Study Objective: To evaluate the utility of transesophageal echocardiography (TEE) guided cardioversion (CV) of atrial fibrillation (AF) in comparison with conventional treatment (CT).
Methods: Prospective study of 1076 patients with AF. The first 357 patients were anticoagulated for ≥3 weeks before CV (INR ≥2.0). The next 719 patients underwent pre-CV TEE after 3 weeks of anticoagulation.
Results: Compared to the CT group, the TEE group had more hypertension (57% vs. 50%, p=0.05) prior TIA or stroke (12% vs. 8%, p=0.05) and more commonly had AF duration ≥2 days (89% vs. 76%, p<0.0001). Organic heart disease was more common in the TEE than in the CT group (60% vs. 51%, p=0.01). CV was successful in 78% of the CT group vs. 86% of the TEE group (p=0.01). In the TEE group, thrombus was found in the left atrium in 55 subjects (7.7%) and moderate or severe spontaneous contrast in 37%. In the first 4 weeks following CV, there were 3 embolic events in the CT group (0.8%) and 6 in the TEE group (0.8%).
Conclusions: Both CT- and TEE-guided CV result in similar rates of embolic events after cardioversion of AF.
Perspective: This study from a single center leads to the same conclusion as the previously published ACUTE study and demonstrates that both CT and TEE guided CV result in a similar low incidence of embolic events. In the present study, the TEE-guided group was generally sicker but had a higher rate of initial successful CV. Reasons for these differences are not elucidated in the study, nor is the long-term success rate of CV. A very important message is that even after 3 weeks of adequate anticoagulation, there was still a 7.7% prevalence of left atrial thrombus. This is obviously substantially less than the embolic rate of 0.8% seen in the CT group. These observations further support the notion that the left atrial appendage thrombus that is present at the time of evaluation may not be responsible for embolization, rather emboli arise from those that form after CV, presumably due to atrial stunning. For the foreseeable future, either management strategy (conventional or TEE guided) would appear appropriate for management of patients with AF, and one can expect acceptably low embolic events so long as anticoagulation is maintained at acceptable levels. WA

Effect of Medical Treatment in Stroke Patients With Patent Foramen Ovale. Patent Foramen Ovale in Cryptogenic Stroke Study

Homma S, Sacco RL, Tullio MR, Sciacca RR, Mohr JP, for the PFO in Cryptogenic Stroke Study (PICSS) Investigators. Circulation. 2002;105:2625–31.

Study Objective: To evaluate the impact of patent foramen ovale (PFO), atrial septal aneurysm (ASA) and medical treatment with warfarin or aspirin on recurrence in patients with an index ischemic stroke.
Methods: This study is a report from the PFO in Cryptogenic Stroke Study (PICSS) in which 630 patients were recruited for transesophageal echocardiography (TEE). PFO were characterized as small or large based on a threshold of 2mm separation and/or ≥10 microbubbles crossing the atrial septum during contrast echocardiography. Patients were followed for two years for end points of recurrent ischemic stroke, death or transient ischemic attack. Patients were randomized to either warfarin or aspirin (325 mg daily).
Results: PFO was noted in 203 patients (33.8%) and was large in 84. Prior cryptogenic stroke was more common in patients with PFO (48.3% vs. 38.2%, p=0.02). For end points of recurrent stroke or death, 2-year event rates were 15.4% vs. 14.8% for patients with and without PFO (p=0.084). For both all index strokes and the cryptogenic group, there was no difference to time to recurrence or rate of events between PFO and no PFO groups. PFO size was not related to rate of recurrent events (18.5% in small vs. 9.5% in large PFO, p=0.16). Considering only the cryptogenic index stroke, event rates in PFO patients were 9.5% on warfarin and 17.9% on aspirin (p=0.28). Event rates in the no PFO group were 8.3% vs. 16.3% (p=0.16).
Conclusion: PFO and ASA were not associated with recurrent neurologic events in patients on medical therapy.
Perspective: This large randomized trial is somewhat at odds with retrospective observational studies that have suggested an increased risk of neurologic events in patients with PFO and furthermore suggested that a large PFO or association with ASA confers an even greater risk. The definition of ASA and "large" PFO is somewhat different in this study than has been employed in previous work and there was no placebo limb employed. This study nicely demonstrates that irrespective of characteristics of the PFO, therapy with either warfarin or aspirin leads to similar event rates and provides a background rate of recurrence on medical therapy to which newer modalities such as percutaneous closure of a PFO may be compared. WA

Clinical Value of Left Atrial Appendage Flow for Prediction of Long-Term Sinus Rhythm Maintenance in Patients With Non-Valvular Atrial Fibrillation

Antonielli E, Pizzuti A, Pálinká A, et al. J Am Coll Cardiol 2002; 39:1443–9.

Study Objective: To evaluate the predictive role of clinical and echocardiographic parameters on maintenance of sinus rhythm (NSR) after initially successful cardioversion (CV) in patients with non-valvular atrial fibrillation (AF).
Methods: Transthoracic and transesophageal echocardiography (TEE) was used to measure left atrial size, LVEF, LV dimension and mass and left atrial appendage (LAA) emptying velocities in 186 patients (mean age 65±9 years) who were successfully cardioverted from AF of 2–365 days duration.
Results: One year following CV, 91 patients (49%) remained in NSR. Patients remaining in NSR at one year had higher

LAA emptying velocities than those who had recurrent AF (41.7±0.2 cm/sec vs. 27.7±17 cm/sec., p<0.001). Patients with AF recurrence also had a slightly longer duration of AF prior to CV, were less likely to be taking antiarrhythmic drugs, had larger LA diameter (45.4±6.3 cm vs. 43.0±5.9 cm, p<0.01) and a higher prevalence (56% vs. 37%, p<0.05) of spontaneous contrast. On multivariate analysis only LAA emptying velocity >40 cm/sec. (odds ratio (OR)=5.2, p=0.0001) and antiarrhythmic therapy (OR=2.0, p=0.0398) predicted maintenance of NSR. Low LAA velocities did not accurately predict failure to maintain NSR.

Conclusion: Preserved LAA transport correlates with a higher likelihood of maintenance of NSR following successful CV.

Perspective: This study nicely evaluates secondary structural and functional abnormalities in patients with AF as they relate to successful long-term CV. Maintenance of LAA emptying velocity probably is a marker for a less severe myopathic process in the atrial myocardium than seen in patients with more compromised velocities, hence its relationship to a greater likelihood of successful cardioversion. From a clinical perspective, the lack of low LAA velocities to predict failure of long-term cardioversion is disappointing. For practical purposes, the clinician would like to identify patients who are highly likely to fail CV so that an unnecessary procedure could be avoided, rather than identifying the subset likely to have success in a situation where all patients are going to undergo at least one attempt at CV. These intriguing data certainly add to our understanding of the atrial mechanics in AF. WA

Risk of Embolization After Institution of Antibiotic Therapy for Infective Endocarditis

Vilacosta I, Graupner C, San Roman JA, et al. J Am Coll Cardiol 2002;39:1489–95.

Study Objective: Prospective assessment of the risk of systemic embolization (SE) in patients with left-sided infective endocarditis (BE) after institution of antibiotic therapy.

Methods: 211 patients with 217 episodes of left-sided BE underwent transthoracic (TTE) and transesophageal (TEE) echocardiography. Patients were followed for an average of 151 days after institution of antibiotic therapy.

Results: By Duke criteria, 91% of BE cases were "definite." SE occurred in 28 of 217 episodes of BE (12.9%) after institution of therapy. The central nervous system was the most common site of embolization (52%). 65% of SE occurred in the first 14 days after starting therapy. Any increase in vegetation size on follow-up echo (relative risk (RR) 2.64, p=0.02) and previous embolization (RR=1.71, p=0.05) were predictors of embolization after therapy. For all cases, increasing vegetation size (RR=3.77, p=0.07) showed a trend to a higher embolic rates, however, this was statistically significant only for staphylococcal BE. There was a trend (p=0.07) to more frequent SE in mitral vs. aortic endocarditis. Vegetation mobility was not predictive of SE. There was a stepwise increase in likelihood of SE comparing vegetation of size less than 10 mm, 10–20 mm and >20 mm.

Conclusions: The greatest risk for SE in treated BE is vegetation size, an increase in size on follow-up or prior SE.

Perspective: This prospective study of a substantial number of patients with BE provides important information regarding one of the major and often catastrophic sequelae of endocarditis. Even with a substantial number of patients, individual subset sizes are relatively limited which reduces the number of conclusions that can be drawn regarding SE in prosthetic vs. native valves and in different bacteriologic subtypes. This study does provide data (vegetation size and prior embolization particularly) that may allow identification of a couple of high-risk subsets and supports the contention that SE become progressively less frequent after institution of appropriate antibiotic therapy. WA

Appetite Suppressants and Valvular Heart Disease in a Population-Based Sample: The HyperGEN Study

Palmieri V, Arnett DK, Roman MJ, et al. Am J Med 2002;112: 710–5.

Study Question: To assess the prevalence of significant valvular regurgitation in patients taking the appetite suppressant drugs (ASD) fenfluramine and/or dexfenfluramine.

Methods: Clinical data were extracted from a large epidemiologic study (HperGEN). All subjects (n=2024) underwent echocardiography to determine left ventricular size and function as well as degree of aortic or mitral regurgitation (AI or MR). Aortic dimensions at the sinuses were determined.

Results: ASD were utilized by 19 subjects (0.9%). Body mass index (BMI) was greater in ASD subjects than controls: gender distribution and presence of hypertension were similar. By echocardiography, the presence of fibrocalcific aortic valve abnormalities was greater in the ASD group than in controls (32% vs. 12%, p=0.02). The dimension at the sinus of Valsalva tended to be greater in the ASD group (3.6±0.5 vs. 3.4±0.4 cm, p=0.10). AI of any degree was more common in the ASD group than in controls (32% vs. 6%, p=0.001). There was a trend to a lower prevalence of MR (11% vs. 19%, p=0.56) in the ASD vs. control groups. By multivariant analysis AI of any degree (odds ratio 6.3) and fibrocalcific aortic valve disease (OR=1.6) were more common in the ASD group than controls.

Conclusions: Use of ASD is associated with AI, independent of the presence of dilation of the aortic sinuses or fibrocalcific disease of the aortic valve.

Perspective: This study is in line with other studies in suggesting an independent contribution of ASD to development of AI. There are substantial limitations to this study in that only 19 of 2024 patients were exposed to the drugs. By protocol, only the aortic sinuses were measured. It has been