to accuracy of Dobutamine Stress Echocardiography (81% vs 83%).
Conclusion: Real time perfusion provide perfusion information during stress echocardiography comparable to obtained with triggered imaging, even better for apical segments.

	ANTERIOR	SEPTAL	APICAL	LATERAL	INFERIOR	ACCURACY
RTMP-PM	104 + 8	88 + 11	85 + 12	73 + 14	91 + 8	83%
UHTI	92 + 21	79 + 17	66 + 10	61 + 12	89 + 13	81%
p	NS	NS	*0.01	0.07	NS	NS

POSTER SESSION

1116MP Moderated Poster Session...Contrast Echocardiography Prognosis for Improvement in Ventricular Performance Following Infarction of Intervention II

Monday, March 31, 2003, Noon-1:00 p.m.
McCormick Place, Hall A

Noon

1116MP-203 Intact Microvascular Integrity Predicts Improvement in Left Ventricular Function After Revascularization in Patients With Chronic Coronary Disease

Khim-Leng Tong, Todd Belcik, Saul Kalvaitis, Sanjiv Kaul, Kevin S. Wei, University of Virginia, Charlottesville, VA

Background: Identifying viability (V) in patients with left ventricular (LV) dysfunction and coronary artery disease (CAD) is important, as revascularization may improve LV function and outcomes. We hypothesized that the presence of microvascular integrity identifies patients with chronic LV dysfunction who will benefit from revascularization (R).
Methods: 90 patients with LV ejection fraction (EF) < 40% were enrolled. 2D echo was performed at baseline, 3, 6, and 12 months. End-diastolic (EDV) and -systolic volumes (ESV) and LVEF were measured. Microvascular integrity was assessed from regional perfusion during continuous infusions of Definity and intermittent ultraharmonic imaging from apical 4-,2- and 3-chamber views, and scored in each of 16 myocardial segments as 1 = no enhancement, to 3 = full enhancement. A perfusion score index (PSI) was derived from (Total perfusion score/number of segments visualized). Patients with PSI > median were defined as viable, and the others as nonviable.
Results: Patients were classified into 4 groups based on whether they had V or R: A (n=12, V+, R+), B (n=33, V+, R-), C (n=14, V-, R+), and A (V-, R-). After a mean follow-up of 6.6±3.7 months, LVEDV and LVESV decreased, and LVEF increased significantly in Group A (Table). All other patients had no significant improvement in those variables (Table).
Conclusion: The presence of microvascular integrity in patients with chronic CAD and LV dysfunction predicts improvements in LV function and volumes after revascularisation.

Variable	BL-LVEDV	FU-LVEDV	p-value	BL-LVESV	FU-LVESV	p-value	%Change LVEF
Gp. A	160±56	154±58	0.03	107±44	94±55	0.10	30±30
Gp. B	157±45	173±43	0.01	107±44	120±40	0.01	-11±20
Gp. C	207±40	194±67	0.33	132±45	135±57	0.73	10±26
Gp. D	202±52	214±45	0.04	153±41	166±45	0.04	-2.5±30
p-value	0.002	0.02		<0.001	0.001		0.006

12:12 p.m.

1116MP-204 Prediction of the Extent of Myocardial Necrosis and Contractile Reserve After Reperfusion Therapy Following Acute Myocardial Infarction: Comparison Between Myocardial Contrast Echocardiography and Contrast Enhanced Cardiovascular Magnetic Resonance

Rajesh Janardhanan, James CC Moon, Dudley J. Pennell, Roxy Senior, Northwick Park Hospital, Harrow, United Kingdom, Royal Brompton Hospital, London, United Kingdom

Background: Both myocardial contrast echocardiography (MCE) and contrast enhanced cardiovascular magnetic resonance (CMR) can identify myocardial necrosis following acute myocardial infarction (AMI). We sought to compare the relative accuracy of these techniques in the assessment of the extent of myocardial necrosis post AMI and its impact on contractile reserve.
Methods: Twenty-five patients with AMI underwent low power continuous MCE using IV Optison® and gadolinium-DTPA enhanced CMR 7-10 days after reperfusion therapy with thrombolysis. Segments that demonstrated little or no contrast opacification on MCE or more than 50% delayed hyperenhancement on CMR were deemed necrotic. Contractile reserve was evaluated 12 weeks later by an assessment of either resting systolic function or low dose dobutamine stress(for segments with persistent dyssynergy.)
Results: Agreement between MCE and CMR for the identification of viable versus necrotic myocardium was 80% (kappa = 0.61). The correlation between the two techniques for the detection of the number of necrotic segments was excellent (r = 0.84; p < 0.0001). The correlation coefficient between MCE and contractile reserve was 0.80 (p < 0.0001) and that between CMR and contractile reserve was 0.69 (p = 0.0003).
Conclusion: There was good correlation between MCE and CMR for the assessment of the extent of myocardial necrosis after AMI. Both techniques reliably predicted contractile reserve.

12:24 p.m.

1116MP-205 Myocardial Contrast Echocardiography Using Low Power Continuous Imaging Early After Acute Myocardial Infarction Accurately Predicts Late Functional Recovery

Rajesh Janardhanan Jonathan Swinburn, Kim Greaves, Roxy Senior, Northwick Park Hospital, Harrow, United Kingdom

Background: Microvascular perfusion is a pre-requisite for ensuring viability early after acute myocardial infarction (AMI). For adequate assessment of myocardial perfusion, both myocardial blood volume and velocity need to be evaluated. Low power continuous myocardial contrast echocardiography (MCE) can rapidly assess myocardial blood volume and velocity.
Methods: Fifty patients underwent low power continuous MCE using IV Optison® 7-10 days after AMI. Myocardial perfusion (contrast opacification assessed at 15 cardiac cycles after destructive images) and wall thickening were assessed at baseline. Regional and global left ventricular (LV) function was re-assessed 12 weeks after AMI.
Results: Out of the 297 dysfunctional segments, MCE detected no contrast enhancement at 15 cardiac cycles in 172 segments. Of these 160 (93%) segments failed to show improvement. MCE demonstrated homogeneous contrast opacification in 77 segments, of which 65 (84%) showed recovery of function. Furthermore, the greater the extent and intensity of contrast opacification at baseline, the better the LV function at 12 weeks (p<0.001, r = -0.91) Almost all patients with < 40% perfused, but dysfunctional myocardium failed to demonstrate functional recovery. Amongst clinical, biochemical, ECG and MCE parameters in the multiple regression analysis, only MCE (p < 0.001) and peak CK (p < 0.001) proved to be independent predictors of functional recovery.
Conclusion: Low power continuous MCE is an accurate and rapid bedside technique to identify microvascular perfusion post AMI. This technique may be utilized to reliably predict late recovery of function in dysfunctional myocardium after AMI.

12:36 p.m.

1116MP-206 Triggered Harmonic Power Doppler Imaging Predicts Functional Recovery After Revascularization in Patients With Left Ventricular Dysfunction

Constadina Aggeli, Maria Bonou, George Roussakis, Costas Chatzos, Eleutherios Tsiamis, Stela Brili, Manolis Vavouranakis, Christos Pitsavos, Christodoulos Stefanadis, Pavlos Toutouzas, Hippokration Hospital of Athens, Athens, Greece

Background: Unlike acute coronary syndromes the predictive value of rest Harmonic Power Doppler Imaging (HPDI) for post-revascularization outcome is still unclear. The aim of this study was to estimate the accuracy of HPDI in predicting reversibility of myocardial dysfunction after revascularization.
Methods: Thirty six patients (mean age 65±6 years) with ischemic left ventricular dysfunction underwent dobutamine stress echocardiography (DSE) and rest HPDI using intermittent imaging during Levovist infusion before bypass surgery and follow up rest echocardiography a mean of 3 months later. Triggering intervals of 1:4 (early) and 1:8 (delayed) cardiac cycles were used. Contrast score index (CSI) was used for perfusion analysis (0=absence, 0.5=partial, 1=normal perfusion).
Results: There were no major post-operative complications during follow up. Of 412 revascularized dysfunctional segments, 188 (46%) improved at follow up. DSE and any increase of HRDI signal provided similar predictive accuracy (79% and 74%) in evaluating viable myocardium and comparable sensitivity (87% and 88%), positive (73% and 66%) and negative (79% and 74%) predictive value whereas DSE exhibited higher specificity (72%) than HPDI (61%, p<0.05). Delayed perfusion appeared higher sensitivity (63%), positive (58%) and negative (66%) predictive value than early perfusion (25%, p<0.001, 35%, p<0.001 and 49%, p<0.001, respectively) in predicting functional recovery. The presence of contrast enhancement within the revascularized area resulted in a significant improvement in CSI, mean wall motion score index (WMSI) and ejection fraction (%) compared with residual contrast defect (CSI: 0.8±0.2 vs. 0.5±0.2, p<0.01, WMSI: 1.9±0.3 vs. 2.3±0.2, p<0.01, ejection fraction 36±6 vs. 29±5, p<0.05). Significant correlation was observed between CSI and follow up WMSI (r = -0.67) and between CSI and follow up ejection fraction change (r = 0.65).
Conclusion: Triggered HPDI has high sensitivity in detecting hibernating myocardium and can accurately predict the potential for recovery of ischemic left ventricular dysfunction three months after revascularization.