Epidemiology of chronic kidney disease in Europe

Brück, K.

Citation for published version (APA):

General rights
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), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: https://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
The incidence of renal replacement therapy for end stage renal disease (ESRD) varies substantially at both the global and European level. If we can determine which factors cause these differences across Europe, this may lead to the identification of health care measures effective in reducing the incidence of ESRD on a regional level. One possible cause for this variation could be a difference in the number of patients reaching ESRD. This number is mainly influenced by two factors: 1) the number of chronic kidney disease (CKD) patients at risk of progression to ESRD, i.e. the prevalence of CKD and 2) the outcomes of patients with CKD.

In 2012, the European CKD Burden Consortium was established to enable cross country comparison of both the prevalence of CKD and outcomes of patients with CKD.

Part 1 of this thesis contains studies on the prevalence of CKD. We observed a surprisingly large variation in the prevalence of CKD across European countries despite using age- and sex-standardization. We hypothesize that the variation can be contributed to both true variation and to methodological differences.

In Part 2 we present research on outcomes in patients with CKD. Across cohorts with CKD patients attending outpatient nephrology clinics, we found a marked variation, particularly in mortality risk. A possible explanation could be differences in regional population health and in healthcare systems.

In conclusion, this thesis suggests that both the prevalence of CKD and the outcomes of patients with CKD vary across European countries. The magnitude and cause of the variation still needs further investigation.
Epidemiology of chronic kidney disease in Europe
Epidemiology of chronic kidney disease in Europe

© Katharina Brück, Amsterdam 2016


Design & lay out: Katharina Brück
Photography cover: Statue of Atlas, Arona, Italy by Katharina Brück
Printed by: Pro-book, Zwolle

Copyright by Katharina Brück, Amsterdam, The Netherlands. All rights reserved. No part of this thesis may be reproduced, stored on a retrieval system or transmitted in any form or by any means, without permission of the author.

Financial support by the Dutch Kidney Foundation for the publication of this thesis is gratefully acknowledged. The printing of this thesis was financially supported by the University of Amsterdam.

Funding: The research leading to this thesis has received funding from (1) the European Community’s Seventh Framework Programme under grant agreement number HEALTH-F2-2009-241544 (SysKID), (2) the European Renal Association-European Dialysis and Transplant Association (ERA-EDTA) under the QUality European Studies (QUEST) initiative and (3) the Academice Medical Center, Deptartment of Medical Informatic.
Promotiecommissie:

Promotores:  Prof. Dr. K.J. Jager, Universiteit van Amsterdam  
             Prof. Dr. A. Abu-Hanna, Universiteit van Amsterdam

Copromotor:  Dr. V.S. Stel, Universiteit van Amsterdam

Overige leden:  Prof. Dr. J.J. Homan van der Heide, Universiteit van Amsterdam  
                 Prof. Dr. A.E. Kunst, Universiteit van Amsterdam  
                 Dr. Ir. M. Noordzij, Universiteit van Amsterdam  
                 Prof. Dr. R.J.P.M. Scholten, Universiteit van Utrecht  
                 Prof. Dr. C. Wanner, Julius Maximilian’s Universität Würzburg  
                 Dr. F.J. van Ittersum, Vrije Universiteit Amsterdam

Faculteit der Geneeskunde

Für Sabine und Ekkehard
TABLE OF CONTENTS

Chapter 1: Introduction 10

Part 1: CKD prevalence

Chapter 2: Methodology used in studies on chronic kidney disease prevalence in Europe: a systematic literature review. 22

Chapter 3: Chronic kidney disease prevalence varies across the European general population. 50

Chapter 4: Translational research in nephrology: chronic kidney disease prevention and public health. 144

Part 2: CKD outcomes in CKD cohorts

Chapter 5: Quality of study design and reporting of CKD cohort studies before and after STROBE: a systematic review. 168

Chapter 6: Progression and mortality in patients with chronic kidney disease attending outpatient nephrology clinics across Europe: a novel analytic approach. 206

Chapter 7: Longitudinal association of body mass index and waist circumference with left ventricular mass in hypertensive predialysis chronic kidney disease patients. 234

Chapter 8: Discussion 256

Chapter 9: Summary 270

Chapter 10: Nederlandse samenvatting 276

Chapter 11: Portfolio, List of Publications & Curriculum Vitae 282

Acknowledgements 288