

regurgitant volume, supporting the use of regurgitant orifice area as a more fundamental gauge of the severity of MR.

1021-56 Prevalence of Fibrin Strands at Transesophageal Echocardiography

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Fibrin strands (FS) shown by transesophageal echocardiography (TEE) on the left heart valves have been associated with an increased risk of stroke and systemic embolism. However, some have argued that FS merely represent degenerative valve changes due to stress or aging. The prevalence of FS in patients with structurally normal or abnormal hearts is unknown. To determine the prevalence of FS, we reviewed multiplane TEE from 100 patients. Group 1 consisted of 50 consecutive patients referred with various diagnoses for TEE (23 M, 27 W, ages 18 to 79, mean 50 y). Group 2 consisted of another 50 consecutive patients in sinus rhythm with structurally normal hearts at TEE (28 M, 22 F, ages 17 to 76, mean 42 y). In Group 1, 3 of 20 patients (15%) evaluated for cardiac source of embolism showed FS, while 2 of 30 patients (7%) evaluated for other reasons showed FS. FS were seen on the mitral valve in 3 patients and on the aortic valve in 2 patients. Three (3) of the 5 valves with FS were structurally normal, while 2 were thickened. In Group 2 (patients with normal hearts by TEE), 9 of 27 patients (33%) evaluated for cardiac source of embolism showed FS, while only 1 of 23 patients (4%) evaluated for other reasons showed FS. FS were seen on the mitral valve in nine patients, while 1 patient had both mitral and aortic valve FS. Of 47 patients in both groups with a history of systemic embolism, 12 (25%) had FS. Of the remaining 53 patients referred for other reasons, 3 (6%) had FS. (p < 0.01)

Conclusion: FS are frequently found at TEE in patients with a history of systemic embolism-even in structurally normal hearts. FS are an infrequent TEE finding in the absence of such a history.

1021-57 Cardiac Involvement and Anticardiolipin Antibodies Levels in Primary Antiphospholipid Syndrome: A Transesophageal Study

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Myocardial involvement and valvular lesions are frequently observed in Primary Antiphospholipid Syndrome (PAPS), particularly in patients (pts) with clinical manifestations (arterial and/or venous thrombosis or recurrent fetal loss). To evaluate whether high anticardiolipin antibodies (aCL-a) levels are able to produce severe cardiac involvement or embolic sources (spontaneous echocntrast, masses or vegetations), we studied 30 PAPS pts (3 M and 27 F; aged 37 ± 10 yrs) by means of multiplane transesophageal echocardiography (TEE), compared with 20-matched controls (C). We analyzed systo-diastolic LV function; abnormal leaflet thickness was >3 mm for mitral or tricuspid valve (MVT or TVT) and >2 mm for aortic (AVT). aCL-a measured using standard ELISA method were expressed in GPL U, (normal value <15 U). **Results:** All PAPS pts presented normal systo-diastolic LV function. We considered 3 groups (Gr) according to aCL-a levels: Gr I (low-positive, 15-35 U), mean MVT 2.7 ± 0.5 mm; Gr II (moderate-positive, 35-100 U), mean MVT 3.4 ± 0.8 mm; Gr III (high-positive, >100 U), mean MVT 3.5 ± 0.9 mm.

	Gr I (n = 9)	Gr II (n = 7)	Gr III (n = 14)
MVT	2 (22%)	5 (71%)	11 (78%)
no MVT	7 (78%)	2 (29%)	3 (22%)

Chi square = 7.74, p < 0.05

7/14 (50%) Gr III pts showed: 3 mild mitral stenosis, 2 TVT and 2 AVT. AVT was also found in Gr I (2) and Gr II (1). PAPS pts had high incidence of embolic sources: 11% Gr I, 28% Gr II and 63% Gr III (*chi square* = 6.95, p < 0.05). **Conclusions:** 1) Multiplane TEE is useful to detect significant valvular abnormalities and embolic sources in PAPS pts. 2) High levels (>100 U) of aCL-a are associated to MVT and embolic sources, indicative of high thromboembolic risk. 3) Follow-up studies are necessary to attribute to high aCL-a levels a predictive value in PAPS pts.

1021-58 Differences in Pulmonary Vein Inertance: An Explanation for Why Pulmonary Venous Flow is not the Same in Each Vein

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Doppler of pulmonary venous (PV) flow have revealed that peak systolic flow velocity is often different in each of the four PVs. In patients with mitral regurgitation (MR), such differences have been ascribed to different relations between the MR jet and PVs. However, anatomic studies also suggest that the effective length of each PV tree may be different, creating differences in the inertia of PV blood that must be accelerated by driving pressure gradients between lungs and LA, both normally and with MR. Such inertance, which varies with PV length, is a major determinant of pulsatile flow velocity, suggesting the *hypothesis* that differences in PV inertia may cause or contribute

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Wednesday, March 22, 1995, 3:00 p.m.-5:00 p.m.
Ernest N. Morial Convention Center, Hall E
Presentation Hour: 4:00 p.m.-5:00 p.m.

1021-54 Multiplane Transesophageal Echo Has a Greater Impact on Clinical Care than Biplane: The VOTE Study

Martin E. Goldman, Steven Goldstein, Itzhak Kronzon, Benico Barzilai, Ravin Davidoff, Anthony DeMaria, Howard Dittrich, Shunichi Homma, Michael Motro, Natesa Pandian, Michael Picard, Stacey Rosen, Steven Schwartz, Paul A. Tunick, Zvi Vered, Gad Keren, David Vorchheimer, Larry Baruch, Orna David, Jacqueline Budd, Edward Fisher, V.O.T.E. Study. *Mt. Sinai, NY*

Multiplane transesophageal echocardiography (MTEE) facilitates circumferential imaging while biplane (Bi) TEE has only 2 imaging planes and requires more probe manipulation. To assess the clinical utility of the 2 types of TEE probes, we analyzed TEE's of 3,182 pts enrolled in the Value Of TEE (V.O.T.E.) multicenter study (12 different institutions). Probe selection was noncontrolled, determined by operator preference. Following completion of a TEE, questions were posed to the referring physician on the immediate value of the TEE regarding changes in clinical management (MNGΔ) or drug regimen (Rx Δ), decision to perform surgery (SURGΔ) or cardiac cath (CATHΔ). Diagnostic indication categories included: aortic dissection (AoD), stroke (CVA) or TIA, congenital heart disease (CHD) and native valve (NAT V) or prosthesis (Prosth) dysfunction.

	# pts	MNGΔ%	SURGΔ%	CathΔ%	Rx Δ%	COMP%
Bi	1124	36.1	12.7	7.1	12.6	1.07
Multi	2058	36.7	16.8	5.1	13.4	1.31
p		NS	0.002	0.01	NS	NS

Multiplane TEE was used more frequently in AoD, CHD & NAT V pts, less in CVA/TIA pts. The complication (COMP) rate, mean pt age and M/F ratio were similar for both probes. Thus, in this noncontrolled study, multiplane TEE had a greater immediate impact on clinical management decisions regarding possible surgery and cath than did biplane.

1021-55 Is There Incremental Value of Echocardiography Over Clinical Information in Unselected Patients with Suspected Endocarditis? A Prospective Study

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Although both transthoracic (TTE) and transesophageal (TEE) echo can detect vegetations in patients with bacterial endocarditis (BE), their incremental value over the available clinical information has not been examined. Accordingly, we performed a prospective study in 105 patients (59 men, 46 women, age range of 16-88 yrs) with suspected BE in whom TTE had been requested. Thirty-four of these patients had known valvular disease, 19 had prosthetic valves, and 53 had other sources of infection. In addition to TTE, TEE was also performed in all patients. Twelve patients (11%) had technically inadequate TTE. Predefined clinical variables were used to classify the patients into low, medium, or high probability of having BE on clinical grounds. TTE and TEE studies were read separately without any clinical information and the patients were again classified into low, medium, or high probability of BE based on the echo findings alone. Also, of the 67 patients with low clinical probability of BE, the majority (79% by TTE and 87% by TEE) were also considered to have low probability by echo; only 6% were considered high probability. In patients with medium clinical probability of BE, the majority (83% by TTE and 100% by TEE) were reclassified based on echo findings. In patients with high clinical probability of BE, a significant portion (63% by TTE and 50% by TEE) were also reclassified based on echo findings. There was concordance between TTE and TEE in 86% of cases. The greatest difference was noted when TTE showed medium probability of BE: 8 of these 10 studies (80%) were reclassified based on TEE.

We conclude that in patients with low clinical probability of BE, echo offers no incremental value. In patients with medium to high clinical probability of BE, echo offers incremental value. In addition, TEE is indicated in the diagnostic work-up only in patients with technically inadequate TTE studies and in those who show medium probability of BE after TTE; these constitute <10% of patients with suspected BE in whom echo is requested.

WEDNESDAY PM