Type of cardiac sugery	CABG only		Valve with or without CABG	
	Number of patients	mortality (%)	Number of patients	mortality (%)
Normal RV function	374	2.1	202	5.9
Mild RV dysfunction	95	2.1	43	11.6
Moderate or severe RV dysfunction	27	3.7	26	19.2

1131-151 Cardiac Image Fusion Automated for Enhancing Panoramic Transesophageal Echocardiography

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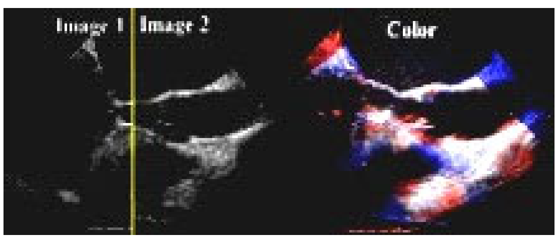
Background: Transesophageal echocardiography (TEE) is limited by scan duration, field of view and patient discomfort. A new image fusion program automatically fuses 2D movie clips of co-planar views, yielding wider field of views and better visualization.
Methods: Ten adult patients with varying cardiac disease were randomly selected for clip acquisition during clinically indicated outpatient TEE. A 7 MHz Acuson multiplane ECG triggered TEE probe on a Sequoia system was used. Two sets of co-planar side-by-side movie clips were acquired by rotating the probe in transverse or oblique planes, or cephalocaudally. The saved DICOM movie clips were transferred to an offline PC, where the program automatically correlated and registered the two movie clips to produce a widened field of view, fused movie clip with a <20 sec automated processing time. All these movie clips could be visualized by 3 displays: left-right, color-coded overlay, and a compounded display.
Results: Image fusion improved structural visualization as compared to single clips, since it added signal for unclear, faint or missing structures and widened the field of view, which enhanced anatomic appreciation.
Conclusions: The image fusion algorithm was automatic, easy to use, and improved structure visualization and field of view.



1131-152 Comparison of a Small (Pediatric) Transesophageal Echocardiography Probe With a Standard (Adult) Probe

Harmony R. Reynolds, Daniel M. Spevack, Alan Shah, Robert M. Applebaum, Mark Kanchuger, Paul A. Tunick, Itzhak Kronzon, NYU School of Medicine, New York, NY

Background: TEE has become an integral part of the evaluation and monitoring of patients during cardiac surgery. Until recently, the smallest TEE probe with multiplane imaging measured 13 mm in diameter. This size is now standard for adult TEE probes. Recently, a new TEE probe has become available (MiniMulti TEE probe, Philips Medical Systems, Andover, MA), which has a diameter of 8 mm. Although using a smaller probe is attractive, its quality when used in adults has not yet been examined.
Purpose: The purpose of this study was to compare TEE studies done with both probes.
Methods: After informed consent was obtained, full intraoperative TEE studies were performed in 20 pts with a small pediatric probe. The study was then repeated using a standard adult probe. The studies were read in random order by 2 experienced echocardiographers blinded to probe used. For each study,18 anatomic cardiac structures and 5 Doppler patterns were evaluated as excellent (1), good (2), fair (3) or poor (4) in quality. The average score for each structure or Doppler profile was computed for each probe.
Results: The average score for all findings was lower (better) for the adult TEE probe (1.4 ± 0.4 vs. 1.7 ± 0.4; P = 0.003). When each finding was compared separately, several cardiac structures (LV, pericardium, RV, IAS, LA, LAA, MV, AoV) had better scores with the adult probe, and the differences for the LV and RV were larger than those for the other findings (LV scores differed by 0.7, P = .0004; RV scores differed by 0.5, P = 0.01). There was no significant difference between probes when evaluating venous structures (CS, SVC, PV), the thoracic aorta, or the RA or TV. In addition, Doppler patterns were not significantly different with the 2 probes. There were 2 findings that were missed with the small probe and seen with the adult probe (1 aortic plaque and 1 LAA thrombus).
Conclusions: In the adult, the larger probe provides better images, particularly of the RV and LV. In addition, important findings may be missed with the smaller probe. However, if the adult probe cannot be passed, the pediatric probe is a reasonable alternative.

POSTER SESSION

1132 Cardiac Resynchronization: Heart Failure and Echocardiography

Tuesday, March 09, 2004, 9:00 a.m.-11:00 a.m.
Morial Convention Center, Hall G
Presentation Hour: 10:00 a.m.-11:00 a.m.

1132-153 Troponin T Elevation Is Associated With Functional and Anatomical Impairment of the Heart in Chronic Renal Failure on Maintenance Dialysis

Doo-Soo Jeon, Man-Young Lee, Keon-Woong Moon, Byung-Soo Kim, Seung-Hun Lee, Jong-Jin Kim, Jae-Hyung Kim, Soon-Jo Hong, Kyu-Bo Choi, The Catholic University of Korea, College of Medicine, Seoul, South Korea

Background: In chronic renal failure (CRF), troponin T (TnT) is known to be associated with poor clinical outcome. But the disease mechanism behind TnT elevation is not clear. We investigated the relation of TnT level with the echocardiographic (TTE) characteristics and carotid intima media thickness (IMT) as a surrogate of atherosclerosis in CRF (n=99) on maintenance dialysis. Method: We underwent TTE and high resolution B mode carotid sonography at the same time. In CRF on hemodialysis (n=51), blood sampling for TnT (Roche Elecys 2010) and troponin I (DPC) was done just before dialysis and TTE within 1 hour after dialysis. Patients with a mitral valvular disease, troponin I≥0.1µg/l, or atrial fibrillation were excluded. Following data were analysed: left ventricular ejection fraction (LVEF) and mass index (LVMI), left atrial dimension (LA), early mitral flow/septal annulus tissue velocity ratio (E/ E′), the thickest far wall IMT of the distal 1-cm common carotid and carotid bulb, and TnT. Result: The comparison between TnT <0.04µg/l group (n=57) and TnT ≥0.04µg/l group (n=42) was shown in the table. Diabetes (β=0.36, P<0.001) and LA (β=0.27, P<0.005) were independent correlates of TnT level in a multiple linear regression model. Conclusion: CRF with TnT elevation, even with high prevalence of diabetes, are not at increased risk of increased IMT. But the anatomical and functional impairment of heart is responsible for TnT elevation. Atherosclerosis may not be mainly involved in TnT elevation in CRF.

	TnT<0.04µg/l (n=57)	TnT_0.04µg/l (n=42)	OR (95% CI)	P
Diabetes (%)	22.8	52.4	3.7 (1.6-2.8)	0.003
Hypercholesterolemia (%)	29.8	9.5	0.25(0.1-0.8)	0.02
Hypertension (%)	64.9	76.2	1.7 (0.7-4.2)	0.23
LA (mm)	40.5± 5.6	44.7± 8.9		0.01
LVMI ($g/m^{2.7}$)	61.1± 23.4	78.6± 26.3		0.001
LVEF<45% (%)	5.3	19.0	4.2(1.1-17.1)	0.04
E/E'>10 (%)	19.3	47.6	3.8 (1.6-9.3)	0.003
IMT>1mm (%)	29.1	41.0	1.7 (0.7-4.0)	0.23
Thickest IMT(mm)	1.11± 0.60	1.27± 0.77		0.25

1132-160 Restenosis Is Better Associated With Change of Coronary Flow Reserve Rather Than With Absolute Value of Coronary Flow Reserve

Se-Joong Rim, Hee-Jung Lee, Jin Mi Kim, Pil-Ki Min, Byoung Eun Park, Young-Guk Ko, Seok-Min Kang, Jong-Won Ha, Donghoong Choi, Yangsoo Jang, Namsik Chung, Yonsei University, Seoul, South Korea

Background : Coronary flow reserve (CFR) decreases in the presence of significant coronary stenosis. Therefore, CFR can be used for detection of restenosis after PTCA. However, because CFR in the absence of coronary stenosis can be affected by various conditions such as endothelial dysfunction, microvascular damage and left ventricular hypertrophy, absolute value of CFR is not routinely used for detection of coronary restenosis. We hypothesized that change of CFR, rather than absolute value of CFR, is more associated with restenosis in various clinical settings.
Method : We studied 26 patients (16 males, 58±10 years, 8 unstable angina, 9 stable angina, 9 acute myocardial infarction) who underwent successful PTCA at left anterior descending artery. CFR using transthoracic Doppler was measured at 48 hours after PTCA and at the time of follow-up angiography (duration 5.7±1.2 months). Coronary flow velocity was measured at distal left anterior descending artery with 7 MHz transducer (HDI 5000, ATL) at baseline and during intravenous infusion of adenosine (140 $\mu g \cdot kg^{-1} \cdot min^{-1}$). Mean diastolic coronary flow velocities from at least three cardiac cycles were averaged.
Results : CFRs in 16 patients with no restenosis showed no significant change from 2.31±0.94 at 48 hours after PTCA to 2.52±0.71 at follow-up (p=NS). However, CFRs in 10 patients with restenosis (>50% in diameter stenosis) decreased significantly from 2.54±1.15 to 1.99±0.82 (p<0.05). Absolute values of CFRs at follow-up were not significantly different between two groups.
Conclusion : CFR significantly decreases with restenosis after PTCA even in the presence of variable baseline CFR values. Serial measurements of CFR can be used to detect restenosis after PTCA .