

University of Groningen

Towards improved risk prediction of incident atrial fibrillation and progression of atrial fibrillation

Marcos, Erinaldo Gonsalvis

DOI:
[10.33612/diss.136550017](https://doi.org/10.33612/diss.136550017)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2020

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Marcos, E. G. (2020). *Towards improved risk prediction of incident atrial fibrillation and progression of atrial fibrillation*. [Thesis fully internal (DIV), University of Groningen]. Rijksuniversiteit Groningen.
<https://doi.org/10.33612/diss.136550017>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

**Towards Improved Risk Prediction of Incident Atrial Fibrillation and
Progression of Atrial Fibrillation**

E.G. Marcos

Erinaldo Gonsalvis Marcos

Towards improved risk prediction of incident atrial fibrillation and progression of atrial fibrillation.

Financial support by the Dutch Heart Foundation for the publication of this thesis is gratefully acknowledged.

The research described in this thesis was supported by a grant of the Dutch Heart Foundation (2010B233).

Financial support for the printing of this thesis was kindly provided by the SBOH (the employer for GP trainees and elderly care medicine trainees)

Copyright 2020, E.G.Marcos

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by means- electronic, mechanically, by photocopying, recording or otherwise- without express written permission from the author and, when appropriate, the publisher holding the copyrights of the published articles.

Layout and printed by: Optima Grafische Communicatie, Rotterdam, The Netherlands

ISBN: 978-94-034-2550-4



rijksuniversiteit
groningen

Towards Improved Risk Prediction of Incident Atrial Fibrillation and Progression of Atrial Fibrillation

Proefschrift

ter verkrijging van de graad van doctor aan de
Rijksuniversiteit Groningen
op gezag van de
rector magnificus prof. dr. C. Wijmenga
en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op

woensdag 20 mei 2020 om 09.00 uur

door

Ernaldo Gonsalvis Marcos

geboren op 25 maart 1983
te Willemstad.

Promotores

Prof. dr. M. Rienstra

Prof. dr. I.C. van Gelder

Co-promotor

dr. B.A. Mulder

Beoordelingscommissie

Prof. dr. A.A. Voors

Prof. dr. L.V.A. Boersma

Prof. dr. S.J.L. Bakker

Paranimfen

Dr.B.Geelhoed

Drs.M.I.H Al-Jazairi

Financial support by the following sponsors for the publication of this thesis is gratefully acknowledged: Rijksuniversiteit Groningen, Groningen University Institute for Drug Exploration (GUIDE), Biotronik Nederland BV, Bayer Healthcare Pharmaceuticals, Biosemi BV, Pfizer BV.

Chapter 1	Introduction	9
Part 1- Risk markers for incident atrial fibrillation		
Chapter 2	Relation of renal dysfunction with incident atrial fibrillation and cardiovascular morbidity and mortality: The PREVEND study <i>Europace. 2017 Dec 1;19(12):1930-1936.</i>	23
Chapter 3	Metabolomic profiling in relation to new-onset atrial fibrillation (from the Framingham Heart Study) <i>Am J Cardiol. 2016 Nov 15;118(10):1493-1496.</i>	41
Part 2 – Assessment of remodeling of the atrium.		
Chapter 4	Increased P-wave complexity in patients with atrial fibrillation compared to a control population. <i>Submitted</i>	55
Part 3 – Risk markers for progression of atrial fibrillation.		
Chapter 5	Atrial fibrillation progression and outcome in patients with young onset atrial fibrillation <i>Europace. 2018 Nov 1;20(11):1750-1757.</i>	75
Chapter 6	Atrial fibrillation progression risk factors and associated cardiovascular outcome in well-phenotyped patients – data from the AF-RISK study. <i>Europace. 2019 Dec 22 (epub ahead of print)</i>	93
Chapter 7	Sex differences in atrial fibrillation progression and outcome in patients with young onset atrial fibrillation <i>Int J Cardiol Heart Vasc. 2019 Nov 7;25:100429</i>	111
Chapter 8	Discussion and future perspectives	123
	Nederlandse samenvatting	141
	Dankwoord	145
	Bibliography	149
	Biography	151

