A83.E780
JACC March 9, 2010
Volume 55, issue 10A

IMAGING AND DIAGNOSTIC TESTING

ASSESSMENT OF THE LEFT ATRIAL SUBSTRATE IN LONE ATRIAL FIBRILLATION: IMPLICATIONS FOR STAGING OF ATRIAL FIBRILLATION

ACC Poster Contributions
Georgia World Congress Center, Hall B5
Monday, March 15, 2010, 9:30 a.m.-10:30 a.m.

Session Title: MRI: Applications in Electrophysiology
Abstract Category: MRI
Presentation Number: 1149-234

Authors: *Nathan Burgon, Troy J. Badger, Nazem W. Akoum, Gaston Vergara, Lori McMullan, Yaw A. Adjei-Poku, Thomas S. Haslam, Jeremy Fotheringham, Eugene G. Kholmovski, Rob S. MacLeod, Nassir F. Marrouche, University of Utah Health Sciences Ctr, Salt Lake City, UT*

Background: Lone AF is thought to be a different type of AF. We sought to analyze the LA substrate in patients with lone AF using delayed-enhancement MRI (DE-MRI) to see how it compared with the various stages of LA remodeling.

Methods: 174 patients with AF were included in the original analysis. 25 of these patients met criteria for Lone AF as defined by absence of structural heart disease based on history, physical examination and imaging tests including chest x-ray and echocardiography, with no history of coronary artery disease, diabetes, hypertension, and hyperthyroidism. Patients underwent DE-MRI and placed in 1 of 3 categories; Stage 1 structural remodeling (SRM) (<15% LA wall enhancement), Stage 2 SRM (15-35%) and Stage 3 SRM (>35%).

Results: Lone AF patients had a lower mean age (49.9 ± 7.5 vs. 66.3 ± 10.8; p = <0.001) and lower mean average volumes (88.3 ± 41.1 vs. 107.7 ± 42.6; p = 0.036). Lone AF patients had a lower mean enhancement (14.6 ± 8.7 vs. 18.1 ± 12.9; p = 0.197) though not significantly different. More patients with lone AF had Stage 2 SRM than Stage 1 SRM. One patient with lone AF had Stage 3 SRM reflecting extensive AF disease. Figure represents 2 examples of lone AF with Stage 1 SRM (top row) and Stage 3 SRM (bottom row, who showed significant LA remodeling even without a significant prior history or exposure to AF].

Conclusion: The term 'lone' AF does not appropriately categorize AF patients based on LA substrate analysis. Staging AF based on extent of substrate disease may be a more accurate way to classify AF.