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PhD in Medical Sciences
2014-2015

INVITATION to the Public defence of

Yves DE GREEF

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

New developments in percutaneous ablation of paroxysmal atrial fibrillation: focus on the multipolar radiofrequency ablation techniques.

Tuesday 21 April 2015

Auditorium **Vanden Driessche**, 15:00
Faculty of Medicine and Pharmacy, Laarbeeklaan 103, 1090 Brussel

How to reach the campus Jette:

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Vrije Universiteit Brussel

Summary of the dissertation

Atrial fibrillation (AF) is the most encountered arrhythmia in everyday clinical practice.

The associated mortality and morbidity makes the search for a curative therapy one of the most important goals in modern electrophysiology. The dominant role of the pulmonary veins as the main sources of triggers for AF paroxysms became clear. This forms the basis of AF ablation with empirical complete electrical isolation of the pulmonary veins as the solid endpoint. Pulmonary vein isolation (PVI) evolved in the last years from an experimental procedure to an established and effective therapy in patients with drug-resistant, symptomatic, paroxysmal AF.

The aims of this thesis are to study different aspects (procedural efficiency, safety, acute PV reconnection, predictors of success, long-term clinical outcome) of catheter ablation of AF in general and multipolar radiofrequency ablation techniques in particular. The two multipolar catheters studied in the current thesis are the High Density Mesh Ablator (HDMA) and the Pulmonary Vein Ablation Catheter (PVAC). Our initial experience of ablation with the HDMA catheter and descriptive comparison of two generations (30mm and 35mm) HDMA catheters are discussed.

After a point-of-view article entitled "Sequelae after AF ablation: Efficacy and Safety go Hand in Hand" two safety aspects of PVAC ablation are discussed: the risk of PV narrowing and the occurrence of asymptomatic cerebral embolism. Procedural aspects of AF ablation are further elaborated highlighting the importance of durable PVI in case of a triggering PV and the study of acute PV reconnection and its predicting factors during PVAC ablation. Also, long-term clinical outcome after PVAC ablation in comparison to point-by-point ablation with radiofrequency energy is discussed.

Curriculum Vitae

Yves De Greef was born in Antwerp 16th of May 1975. After finishing medical school in 2000, he specialized in Cardiology (2000-2006) and Electrophysiology (2006-2009).

He is currently working as interventional electrophysiologist at the ZNA Middelheim Hospital in Antwerp.

He is married and father of three children.