

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/28604> holds various files of this Leiden University dissertation.

Author: Auger, Dominique

Title: Advanced cardiac imaging in heart failure : from subclinical myocardial dysfunction to therapy optimization

Issue Date: 2014-09-04

ADVANCED CARDIAC IMAGING IN HEART FAILURE :

FROM SUBCLINICAL MYOCARDIAL DYSFUNCTION
TO THERAPY OPTIMIZATION

Dominique Auger

ADVANCED CARDIAC IMAGING IN HEART FAILURE : FROM SUBCLINICAL MYOCARDIAL DYSFUNCTION TO THERAPY OPTIMIZATION

The studies described in this thesis were performed at the Department of Cardiology of Leiden University Medical Center, Leiden, The Netherlands

ADVANCED CARDIAC IMAGING IN HEART FAILURE : FROM SUBCLINICAL MYOCARDIAL DYSFUNCTION TO THERAPY OPTIMIZATION

PROEFSCHRIFT

Ter verkrijging van de graad van Doctor aan de Universiteit Leiden,
op gezag van Rector Magnificus prof. mr. C.J.J.M. Stölker,
volgens besluit van het College voor Promoties
te verdedigen op 04 09 2014
klokke 13.45 uur

door

Dominique Auger

Geboren te Sorel, Québec, Canada
in 1979

Cover : Taos-Daphné Houasnia

Lay-out : Taos-Daphné Houasnia

Printing : Le Caïus du livre, Québec

ISBN : 978-2-981-4667-0-9

Copyright © 2014 Dominique Auger, Leiden, The Netherlands. All rights reserved. No part of this book may be reproduced or transmitted, in any form or by any means, without permission of the author.

The realization of this thesis was made possible by: Programme de Bourse de Formation et de Fellowship du Centre Hospitalier de l'Université de Montréal (CHUM) et de la Fondation du CHUM, le Département de Cardiologie du CHUM, and St-Jude Medical.

PROMOTIECOMISSIE

Promotor: Prof. Dr. Jeroen J. Bax
Co-promotor: Dr. Victoria Delgado

Overige Leden: Prof. Dr. Josep Brugada (University of Barcelona)
Prof. Dr. Martin J. Schalij
Prof. Dr. J. Wouter Jukema
Prof. Dr. Johannes H. Reiber
Dr. Nina Ajmone Marsan

TABLE OF CONTENTS

GENERAL INTRODUCTION AND OUTLINE OF THE THESIS	9
PART I: DETERMINANTS OF OUTCOME AFTER CARDIAC RESYNCHRONIZATION THERAPY AND RIGHT VENTRICULAR APICAL PACING	19
<hr/>	
CHAPTER 1	
Three-dimensional imaging in cardiac resynchronization therapy.	21
CHAPTER 2	
Prediction of Response to Cardiac Resynchronization Therapy Combining 2 Different 3-Dimensional Analyses of Left Ventricular Dyssynchrony.	41
CHAPTER 3	
Effect of cardiac resynchronization therapy on the sequence of systolic mechanical activation assessed by 2 dimensional radial strain.	59
CHAPTER 4	
Effect of cardiac resynchronization therapy in patients without left intraventricular dyssynchrony.	75
CHAPTER 5	
Effect of induced LV dyssynchrony by right ventricular apical pacing on all-cause mortality and heart failure hospitalization rates at long-term follow-up.	93
CHAPTER 6	
Effect of AV- and VV-delay optimization on clinical and echocardiographic outcomes of patients treated with cardiac resynchronization therapy: a meta-analysis.	111
PART II: MYOCARDIAL TISSUE CHARACTERIZATION AND LEFT VENTRICULAR MECHANICS IN DIABETIC PATIENTS	131
<hr/>	
CHAPTER 7	
Association between diffuse myocardial fibrosis by cardiac magnetic resonance contrast-enhanced T1 mapping and subclinical myocardial dysfunction in diabetic patients: a pilot study.	133

CHAPTER 8

Aortic stiffness is related to left ventricular diastolic function in patients with diabetes mellitus type 1: assessment with MRI and speckle tracking strain analysis. 157

SUMMARY AND CONCLUSIONS 177

SAMENVATTING EN CONCLUSIES 183

Curriculum vitæ 189

List of publications 191

Aknowledgements 195

Du choc des idées jaillit la lumière

Nicolas Boileau 1636-1711

À ma grande petite sœur