POSTER SESSION 3
Tuesday, June 10, 2008
Presented 9 am – 2 pm

Moderated Session 4: Interventions
Moderated 12 pm – 1 pm

Intraoperative Echocardiography
Posters P3-01 – P3-02

Miscellaneous (Including Interventional and Experimental Echocardiography, and Miscellaneous Diseases)
Posters P3-03 – P3-12

Posters

Intraoperative Echocardiography
P3-13 – P3-15

Miscellaneous (Including Interventional and Experimental Echocardiography, and Miscellaneous Diseases)
Posters P3-16 – P3-32

Systemic Diseases (Hypertension, Obesity, Metabolic Syndrome, Diabetes, etc.) and Outcomes Research
Posters P3-33 – P3-63

Vascular Disease and Physiology/Aorta/ Endothelial Function
Posters P3-64 – P3-78

Pediatric Cardiovascular and Adult Congenital Heart Disease
Posters P3-79 – P3-100

Quality, Appropriateness and Accreditation
Posters P3-101 – P3-109

P3-01. Moderated Poster

Measurement of Left Ventricular Systolic Strain: A Comparison of Transthoracic and Transesophageal Echocardiographic Techniques

Carlo E Marcucci[1], Darren W Keller[1], G. Burkhard Mackensen[1], Mihai V Podgoreanu[1], Aman Mahajan[2], Joseph P Mathew[1], Madhav Swaminathan[1]
[1]Duke University Medical Center, Durham, NC; [2]University of California, Los Angeles, Los Angeles, CA

Background: Speckle Tracking or 2D-strain has been established as a reliable and reproducible technique for assessment of left ventricular systolic function using transthoracic echocardiography (TTE). However, the reliability of equivalent myocardial strain measurements made using transesophageal echocardiography (TEE) remains unclear. We therefore tested the hypothesis that left ventricular myocardial strain measurements made by TEE are comparable to those made using TTE. **Methods:** After institutional review board approval and informed consent, 12 patients undergoing elective cardiac surgery were enrolled in this study. After induction of general anesthesia, a TTE exam was performed (Vivid 7, GE Vingmed, Horten, Norway) and apical (4-chamber, 2-chamber, long axis (LAX)) and parasternal short axis (SAX) (basal, mid-papillary and apical) views were obtained. A continuous wave spectral Doppler trace through the aortic valve was obtained for timing purposes. Following the TTE exam, the equivalent images for TEE were obtained in the mid esophageal (4-chamber, 2-chamber and LAX) and transgastric SAX (basal, midpapillary and apical) views. All images were taken before surgical incision, at end expiration, in harmonics mode, with a frame rate of 60-90 frames per second. The analysis was done off-line using EchoPac® 6.1.2 (GE Vingmed). Correlation and Bland-Altman analysis was calculated for global longitudinal and circumferential strain and for the different views. Statistical analysis was performed using SAS 9.1. **Results:** One patient was excluded from analysis because of poor image quality. 76% of the segments were tracked in TTE versus 83% in TEE. There was good agreement on longitudinal strain measurements made by TEE and TTE (see table). However, correlation was poor between the two techniques for circumferential strain. **Conclusion:** In a limited sample size, longitudinal myocardial strain measured by TEE was comparable to TTE, while correlation for circumferential strain was poor. This is likely due to greater translational motion and higher drop-out rate of segments in transgastric views. Longitudinal strain measurement is a feasible technique for myocardial function assessment by TEE. Further research on its use in assessment of intraoperative myocardial function is warranted.

Correlation coefficients (r), p-value, and bias for the comparison of 2D-strain in TTE vs TEE.

Longitudinal Strain				Circumferential Strain			
View	r	p	Bias Mean±SD	View	r	p	Bias Mean±SD
Global	0.8	0.0017	3.7 ± 3.3	Global	0.4	0.3	4.8 ± 5.3
4Chamber	0.9	0.0004	3.1 ± 3.2	Basal	-0.1	0.7	6.2 ± 6.9
2Chamber	0.8	0.003	4.6 ± 3.6	Midpap	0.5	0.17	4.6 ± 4.3
LAX	0.5	0.16	3.5 ± 5.3	Apical	0.7	0.04	1.5 ± 7.2

P3-02. Moderated Poster

Three-Dimensional Transoesphageal Echocardiography is Superior to Conventional Mitral Valve Mapping for Location of Valve Pathology

Amy Penhall, Cameron Bridgman, Rebecca Perry, Majo Joseph
Flinders Medical Centre, Bedford Park, Australia

Background: The AHA/ACC guidelines recommend mitral valve repair over replacement if technically feasible to reduce mortality and morbidity. Currently the gold standard of assessment of valve reparability is by mitral valve mapping by 2 dimensional transoesophageal echocardiography (2D TEE). However, this requires the operator to make a three dimensional (3D) reconstruction mentally, limiting effective communication to the surgical team and specific pathology may be missed. More recently 3D TEE has been developed with new off-line analysis software to reconstruct images into a 'surgical' view with identification of leaflet segments and key anatomical landmarks (TomTec, 4D MV-assessment). We sought to determine if 3D TEE was superior to 2D TEE for localizing mitral valve pathology compared to surgical findings. **Methods:** Twenty two patients undergoing mitral valve repair or replacement for severe mitral regurgitation had 2D and 3D TEE prior to surgery. The 2D and 3D images were analyzed independently of each other by 2 observers blinded to the surgical findings. Both the posterior and anterior mitral leaflets were separated into 3 scallops (P1, P2, P3, A1, A2, A3) and the pathology labeled as prolapse, flail, ruptured chordae, perforated, stenotic, tethered and restrictive. Chi-square analysis was performed to determine agreement between methods and surgical findings. **Results:** The type of pathology involved was determined accurately by both 2D TEE (73% predicted correctly, p=0.023) and 3D TEE (76%, p=0.004) however, the location of the major pathology involved was better determined by 3D TEE (82% correct, p<0.001) than 2D TEE (73% correct, p<0.001). The determination of the location of both major and minor pathology was slightly better for 3D TEE (76%, p<0.001) than 2D TEE (64%, p=0.003). All mitral segments (100%) were analyzable on 2D TEE whereas only 102/132 segments (77%) were analyzable on 3D TEE. **Conclusion:** 3D TEE is superior to 2D TEE in determination of the location of both major and minor pathology compared to surgical findings. 3D TEE may provide incremental benefit over 2D TEE for assessing suitability of mitral valve repair at the surgical planning stage. The limitations of this reconstructed technique (analysis time, ECG and respiratory gating) may be further refined by the recent emergence of live 3D TEE.

P3-03. Moderated Poster

Role of CHADS2 Score in Evaluation of Thromboembolic Risk in Patients with Atrial Fibrillation Undergoing Transesophageal Echocardiography Prior to Pulmonary Vein Isolation

Sarinya Puwanant, Brandon Varr, Ruvin Gabriel, Boris Lowe, Kevin Shrestha, Walid Saliba, W. H. Wilson Tang, Allan Klein
Cleveland Clinic Foundation, Cleveland, OH

Background: The current HRS/EHRA/ECAS guideline recommended performing transesophageal echocardiography (TEE) to screen for left atrial and left atrial appendage (LAA) thrombus prior to pulmonary vein isolation (PVI) for atrial fibrillation (AF). However, the yield of LAA thrombus identification on TEE prior to PVI is not well described. **Objectives:** (1) To determine if low risk patients with AF assessed by CHADS2 score (a scoring system to quantify risk of thromboembolic events in patients with AF) necessarily require routine screening TEE prior to PVI. (2) To determine the relationship of CHADS2 score with pre-procedural TEE findings in these patients. **Methods:** Nine hundred seven consecutive patients with AF referred for TEE prior to PVI were evaluated for CHADS2 score and TEE results. A CHADS2 score ranging from 0-6 was calculated for each patient as: congestive heart failure (1 point); hypertension (1 point); age >75 (1 point); and history of stroke or TIA or systemic embolism (2 points). TEEs were reviewed for the presence of spontaneous echo contrast (SEC), LAA sludge (defined as a dynamic, precipitous echodensity, without a discrete mass, present throughout the cardiac cycle), and thrombus. **Results:** Of 907 patients (57 ± 11 yrs, 79% male), 893 patients had completed CHADS2 scores. A CHADS2 score of 0 was the most prevalent (44%; 391 patients). A CHADS2 score of 1, 2, 3, 4, 5 and 6 were present in 35%, 15%, 6%, 2%, 0.3%, and 0 %, respectively. Among 907 TEEs, LAA thrombus, sludge, and SEC were present in only 1%, 1%, and 19%, respectively. The prevalence of LAA thrombus increased with ascending CHADS2 score (Scores 0 (0%), 1 (1%), 2 (3%), 3 (8%), and 4-6 (40%), p < 0.01). The prevalence of LAA sludge also increased with ascending CHADS2 scores ranging from 0-3 (p=0.03) (Figure 1). Two patients with a CHADS2 score of 4-6 had both sludge and thrombus. No patient with a CHADS2 score of 0 had LAA thrombus or sludge. **Conclusions:** (1) A TEE to exclude LAA thrombus may not be necessary in patients with a CHADS2 score of 0. (2) The prevalence of LAA thrombus or sludge on TEE in the patients with AF referred for TEE prior to PVI is very low (1%) and increases significantly in patients with higher CHADS2 scores. (3) Simple screening with a CHADS2 score could be useful in selecting which patient may benefit from a screening TEE prior to PVI.

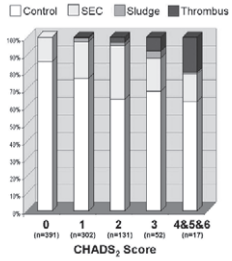


Figure 1: Prevalence of spontaneous echo contrast, left atrial appendage sludge, and thrombus by ascending CHADS2 Score

P3-04. Moderated Poster

High Incident of Intracardiac Thrombosis by Transesophageal Echocardiography in Cardiac Amyloidosis

DaLi Feng, Jae K. Oh, Allan S. Jaffe, Imran S. Syed, Matthew Martinez, Martha Grogan, William D. Edwards, Morie A. Gertz, Kyle W. Klarich
Mayo Clinic, Rochester, MN

Background: Patients with primary amyloidosis have a poor prognosis in part due to frequent cardiac involvement. We recently found a high incidence of intracardiac thrombus in cardiac amyloid patients at autopsy, which was associated with significant mortality. However, the premortal incidence of intracardiac thrombus and the associated features in cardiac amyloid patients has not been defined. **Methods:** We retrospectively studied transthoracic and transesophageal echocardiography (TTE and TEE) in cardiac amyloid patients from 1999 through 2007 at the Mayo Clinic. TTE and TEE were carefully reviewed for intracardiac thrombus. **Results:** 147 cardiac amyloid patients underwent TEE studies. There were 77 primary cardiac amyloidosis (AL) and 70 other types including 50 wild transthyretin (or senile) type, 17 mutant transthyretin (or familial) type and 3 secondary type. Intracardiac thrombus was identified in 42 patients (29%) with a total 45 thrombi by TEE but only 3 cases by TTE. There were 34 thrombi in the left atrium, 10 in the right atrium, and 1 in the left ventricle (LV). AL had more frequent intracardiac thrombus than the other types (36.4% vs. 20.0%, p=0.03). In addition, poor LV systolic and diastolic function and depressed left atrial mechanical function were associated with intracardiac thrombosis (Table). **Conclusion:** There was a high frequency of intracardiac thrombosis in cardiac amyloidosis, especially in the AL type. Most of these thrombi were missed by TTE. Early screening with TEE, especially in high risk patients, and early anticoagulation may be indicated to reduce morbidity and mortality in amyloid patients.

Table. Characteristics in Subjects with and without Intracardiac Thrombosis

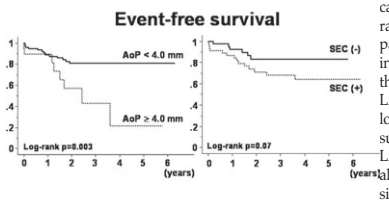
	With, n=42	Without, n=105	P Value
Age, year	65.2±11.8	68.3±11.9	0.16
Gender, % male	66.7	79.1	0.14
AL type, %	66.7	46.7	0.03
Heart rate, bpm	84±3.8	80.1±2.2	0.32
SBP, mmHg	108±4	121±3	0.01
DBP, mmHg	66±3	68±2	0.57
LVEDD, mm	43.8±1.9	46.6±1.1	0.21
CI, liter/min/m2	2.2	2.8	0.01
SV, ml	54±5	66±3	0.06
LVEF, %	41±2	53±1	0.0001
Septal Thickness, mm	15.3±1.0	15.1±0.6	0.86
LV Wall Thickness, mm	15.3±0.8	14.0±0.5	0.17
Left atrial enlargement (0-3)	2.4±0.3	1.9±0.2	0.17
Left atrial spontaneous contrast, 0-3	2.6±0.2	1.1±0.1	0.0001
LAA emptying velocity, cm/s	13.1±4.8	27±3.0	0.02
LV diastolic function grade (0-4)	3.2±0.2	2.3±0.1	0.0001
Mitral A Velocity (m/s)	0.28±0.11	0.60±0.05	0.01
E/A	4.2±0.8	2.3±0.3	0.04
Mitral annulus a' velocity (cm/s)	2.3±0.9	6.6±1.0	0.003
E/e'	24±3	21±2	0.38
Deceleration time, ms	169±13	186±8	0.29

P3-05. Moderated Poster

Aortic Atherosclerotic Plaque Rather than Findings of the Left Atrial Blood Stasis Predicts Long-Term Cardiovascular Events in Unselected Patients with Atrial Fibrillation: A Transesophageal Echocardiographic Study

Hiroyuki Okura[2], Yuko Takada[1], Satoko Wada[1], Hiroki Fukuda[1], Tomoichiro Kubo[1], Koichiro Asawa[1], Takeshi Ozaki[1], Haruyuki Taguchi[1], Iku Toda[1], Minoru Yoshiyama[3], Junichi Yoshikawa[4], Kiyoshi Yoshida[2]
[1]Kawasaki Medical School, Kurashiki, Japan; [2]Bell Land General Hospital, Sakai, Japan; [3]Osaka City Univewrsity School of Medicine, Osaka, Japan; [4]Osaka Ekisaikai Hospital, Osaka, Japan

Background: Both left atrial spontaneous echo contrast (LASEC) and aortic atherosclerotic plaque (AoP)≥4.0mm in thickness are prognostic predictors of cardiovascular events in patients after ischemic stroke. Objective: The aim of this study was to investigate impact of AoP or LASEC detected by transesophageal echocardiography (TEE) on cardiovascular events in unselected patients with atrial fibrillation (AF). **Methods:** One hundread and eight consecutive patients with AF who were referred for TEE examination were prospectively enrolled and studied. Patients were grouped according to the presence (n=20) or absence (n=88) of AoP≥4.0mm in the proximal aortic arch by TEE. Patients with LASEC (n=60) was also compared with those without LASEC (n=48). Cardiovascular events included death, myocardial infarction, ischemic stroke, systemic embolism and unplanned hospitalization due to congestive heart failure. **Results:** (Figure) During a follow-up period (average 2.1 years), cardiovascular event-free survival rate was significantly higher in patients without AoP≥4.0mm than in patients with AoP≥4.0mm. On the other hand, patients with LASEC showed a trend toward lower cardiovascular event-free survival than those without LASEC (Log rank, p=0.07), although it did not reach statistical significance. Univariate predictors of cardiovascular events were higher age, AoP≥4.0mm, LASEC, left atrial thrombus and lower left atrial appendage flow velocity. By multivariate logistic regression analysis, AoP≥4.0mm was the only independent predictor of cardiovascular events during follow-up (p=0.02, risk ratio=4.1; 95%CI 1.2-13.4). **Conclusion:** In unselected study population with AF, AoP rather than findings of the left atrial blood stasis predicts long-term cardiovascular events.



P3-06. Moderated Poster

New Echocardiographic Technology for Monitoring Safety and Efficacy in Transcoronary Septal Ablation in Hypertrophic Cardiomyopathy

Yihua He[1], Zhian Li[1], Tengyong Jiang[1], Xiaoyan Gu[1], J. V. (Ian) Nixon[2]
[1]Beijing Anzhen Hospital, Beijing, China; [2]Virginia Commonwealth University, Richmond, VA

Background: To address clinical issues that involve transcoronary ablation of septal hypertrophy (TASH) for hypertrophic obstructive cardiomyopathy (HOCM) such as the peroperative indications and the selection of target vessels, new techniques including myocardial contrast echocardiography (MCE) and color Doppler coronary flow imaging (CDCFI) can be used to assess indications, and reduce complications, potentially decreasing the need for subsequent ablations due to the development of postprocedural left ventricular outflow tract (LVOT) gradients, as well as possible procedural injury. **Methods**: 84 pts who underwent TASH were divided into three groups: Group 1 (n=32): MCE alone; Group 2 (n=37): MCE combined with CDCFI; Group 3 (n=19): MCE and CDCFI combined with MCE-contrast pulse sequencing (MCE-CPS). **Results**: In group 1, 1 pt had a 3rd degree AV block, 2 pts had no appropriate vessels for ablation, 5 pts were changed to another interventricular septal branch vessel as the ablation vessel, and 2 pts were found to have suboptimal ablation during post-op follow-up. In Group 2, no serious complications occurred, all pts had appropriate vessel selection for ablation, and 3 pts were found to have suboptimal ablation during follow-up. In Group 3, no serious complications occurred, no unsuitable vessels were used for ablation, and 2 pts were found to have suboptimal ablation during the procedure. No pts were found to have suboptimal ablation during follow-up. In followup MCE studies, 5 of 84 pts developed postprocedural LVOT gradients; MCE was able to determine the location for subsequent ablation. In 2 pts the ablation was not in the target area, and in 3 pts the ablation was incomplete. **Conclusions**: The application of CDCFI and MCE-CPS assists in the selection of suitable pts, in locating the correct vessels for ablation, in identifying postprocedural LVOT gradients, and in reducing the incidence of complications. Importantly, it may eliminate the need for reablation in pts undergoing TASH for HOCM.

Download English Version:

https://daneshyari.com/en/article/5611891

Download Persian Version:

https://daneshyari.com/article/5611891

Daneshyari.com