in the left ventricle (LV) and to determine if regional myocardial deformation can be used to predict global LV function.
Methods: Three extracted hearts from pigs 26-32 kg were used. The LV was dissected out and a latex balloon was inserted into the LV via the aorta. The balloon was attached to a closed circuit pump for deflation (systolic) and inflation (diastolic) movement. Two pairs of calibrated sonomicrometers were placed radially and longitudinally in the scanned field. A GE/VingMed System FiVe with a 5 MHz probe was used to obtain 2D, SR, and tissue velocity images. Data for stroke volumes 20-35 cc and heart rates of 30-70 bpm were recorded.
Results: Peak SR showed a better correlation with peak dP/dt than peak tissue velocity. There was a significant difference of SR between inner and outer layer in radial (inner: 0.48 ± 0.22 s⁻¹; outer: 0.40 ± 0.23 s⁻¹, p < 0.001), but not in tangential directions. Doppler derived SR correlated well with the sonomicrometer derived SR for both radial and tangential directions (radial r = 0.91, tangential y = 0.99x).
Conclusion: SR correlated better with dP/dt than tissue velocity for assessing global LV function. Also, SR was more sensitive to the difference between endocardial and epicardial layers in the radial view while tissue velocity was more sensitive to the difference between layers in the tangential view.
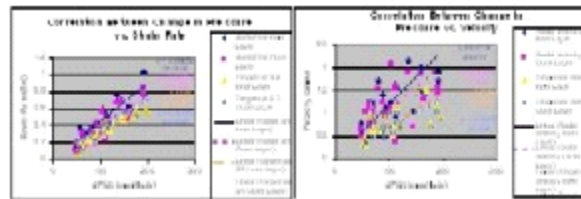
1037-148   Noninvasive Diagnosis of Acute Coronary Syndrome Among Patients With Chest Pain by Echocardiographic Detection of Postischemic Regional Left Ventricular Delayed Relaxation Using Color Kinesis

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Background: Differential diagnosis of acute coronary syndrome (ACS) from chest pain syndrome without coronary artery disease (CPS) is important for the management of ACS. Regional left ventricular (LV) diastolic dysfunction may persist without systolic dysfunction after an episode of transient severe myocardial ischemia in ACS. Color Kinesis (CK) is an echocardiographic technology that facilitates the evaluation of regional LV wall motion. Methods: Consecutive 57 patients (46 men, 11 women; mean age: 60±14 (mean±SD) years) with suspected ACS who had recent chest pain but no definitive ECG changes, apparent LV systolic dysfunction or other ischemic signs, were studied. The CK study was performed prior to coronary arteriography. The CK-diastolic index (CK-DI) determined as the calculated LV segmental filling fraction in the short-axis view during the first 30% of the diastolic filling time, was used to identify regional delayed diastolic LV endocardial outward motion. In the 40 normal subjects the CK-DIs were 75±12, 78±14, 73±10 % in the territories of the left anterior descending branch (LAD), the left circumflex branch (LCX) and the right coronary artery (RCA), respectively. Results: After coronary arteriography, 33 patients were diagnosed as having unstable angina (UAP) (Braunwald IB: 5, IIB: 9 and IIIB: 19) and the other 24 as having CPS. Regional LV delayed relaxation (CK-DI<50%) had been detected using CK in the perfusion territories of the coronary arteries with culprit lesions in 31 (94%) of UAP, whereas it had been noted in 3 (12%) of CPS (sensitivity 94% and specificity 88%). In UAP the CK-DIs were 37±13 (n=25), 46±9 (n=9), 32±9 (n=6) % in the culprit lesions of LAD, LCX and RCA, respectively, and 68±8% (n=59) in the segments corresponding to the nonculprit lesions. The diastolic asynchrony disappeared in UAP 2 weeks after successful revascularization in 30 of 33 (91%), suggesting diastolic stunning. Conclusion: Postischemic regional LV delayed relaxation or diastolic asynchrony was frequently detected using CK in UAP. Analysis of CK images allows noninvasive identification of the coronary artery with the culprit lesion by the detection of diastolic asynchrony, differentiating UAP from CPS.

POSTER SESSION

1038   Computed Tomography: Morphology, Function, and Perfusion

Sunday, March 07, 2004, Noon-2:00 p.m.
Morial Convention Center, Hall G
Presentation Hour: 1:00 p.m.-2:00 p.m.

1038-149   Diffuse Pulmonary Pathology of Rapidly Progressive Pulmonary Vein Stenosis by Computed Tomography

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Background: Intrinsic stenosis of the pulmonary veins (PVS) is a rapidly progressive disease associated with intraluminal proliferation of myofibroblasts in pulmonary veins and possibly within the wall of the left atrium. PVS can occur as a complicating feature of complex congenital heart disease (CHD) or in isolation. Recent experience suggests that there is associated intrinsic pulmonary pathology. We sought to explore the use of CT to characterize this disorder.
Methods: We retrospectively reviewed 9 CT exams in 5 patients with PVS (age 3-24 months, 3 with CHD) enrolled or considered for an experimental chemotherapy protocol. PV pathology, left atrial wall thickness and parenchymal lung findings were described and correlated with findings at cardiac catheterization (9) and biopsy (8). Each pulmonary vein was categorized as normal, stenotic with wall thickening, or totally occluded.
Results: Of 45 veins, 10 were scored as normal, 20 stenotic with wall thickening and 15 totally occluded and there was good correlation with angiography (10, 18, and 17 veins respectively). Left atrial wall thickening, detected in all 5 patients, measured 3.6-4.4 mm and fibroelastosis and myofibroblastic proliferation were present at path. Of 35 veins that were stenotic or occluded, diffuse ground glass opacity and interlobular septal thickening was detected in 27 and 26 corresponding lobes of lung. Exudates, septal fibrous thickening and lymphatic engorgement were present at path. Small subpleural blebs on CT in 2 patients correlated with interstitial emphysema at path. All patients had diffuse mediastinal induration, pleural thickening and abnormally arborizing peripheral vessels, which correlated with angiomatoid collateral vessel proliferation. Perihilar areas of marked inter-