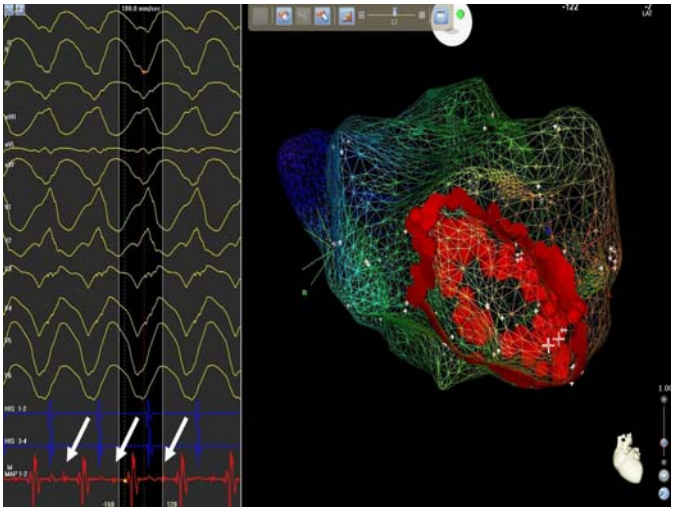

Figure 1. Surface ECG and intracardiac electrograms are depicted on the left panel and electroanatomical mapping on the right panel (see text for discussion)

Cardiology News /Recent Literature Review

Ector Anninos, MD, Spyridon Koulouris, MD, Antonis S. Manolis, MD

The **TCT** Annual Conference will be held in San Francisco 7-11/11/2011

The **AHA** Annual Scientific Sessions are scheduled for 12-16/11/2011 in Orlando

The next **ACC** Annual Meeting is slated for 24-27/3/2012 in Chicago

The **Athens Cardiology Update 2012** is slated for April 5-7, 2012

The **HRS** 33rd Annual Meeting will be held in Boston, 9-12/5/2012

The next **ESC** Annual Congress will be held in Munich, 25-29/8/2012

Incidence and Predictors of ICD Therapy in Patients With Arrhythmogenic Right Ventricular Dysplasia/ Cardiomyopathy (ARVC) Undergoing ICD Implantation for Primary Prevention

Eighty-four patients with definite or probable ARVC underwent ICD implantation for primary prevention. After a follow-up of 4.7 ± 3.4 years, appropriate ICD therapy was delivered in 40 patients (48%). Predictors of such an intervention were proband status ($p < 0.001$), inducibility at electrophysiologic study ($p = 0.005$), presence of nonsustained ventricular tachycardia ($p < 0.001$), and Holter premature ventricular complex count >1,000/24 h ($p = 0.024$). In multivariate analysis, inducibility at electrophysiologic study and nonsustained ventricular tachycardia remained significant predictors. The number of these risk factors correlates with the incidence of ICD activation with the 5-year survival free of appropriate ICD therapy for patients with 1, 2, 3, and 4 risk factors being 100%, 83%, 21%, and 15%, respectively (Bhonsale A et al, *J Am Coll Cardiol* 2011; 58:1485-1496).

Exclusion of the Left Atrial Appendage with a Novel Device: Early Results of a Multicenter Trial

Seventy patients with atrial fibrillation or a $CHADS_2$ score greater than 2 undergoing elective cardiac surgery were eligible for concomitant AtriClip device (35, 40, 45, and 50 mm) insertion. Safety was assessed at 30 days, and efficacy of left atrial appendage exclusion was assessed at operation (by transesophageal echocardiography) and at 3-month follow-up (by computed tomography angiography or transesophageal echocardiography). Intraprocedural success reached 95.7% (67 of 70 patients). Although significant adverse events occurred in 34 of 70 patients (48.6%), none was related to the device and there was no perioperative mortality. At 3-month follow-up, 98.4% of the patients had successful left atrial appendage exclusion by computed tomography angiography or transesophageal echocardiography imaging (Ailawadi G et al, *J Thorac Cardiovasc Surg* 2011; 142:1002-1009).

SCN5A Mutations Associate With Arrhythmic Dilated Cardiomyopathy and Commonly Localize to the Voltage-Sensing Mechanism

In this study the role of the cardiac sodium ion channel SCN5A in the etiology of dilated cardiomyopathy (DCM) was examined. To achieve this, DNA samples from 338 individuals among 289 DCM families were screened for SCN5A mutations by sequence analysis. The authors identified 5 missense SCN5A mutations representing the 1.7% of DCM families. Three of these mutations are novel (E446K, F1520L, and V1279I) and two are already known ones (D1275N and R222Q). In the majority of the cases the mutation was located to the highly conserved homologous S3 and S4 transmembrane segments, suggesting the disruption of the voltage-sensing mechanism of this sodium channel as the underlying mechanism leading to DCM. Most of the SCN5A mutation carriers manifested supraventricular arrhythmia (13/15), sick sinus syndrome (5/15) atrial fibrillation (9/15), ventricular tachycardia (5/15), and conduction disease (9/15) (McNair WP et al, *J Am Coll Cardiol* 2011;57: 2160-2168.)

Diagnostic Accuracy of NT-proBNP ratio (BNP-R) for Early Diagnosis of Tachycardia-Mediated Cardiomyopathy: a Pilot Study

In this single center srudy, 40 patients with supraventricular arrhythmia (SVT), a resting heart rate ≥100 bpm and an impaired left ventricular ejection fraction <40% were selected among 387 consecutive patients with SVT. Successful electrical cardioversion was performed in all patients. NT-proBNP, NT-proBNP ratio (BNP-R) calculated as a quotient of baseline NT-proBNP/follow-up NT-proBNP and echocardiographic parameters were measured, and evaluated at baseline, day 1 and weekly for 4 weeks. Cardiac catheterization was performed at the end of the fourth week to identify patients with a final diagnosis of tachycardia-mediated cardiomyopathy (TMC) vs major structural heart disease (MSHD). The most reliable variable to discriminate between TMC and MSHD proved to be BNP-R based on multivariate regression and receiver operator curve (ROC) analysis. The area under the ROC curve for BNP-R to detect TMC was 0.90 ($p<0.001$) after 1 week and 0.995 ($p < 0.0001$) after 4 weeks. At one week post-cardioversion, a BNP-R cutoff ≥2.3 could identify TMC with an accuracy of 90%, sensitivity of 84% & specificity of 95% (Nia AM et al*, Clin Res Cardiol* 2011;100: 887-896).

Plasma B-type Natriuretic Peptide (BNP) Levels and Recurrent Arrhythmia after Successful Ablation of Lone Atrial Fibrillation (AF)

The authors followed up 726 patients with lone AF undergoing first-time arrhythmia ablation. BNP levels were measured on the day of ablation with a the point-of-care Triage Meter assay (Biosite Diagnostics, San Diego, CA). Older age, longer duration of AF, nonparoxysmal AF versus paroxysmal and larger left atrial size were associated with elevated BNP levels. The BNP levels were strongly associated with arrhythmia recurrence in univariate (hazard ratio for +1-log-BNP change, 2.32; $P<0.001$) and covariate- (hazard ratio for +1-log-BNP change, 2.13; $P<0.001$) adjusted Cox proportional hazards analysis. The exact mechanism underlying this correlation is not entirely elucidated. Elevated BBNP levels may reflect increased wall stress and/or intrinsic atrial disease, which increase the risk of arrhythmia recurrence (Hussein AA et al, *Circulation* 2011;123: 2077-2082).

Prevention of Atrial Fibrillation (AF) with Omega-3 Fatty Acids: a Meta-Analysis of Randomised Trials

In a systematic review and meta-analysis, 10 randomized clinical trials (RCTs) and 1955 patients published until November 2010 in MEDLINE, Web of Science and Cochrane clinical trials database were analysed. The data showed that n-3 polyunsaturated fatty acids (PUFA) had no significant effect on the prevention of AF (OR 0.81; $p=0.24$) although there was significant heterogeneity among the studies ($p=0.002$, $I(2)=65.0\%$). Subgroup analysis showed no significant beneficial effect of fish oils in any subset of population (Liu T et al, *Heart* 2011;97 :1034-1340).

News from the ESC Meeting 2011

The ARISTOTLE trial randomized 18 201 patients with atrial fibrillation to apixaban (5 mg orally twice daily) or warfarin (target INR of 2.0 to 3.0). After a median follow-up of 1.8 years, results showed that apixaban was associated with a 21% reduction in the risk of stroke or systemic embolism, a 31% reduction in bleeding, and an 11% reduction in all-cause mortality.

In the dal-VESSEL trial, patients with coronary heart disease or equivalents and HDL-cholesterol levels <50 mg/dLwere randomized to dalcetrapib 600 mg or placebo for 36 weeks. Dalcetrapib reduced CETP activity by 50% and increased HDL-cholesterol levels from a mean baseline value of 39 mg/dL to 48 mg/dL (a 31% rise) while no change in LDL cholesterol levels was observed. No difference was noted with regard either to the primary efficacy end-point of brachial artery FMD at 12 weeks or to the safety end point of the 24-hour ambulatory blood-pressure monitoring at four weeks.

The EMPHASIS-HF trial randomized 2737 patients with mild heart failure and an LVEF <30% or <35% if QRS >130 ms to receive eplerenone or placebo on top of standard therapy. The primary end-point of CV death or heart failure hospitalization was significantly reduced by 37% (18.3% vs 25.9%, p,0.001). Cardiovascular death, heart failure hospitalization and all cause death were also significantly reduced, leading to a premature halting of the trial after a mean follow-up of 21 months.

The PRODIGY trial randomized 2013 patients undergoing coronary stenting due to acute coronary syndromes (74%) or stable angina (26%), to six or 24 months of dual antiplatelet treatment (clopidogrel plus aspirin). The primary end point which was all-cause mortality, nonfatal MI, or stroke at two years did not differ between the two groups (10% in both arms). On the contrary, TIMI major bleeding and blood transfusion requirements were significantly more frequent in the 24 month group (0.6% vs 1.6%, p=0.041, 1.3% vs 2.6%, p=0.041 respectively).