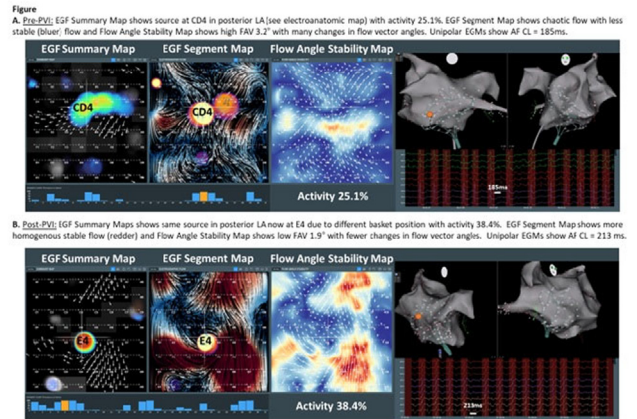
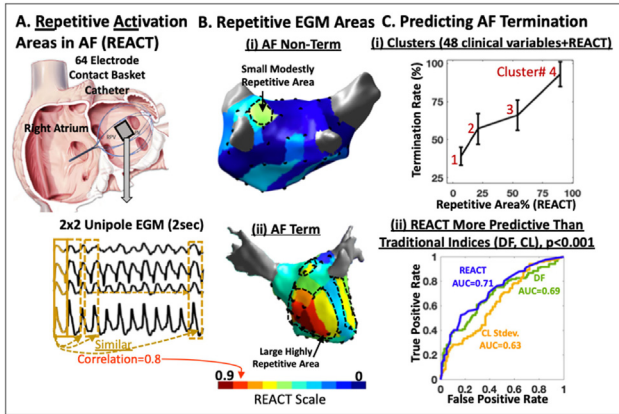


DF or CL ($p < 0.001$ ANOVA). Combining indices provided AUC 0.80 for AF termination.

Conclusion: Repetitive islands of AT-like activity in AF provide an intuitive metric of organization. Larger areas of such islands predict acute response to therapy better than a comprehensive set of clinical variables or other organization indices.



ABSTRACT CI-524:
Appropriate, inappropriate or delayed ICD shocks:
current data

Friday, April 29, 2022

1:00 PM - 2:00 PM

CI-524-01

THE IMPACT OF SMART PASS ALGORITHM STATUS ON INAPPROPRIATE SHOCK RATES IN THE UNTOUCHED STUDY

Lucas V.A. Boersma MD, PhD; Johan D. Aasbo DO, FHRS; Reinoud Knops MD, PhD; Pier D. Lambiase BCH, BM, MBChB, PhD, FHRS; Maria Grazia Bongiorni MD; Jean-Claude Deharo MD; Andrea M. Russo MD, FHRS; Martin C. Burke DO; Ali H. Shakir MD; Ricky A. Henderson MD, FHRS; David T. Huang MD, FHRS; Ursula Appl BSBME; Amy Brisben PhD, CCDS; Nathan Carter MS; Mikhael F. El-Chami MD, FHRS and Michael R. Gold MD, PhD, FHRS

Background: The current Subcutaneous ICD (S-ICD) incorporates SMART Pass (SP) to improve sensing and discrimination capabilities to reduce inappropriate shocks (IAS). SP status is programmable but may be disabled automatically based on electrogram (EGM) characteristics.

Objective: To evaluate SP status' impact on IAS, appropriate shocks (AS), complications and mortality in the UNTOUCHED S-ICD trial.

Methods: Primary prevention patients (pts, n=1111) with ejection fraction $\leq 35\%$ and no pacing requirement were followed for up to 18 months. SP status during a study visit was programmed ON or OFF and status between visits was either consistently OFF, ON, or automatically disabled (DIS). The impact of SP status on pt outcomes was evaluated using Kaplan-Meier (K-M) analysis. Multivariable proportional hazard analysis identified IAS predictors.

Results: Percent of pts with SP always ON, always OFF, ON with DIS, and OFF then ON with no DIS were 56, 16, 15, and 13%, respectively. High blood pressure (81.3%, $p = .009$) and kidney disease (17.0%, $p = .059$) were highest in pts with SP always OFF. Reasons for SP DIS included PVCs and low EGM amplitudes. K-M IAS rates differed significantly with SP status: pts post DIS had highest IAS rates (fig); SP ON vs OFF was a significant predictor of fewer IAS. While neither AS ($p = 0.58$) nor complication ($p = 0.58$) rates changed significantly, mortality differed significantly between pts with SP always ON, always OFF, ON with DIS, and OFF then ON with no DIS (4.8, 9.1, 3.1, and 3.7%, respectively; $p = 0.044$).

CA-529-04

EFFECT OF PULMONARY VEIN ISOLATION ON ELECTROGRAPHIC FLOW-IDENTIFIED EXTRA-PULMONARY VEIN SOURCES PRE- V. POST-ABLATION

Petr Neuzil MD; Melissa H. Kong MD, FHRS; Joshua D'Arcy MD; Jan Petru MD; Moritoshi Funasako MD, PhD; Jan Skoda; Stepan Kralovec MD; Martin Mudroch; Peter Ruppertsberg MD and Vivek Y. Reddy MD

Background: Pulmonary vein isolation (PVI) is the cornerstone for atrial fibrillation (AF) treatment; however, its efficacy for persistent AF remains suboptimal. Electrographic Flow (EGF) mapping visualizes near real-time cardiac action potential flow to identify extra-PV sources and flow directionality over time.

Objective: Analyze effect of PVI on extra-PV AF source activity (SAC), AF cycle length (CL) and stability of flow angle variability (FAV).

Methods: Pre-PVI, unipolar electrograms were recorded for 1 min from a 64-pole basket to generate EGF maps. Relevant AF sources are identified as reproducible patterns of centrifugal EGF activation with prevalence of SAC $> 20\%$ calculated over 60 sec. EGF pattern determines whether flow directionality remains stable over time or shows high FAV, measuring by how many degrees mean flow vector angle changes. Post-PVI EGF maps recorded once PVI confirmed.

Results: Prospective study of 14 patients undergoing de novo PVI, mean age 63.9 ± 9.0 years, mean LA size 42.9 ± 4.7 mm, mean AF duration 25.9 ± 29.6 months. Pre-PVI, 44.7% (21/47) of sources in LA; 55.3% (26/47) in RA. Of sources remaining post-PVI, 52.1% (25/48) sources were in LA; 47.9% (23/48) in RA. In LA, PVI resulted in 5.0% increase in SAC ($p = 0.003$), 6.9 ms increase in AF CL ($p < 0.001$), and 0.28° decrease in FAV ($p < 0.001$). In RA, PVI resulted in 5.5% increase in SAC ($p = 0.004$), 7.4 ms increase in AF CL ($p < 0.001$), and 0.23° decrease in FAV ($p = 0.028$).

Conclusion: Elimination of electrical conduction from PV triggers results in increased extra-PV SAC; slowing AF CL and stabilization of FAV. PVI may unmask extra-PV AF drivers and stepwise elimination of drivers starting with PV triggers followed by extra-PV sources simplifies AF conduction patterns.