58%, 71% vasodepressive. Orthostatic hypotension was confirmed in 50%. A loop recorder was implanted in 5 patients, diagnostic in 60%. Final diagnosis: 50% neurally-mediated syncope-orthostatic hypotension, 20% arrhythmic, 10% unexplained. Tailored treatment was made.

CONCLUSION A standardized management of syncope in hypertrophic cardiomyopathy reduces unexplained episodes, allowing a proper treatment.

073_16760

Predictors of Syncopal Recurrence after Cardiac Pacing in Patients with Carotid Sinus Syndrome

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INTRODUCTION In cardio-inhibitory Carotid Sinus Syndrome (CI-CSS), syncopal recurrence is expected to occur in up to the 20% of patients after pacing therapy. The present study analyzes post-implantation syncopal recurrence in CI-CSS, to identify predictors of recurrence.

METHODS We retrieved electronic records concerning 3127 consecutive patients who had undergone carotid sinus massage (CSM) in the Syncope Unit of Careggi Hospital, Florence, and Ospedali del Tigullio, Lavagna, in the period 2004-2014.The study population included patients who had received cardiac pacing for CI-CSS. Syncopal recurrence was investigated during a mean follow-up of 3.8±3.4 years.

RESULTS 112 patients were enrolled, the mean age was 77.1±9.7 years. 19 patients (17%) experienced syncopal recurrence, with a mean number of 3.8±3.4 episodes per patient. Patients suffering from recurrence had more frequently predisposing situations and prodromes preceding syncope; chronic therapy with nitrates was more frequent, too. At the multivariate analysis, prodromes and predisposing situations remained independent predictors of recurrence.

CONCLUSIONS Prodromal symptoms and predisposing situations identify patients at higher risk of post-implantation recurrence; these predictors can be easily assessed from clinical history.

ATRIAL TACHYARDIA, ATRIAL FLUTTER AND OTHER ATRIAL ARRHYTHMIAS: DIAGNOSIS AND TREATMENT

Session nos: 2.01 to 2.07

073_16840-D1

A Novel 2-D Spatial-Temporal ECG Representation Using Multipolar Esophageal Catheters: A Pilot Study

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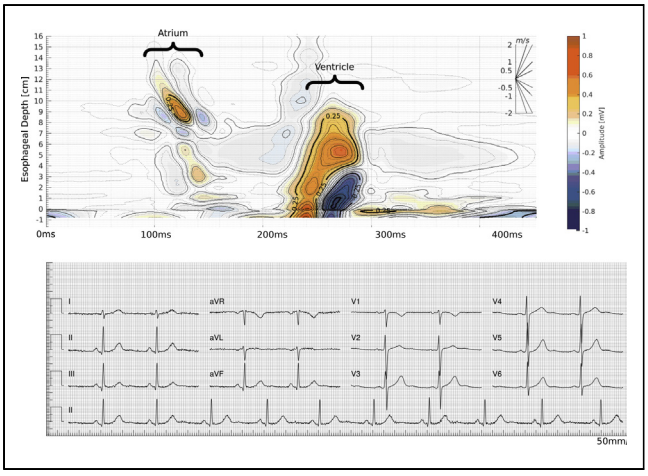
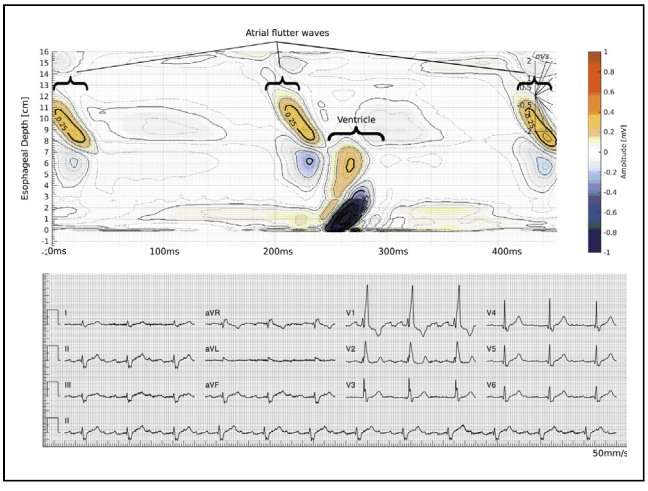
INTRODUCTION P-waves in surface ECGs are often of minor quality and lead to uncertainties in non-invasive arrhythmia diagnostics. We therefore exploited the advantages of *esophageal* ECGs (eECG) to improve the diagnosis of atrial arrhythmias.

METHODS Esophageal ECGs of 14 patients with supraventricular arrhythmias and 6 healthy subjects were recorded during a pilot study using a multipolar naso-esophageal catheter (ESOFLEX-10S, FIAB). We fused multiple beats under consideration of catheter motions and variations in beat morphology to create a novel 2-D high-resolution eECG representation, which we name esophageal *isopotential map* (IPM).

RESULTS IPMs visualize electrical cardiac fields measured in the esophagus as isopotential lines in a 2-D view with the abscissae showing time and the ordinate showing esophageal depth. IPMs show epicardial atrial signals with enhanced signal quality and reveal cardiac propagation speed and its direction. Figures 1 and 2 show IPMs for a healthy subject and a patient with atrial flutter, respectively.





CONCLUSIONS Complementing surface ECGs with IPMs might increase the reliability of non-invasive atrial arrhythmia diagnostics. A trial with intra-cardiac reference measurements for validation is ongoing.

073_16289

Prophylactic Pulmonary Vein Isolation During Isthmus Ablation For Atrial Flutter: Three-Year Outcomes Of The Prevent Afl Study

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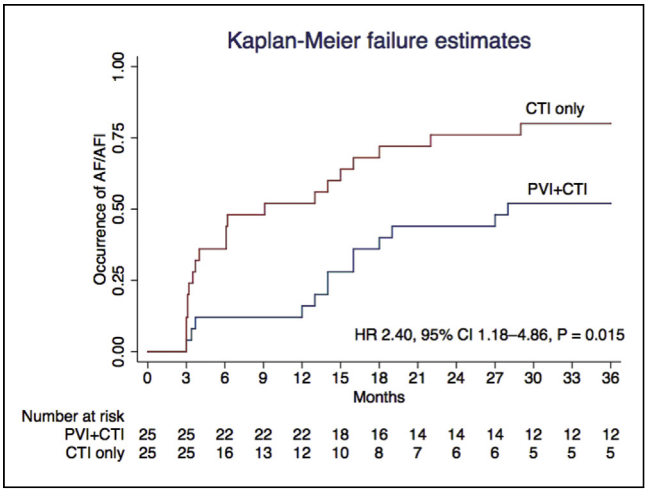
INTRODUCTION The PREVENT AF I study demonstrated that prophylactic pulmonary vein isolation (PVI) in patients with typical atrial flutter (AFL) resulted in substantial reduction of new onset atrial fibrillation (AF) during 1-year follow up as assessed by continuous implantable loop recorder (ILR).

OBJECTIVE To assess the 3-year outcome in AF prevention by prophylactic PVI in patients with only typical AFL.

METHODS Fifty patients with documented AFL were randomized to either cavo-tricuspid isthmus (CTI) ablation alone (n=25) or CTI with concomitant PVI (PVI; n=25). All patients received an ILR with regular follow-up for 3 years following initial ablation. The primary endpoint of the study was the occurrence of any atrial tachyarrhythmia including AF or AFL after ablation with the monthly burden exceeding 0.5% on the ILR.

RESULTS At the end of 3 years, 80% of the patients in CTI only group vs 52% of the patients in PVI+CTI group developed AF/AFl recurrences [hazard ratio (HR) 2.40, 95% confidence interval (CI) 1.18–4.86, P = 0.015] (see Figure). More patients in the CTI only group underwent redo ablation compared to PVI+CTI group, 32% vs 8%, respectively (p = 0.037). The three-year AF burden also favored the combined ablation group compared to the CTI ablation only group: 6.2% vs 16.8% (p = 0.038). In CTI only group, 12 (48%) patients were hospitalized during follow-up compared to 4 (16%) in PVI+CTI group (p=0.032). Two patients in CTI only group developed stroke with no clinical adverse events in PVI+CTI group.



CONCLUSIONS Prophylactic PVI in patients with only typical AFL resulted in a significant reduction of new onset AF and burden during long-term follow-up as assessed by continuous ILR, with consequent reduction in hospitalizations and need to perform repeat ablation for AF.

Clinical Trials Registration: NCT01563848

073_16832-L2

Stability Evaluation of an Irrigated, Flexible Tip Catheter During Radiofrequency Ablation of AVNRT

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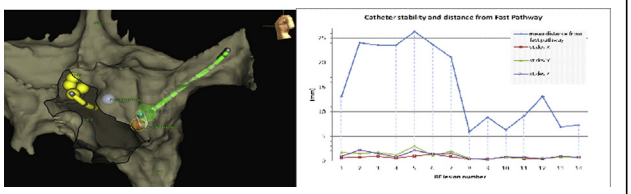
INTRODUCTION Atrio-ventricular block (AVB) is a major complication of atrio-ventricular reentry tachycardia (AVNRT) ablation. Electro-anatomic mapping (EAM) ensures catheter stability, reducing X-rays. Our aim was to assess safety and efficacy of an irrigated, flexible tip catheter, guided by an EAM system, in AVNRT.

METHODS Seven patients (1 male, 14%; age 37±11 years) underwent an ablation, identifying fast and slow pathway locations by EnSite™ Velocity™. Standard deviation (SD) of the Flexability™ catheter tip position was studied to check its stability with and without irritating junctional rhythm during radiofrequency (RF).

RESULTS Acute success rate was 100% without complications. Mean procedure/fluoroscopy times were 126±35min/148±255s, respectively. Mean RF time was 8.5±8.4 min. In 4/7 cases (57%) fluoroscopy was entirely avoided. Mean distance between RF applications and fast pathway was 18.3±7.9 mm; catheter position SD during RF was 0.7±0.3, 1.2±0.7, 1.1±0.6mm on x-y-z axes respectively.



CONCLUSIONS This initial experience on a small cohort of young adults shows feasibility, safety and efficacy of EAM-guided AVNRT ablation. The associated use of a flexible, irrigated tip ensures catheter stability and accurate slow pathway mapping and ablation.

073_17092p

Effects Of Ensite Navx/Precision™ Compared To Carto®3 On Fluoroscopy Exposure And Procedural Duration In Avnrt Catheter Ablation

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INTRODUCTION Electrophysiology procedures (EP) are traditionally performed under fluoroscopic guidance. The use of different three-dimensional electro-anatomical mapping (3D-EAM) systems for right-sided arrhythmia ablation may differently effect procedure duration and radiation exposure.

METHODS We evaluated 301 consecutive patients undergoing AVNRT ablation at two centers. 242 patients ablated with Carto®3 (Biosense Webster, Diamond Bar, CA) were compared to 59 patients using Ensite NavX/Precision™ (Abbott, SJM, St Paul, MN).

RESULTS Patients characteristics and procedural findings are summarized in the Table.

Patients undergoing Ensite guided EPs were slightly older (p=0.03). The two groups were not significantly different regarding BMI. There were significant differences in fluoroscopy time and dose, having the Ensite guided EPs the lowest exposure (p <0.005 and p <0.001, respectively), although a longer procedure duration (p=0.01). The number of procedures with complete elimination of fluoroscopy was significantly higher in Ensite NavX™ guided EPs (p<0.001). No major complications occurred.

AVNRT	Carto ®	Ensite ™	P-value
N	242	59	
Male/Female (%)	91/145 (40/60%)	21/38 (36/64%)	
Mean age (years)	55.7±17.7	61.6±21.5	0.03
BMI (kg/m^2)	26.6±5.8	27.6±5.7	0.31
Procedure duration (min)	123.4±39.8	105.1±45.6	0.01
Fluoroscopy time (min)	4.3±8.1	1.1±3.4	0.005
DAP (μGy*m^2)	245.5±388.5	34±144	<0.001
No-X-ray procedures, n (%)	42 (17.4%)	41 (73.2%)	<0.001

BMI body mass index, DAP dose area product

CONCLUSION When compared to Carto®3 the use of Ensite NavX™ for routine AVNRT ablation is associated with a significant reduction in fluoroscopy exposure allowing successful procedures with complete elimination of fluoroscopy in >70%.

073_17093p

Effects Of Different 3D Electro-Anatomic Mapping Systems On Fluoroscopy Exposure And Procedural Duration In Typical Atrial Flutter Ablation

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