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PhD in Medical Sciences
2018-2019

INVITATION to the Public defence of

Arash ARYANA

To obtain the academic degree of '**DOCTOR IN MEDICAL SCIENCES**'

Catheter Ablation of Atrial Fibrillation: The Cryoballoon Perspective.

Monday 28 January 2019

Auditorium Piet Brouwer, 17:00
Faculty of Medicine and Pharmacy, Laarbeeklaan 103, 1090 Brussel

How to reach the campus Etterbeek:

<http://www.vub.ac.be/english/infoabout/campuses>

Summary of the dissertation

The fundamental principles of cryothermal ablation were originally described in clinical practice through the development of cryosurgery. Founded on these principles, the first-generation cryoballoon was created over a decade ago in order to guide and perform PV isolation for the treatment of symptomatic AF. Over the years, this has given way to the development of the second- and the third-generation cryoballoons which have emerged as superior ablation tools when compared to their first-generation predecessor or point-by-point, non-force sensing radiofrequency. These contemporary ablation tools have been shown to provide a greater degree of uniformity in tissue cooling, while facilitating a shorter time-to-PV isolation, reducing PV reconnection and improving long-term freedom from recurrent AF and atrial arrhythmias. Though historically, the quality of cryoablation had been assessed by simply observing certain crude measures such as rapid cooling, a low nadir temperature, prolonged cryoapplication duration or repetitive freeze-thaw-freeze cycles, recent studies have provided more objective tools to precisely assess the quality of cryoapplications delivered during catheter ablation of AF. Based upon such metrics, specific dosing algorithms have been developed and validated which have been shown to improve both the efficacy and the efficiency of the ablation procedure. Moreover, such tailored ablation strategies could conceivably also play an important role in maximizing the procedural safety. Future directions should be aimed at examining the role for cryotherapy in catheter ablation of non-PV triggers such as the posterior left atrial wall. Though the preliminary outcomes thus far appear promising, larger, randomized and prospective trials are needed to carefully evaluate the safety and efficacy of these novel methods.

Curriculum Vitae

06/2008 Clinical Cardiac Electrophysiology Fellowship, Massachusetts General Hospital / Harvard Medical School
06/2006 Cardiovascular Fellowship, Creighton University Cardiac Center
06/2004 Chief Residency, Department of Internal Medicine, Creighton University Medical Center
06/2003 Medical Residency, Department of Internal Medicine, Creighton University Medical Center
06/2001 Internship, Creighton University Medical Center
02/2000 Medical Doctorate, Ross University School of Medicine
12/1995 Master of Science, Biotechnology, Johns Hopkins University
05/1992 Bachelor of Science, Biological Sciences and Biopsychology, University of Maryland