Younger Age at Time of Symptom Onset Is Associated With Nonpulmonary Vein Triggers of Atrial Fibrillation William H. Sauer, Erica Zado, Mark Vanderhoff, David Lin, Sanjiv Dixit, David J. Callans

Methods: On 292 patients referred for catheter ablation for treatment of AF (January 1999 – September 2003) was retrospectively analyzed to determine the potential differences in age specific triggers. Data were collected during initial patient interview and included duration of AF symptoms. Electrophysiologic studies using multiple catheters during isoproterenol infusion identified triggers initiating AF as originating from a PV or other atrial source. Non-PV triggers were further characterized as AT or AVNRT and were treated concurrently to re-initiate AF after successful ablation. Biventricular induced, only non-pulmonary vein triggers were included. Method: Younger age at time of symptom onset was significantly associated with the presence of non-PV triggers (risk ratio: 2.56 [1.2 - 6.2]; p=0.03).

Results: 

Younger age was not associated with the presence of AT (P=0.39) but was significantly associated with the presence of AVNRT (P=0.01).

Conclusion: Patients with younger symptoms of AF before the age of 35 are more likely to have non-PV triggers initiating AF. Consideration should be given to the presence of AF triggers outside the PV's in patients who have symptoms of AF prior to age 35.

Atrial Tachycardia and Atrial Fibrillation Are Closely Associated with Cardiomyopathy Sunil C. Shrestha, Kyungmoo Ryu, Jayakumar Sahadevan, Nichole L. Martovitz, Saurabh Shah, Ceelen M. Kreshitan, Michael D. Fauk, Brian D. Hoit, Bruce S. Stambler, University Hospitals of Cleveland, Cleveland, OH, Case Western Reserve University, Cleveland, OH

Dogs with rapid ventricular pacing (RVP)-induced congestive heart failure (CHF) have sustained AF more frequently compared with those in which only AT was induced (164±31 vs. 134±19 ms, p=0.055). Verapamil terminated 6 of 7 sustained AT and 4 of 5 sustained AF episodes was induced compared with those in which only AT was induced (164±31 vs. 134±19 ms, p=0.055). Younger age at time of symptom onset was significantly associated with the presence of non-PV triggers (risk ratio: 2.56 [1.2 - 6.2]; p=0.03).

Results:

Non-PV triggers were further characterized as AT or AVNRT and were treated concurrently to re-initiate AF after successful ablation. Biventricular induced, only non-pulmonary vein triggers were included. Method: Younger age at time of symptom onset was significantly associated with the presence of non-PV triggers (risk ratio: 2.56 [1.2 - 6.2]; p=0.03).

Conclusion: Patients with younger symptoms of AF before the age of 35 are more likely to have non-PV triggers initiating AF. Consideration should be given to the presence of AF triggers outside the PV's in patients who have symptoms of AF prior to age 35.

Coronary Sinus Os and Fossa Ovals Ablation: Effect on Interaltrial Conduction and Inducibility of Atrial Fibrillation Peter O. Oh, Sheng He, Alfred E. Buxton, Malcolm M. Kirk, Brian Fran, Charles Koo, Peter Keshary, Andy Chavetta, Dennis Lamer, David M. McAdam, University of Arizona, Tucson, AZ, Brown Medical School, Providence, RI

Methods: Under fluoroscopic guidance a multi-polar electrode catheter was placed in the CS of 3 swine. The left atrial (LA) activation sequence (AS) was assessed during low right atrial (RA) pacing. The right atrial (RA) AS was evaluated with non-contact mapping (Endocardial Solutions) during proximal CS pacing. Using the MEHSh electrode catheter circumferential RF lesions were delivered just inside the CS os as well as on the right and left atrial (transseptal) aspect of the FO. After each ablation, right and left atrial AS was reassessed. AF inducibility was assessed at baseline and after successful CS os/FO ablation.

Results: At baseline, LA AS was proximal (CS os) to distal and RA activation was earliest at the CS os in all 3 animals. AF was inducible with rapid pacing in 2 of 3 swine. CS os ablation resulted in elimination of inter-atrial conduction at the CS level (reversal of LA AS during LRA pacing - distal CS to proximal CS) and a switch of earliest LA activation (Endocardial Solutions) during proximal CS pacing. Using the MEHSh electrode catheter circumferential RF lesions were delivered just inside the CS os as well as on the right and left atrial (transseptal) aspect of the FO. After each ablation, right and left atrial AS was reassessed. AF inducibility was assessed at baseline and after successful CS os/FO ablation.

Conclusions: In this model, (1) a novel RF energy MEHSh electrode catheter can create circumferential ablation lesions inside the CS os, and around the FO. (2) These lesions result in conduction block along the CS and the FO, and (3) rendered AF non-inducible. (4) Creation of such inter-atrial conduction block may be useful in catheter ablation of AF.