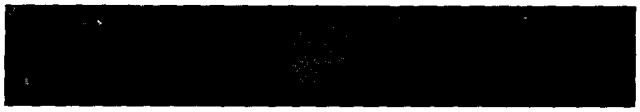
1018-49 **Extent of Three-Dimensional Applical Reverse Remodeling During Endoventricular Circular Patch Plasty (DOR Procedure) for Anterior Left Ventricular Aneurysm Predicts the Degree of Global Function Improvement**

Zheng Liu, Francis Pagani, Jude Dalton, Andrew Wechsler, Patrick Coon, Amy Loyd, John Entwistle, III, Mani A. Vannan, Drexel University College of Medicine, Philadelphia, PA

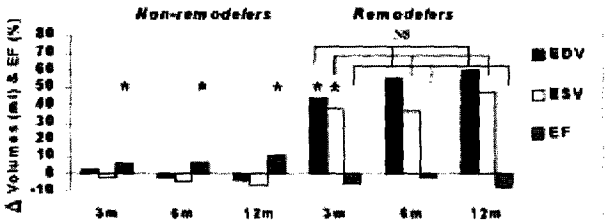
Background: Reconstructive surgery using a patch to exclude anterior aneurysm (Dor procedure or Endoventricular Circular Patch Plasty, EVCPP) improves global LV function. Restoration of apical shape is a critical determinant of this functional success. We evaluated the relationship between the extent of 3-D apical reverse remodeling and the degree of LV systolic function improvement post-Dor procedure. **Methods:** 8 patients with post-MI apical aneurysm underwent Dor procedure. Also, 3 had CABG and 4 had MV ring annuloplasty for MR. 3-D TEE (Fig A) was done prior to and immediately after surgery. 3-D apical remodeling was measured by 3-D radii (R) and 3-D transverse curvature (TC). Also, 3-D EDV, ESV and EF were measured (Fig A). Volume-rendered, real-time images of the LV and its shape were also generated. **Results:** (mean±SD),‡ = p <0.02: 3-D EDV and ESV decreased by (36%±10%,‡) and (43%±9%,‡) respectively while 3-D EF increased post-Dor by (45%±31,‡). Apical 3-D R decreased by (16±11%,‡), end-diastolic 3-D TC increased by (46%±29%,‡), and end-systolic 3-D TC increased by (68%±52%,‡). An EF increase >25% (n=6) correlated with an improved 3-D end-diastolic R(r = -0.81, p = 0.05) and 3-D end-systolic TC(r = 0.84, p = 0.03). Fig B,C show pre-Dor TC and Fig D,E show post-Dor TC. **Conclusion:** The degree of restoration of 3-D LV apical shape post-EVCPP is a key determinant of the extent of augmentation of global function. These findings suggest a role for pre-surgical virtual modeling of circular patch repair.



1018-50 **Left Ventricular Remodeling After Myocardial Infarction Assessed by Three-Dimensional Echocardiography**

Herman F. Mannaerts, Johannes A. Van der Heide, Otto Kamp, Cees A. Visser, VU University Medical Center, Amsterdam, The Netherlands

Background: 3-D echocardiography (3DE) for assessment of left ventricular (LV) volumes, is more accurate compared to its 2-D counterpart. Therefore we hypothesized that serial changes in LV volumes and ejection fraction (EF), caused by remodeling after acute myocardial infarction (MI), can be measured more precisely by 3DE. **Methods:** 33 MI patients (pts) (age 59 ± 13 years, 22 anterior MI, 28 male) underwent 3DE prospectively at baseline (6 ± 4 days) and at 3, 6 and 12 months post-MI using the TomTec Free-Hand method with an ATL5000 ultrasound machine with 2nd harmonic imaging via the apical window. LV volumes were measured off-line. Remodeling was defined as ≥ 20 % increase in end-diastolic volume (EDV) at 12 months in relation to baseline. **Results:** There were 11 pts with remodeling. Baseline EDV, end-systolic volume (ESV) and EF in pts with remodeling were 98 ± 30 ml, 59 ± 23 ml, and 43 ± 10 %, and in pts without remodeling 93 ± 25 ml, 53 ± 19 ml and 43 ± 7 % (p=non-significant (NS)). At 12 months EDV, ESV and EF were in pts with remodeling 152 ± 57 ml, 99 ± 51 ml and 39 ± 14 % (p = 0,0003; 0,002 and NS, compared to baseline), and in pts without remodeling 92 ± 28 ml, 50 ± 21 ml and 47 ± 7% (p = NS for EDVand ESV, and 0,007 for EF, compared to baseline). See also figure (Δ = change from baseline, and * = significant compared to baseline). **Conclusions:** pts with remodeling have a significant increase in LV volumes, mainly in the first 3 months, in contrast to pts without remodeling. EF did not change in pts with remodeling, but increased in pts without remodeling.



POSTER SESSION

1019 Stress Echocardiography: Young and Old, Men and Women

Sunday, March 30, 2003, 9:00 a.m.-11:00 a.m.
McCormick Place, Hall A
Presentation Hour: 10:00 a.m.-11:00 a.m.

1019-31 **Which Is Better, Dobutamine or Dipyridamole Stress Echocardiography? A Meta-Analysis With 6,440 Subjects**

David T. Linker, University of Washington, Seattle, WA

Background: The physiological mechanism of stress induced by dobutamine is different from that of dipyridamole, and there is limited data on how this may effect the sensitivity and specificity when used to diagnose coronary artery disease. **Methods:** In order to assess the comparative sensitivity and specificity of these two modalities, data was extracted from 57 published studies of pharmacological stress echocardiography, all using cardiac catheterization as the standard. Two studies did not include any patients without coronary artery disease, and were excluded from further analysis. Of the remaining studies, 35 used dobutamine, and 20 used dipyridamole. A total of 6440 subjects were studied. Sensitivity, specificity, and the logarithm of the odds ratio (D) , a measure of discriminatory power, were calculated using pooled, weighted, and unweighted data. The results were similar for all three methods. Pooled data are presented for sensitivity and specificity, and unweighted data for D. **Results:** See table below. Dipyridamole stress echocardiography had significantly lower sensitivity and higher specificity than dobutamine stress echocardiography. There were no significant differences in D. **Conclusions:** Although there is a difference in both specificity and sensitivity between dobutamine and dipyridamole as stress echo agents, there is no difference in discriminatory power, D. Both are on similar receiver operator curves, but have different thresholds for detection.

Dobutamine versus dipyridamole stress echocardiography

Agent	Total subjects	Sensitivity	Specificity	log odds ratio(D)
Dobutamine	3800	82.6 ± 0.7%	82.5 ± 1.2%	3.4 ± 1.1
Dipyridamole	2640	76.1 ± 1.0% *	93.1 ± 0.9% *	3.9 ± 0.9

* p < 0.001 compared to Dobutamine

1019-32 **Akinesia Becoming Dyskinesia During Exercise Echocardiography: Prevalence and Relationship to Clinical Outcome**

Graham S. Hillis, Jae K. Oh, Robert B. McCully, Patricia A. Pellikka, Mayo Clinic, Rochester, MN

Background. The prevalence of new onset dyskinesia during exercise echocardiography is unknown. Likewise, the prognostic implications of this response, during any method of myocardial stress imaging, have not been previously described. The aim of this study was, therefore, to determine the prevalence and prognostic implications of dyskinesia following exercise in myocardium that was akinetic at rest.
Methods. The study cohort consisted of 1,005 consecutive patients who underwent exercise echocardiography that demonstrated akinesia at rest. Patients were divided into two groups based on the presence (Group A) or absence (Group B) of exercise induced dyskinesia. Baseline clinical and echocardiographic parameters were compared and patients followed for a median of 2.7 years.
Results. One hundred and four (10%) patients developed dyskinesia during exercise echocardiography (Group A). Compared to patients with segments that remained akinetic, these patients were more likely to have electrocardiographic (ECG) evidence of prior myocardial infarction, and during exercise, had a less pronounced rise in systolic blood pressure and more ECG evidence of ischemia. In addition, their resting left ventricular ejection fraction was slightly worse and improved little after exercise. Despite this, all-cause mortality and the incidence of major adverse cardiac events were similar in the two groups, even after correction for age, sex and resting left ventricular function (Hazard Ratio for major adverse cardiac events = 1.36, 95% CI 0.82 to 2.26, p = 0.23; Hazard Ratio for total mortality = 1.20, 95% CI 0.75 to 1.94, p = 0.45).
Conclusions. One in 10 patients with akinetic myocardium at rest will develop dyskinesia following exercise. This is associated with poorer left ventricular function at rest and little improvement in systolic function after exercise. However, this response has no impact on prognosis.

1019-33 **Stress Echocardiography in the Evaluation of Women With Chest Pain Syndrome: A Randomized Prospective Comparison With ECG Stress Testing**

Anthony J. Sanfilippo, Hoshiar Abdollah, Wilma Hopman, Christine Knott, Catherine Link, Queen's University, Kingston, ON, Canada

Background: Electrocardiographic treadmill stress testing (EST) is the most commonly utilized and recommended non invasive means of evaluating chest pain in both genders. However it is appreciated that women with ischemic disease tend to present later in the course of their illness, and this observation has been attributed in part to lower reliability of EST. Echocardiographic stress testing has been promoted as potentially more reliable in women when evaluated against angiographic outcomes, but its relative effectiveness has not been assessed in a clinical context. **Methods**: To evaluate this issue, 158