Universiteit
Leiden
The Netherlands

# Venous and arterial thrombosis : associations and risk factors

Roshani, S.

**Citation**
Roshani, S. (2012, January 12). *Venous and arterial thrombosis : associations and risk factors*. Retrieved from https://hdl.handle.net/1887/18334

| | |
|---|---|
| Version: | Corrected Publisher's Version |
| License: | Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden |
| Downloaded from: | https://hdl.handle.net/1887/18334 |

**Note:** To cite this publication please use the final published version (if applicable).

# Venous and arterial thrombosis, Associations and risk factors

**Author**: Sare Roshani
**Photo Cover painting**: Ido Menco
**Printed by**: Anthony Weaver
**ISBN/EAN**: 978-90-8891-351 8

Printed & lay-out by: Proefschriftmaken.nl || Printyourthesis.com
Published by: Uitgeverij BOXPress, Oisterwijk

The printing of this thesis was financially supported by Federatie van Nederlandse Trombosediensten.

Copyright ©2012, S. Roshani, Leiden, the Netherlands
No part of this thesis may be reproduced, stored in a retrieval system or transmitted in any form or by any means, without prior written permission of the author.

# Venous and arterial thrombosis, Associations and risk factors

Proefschrift

ter verkrijging van
de graad van Doctor aan de Universiteit Leiden,
op gezag van Rector Magnificus prof.mr. P.F. van der Heijden,
volgens besluit van het College voor Promoties
te verdedigen
op donderdag 12 januari 2012
klokke 15.00 uur

door

**Sara Roshani**
geboren te Mashhad (Iran)
in 1979

**Promotiecommissie**

| | |
|---|---|
| Promotores: | Prof. dr P.H. Reitsma |
| | Prof. dr S. Middeldorp (Universiteit van Amsterdam) |
| Overige leden: | prof. dr. G.P.M. Luyten |
| | prof. dr. P.E. Slagboom |
| | prof. dr. J.C.M. Meijers (Universiteit van Amsterdam) |

# Contents


| | | |
|---|---|---|
| Chapter 1 | General introduction and outline of the thesis | 7 |
| **Part I** | **Novel risk factors of venous thrombosis and clinical aspect of thrombophilia** | |
| Chapter 2 | High levels of protein C are determined by PROCR haplotype 3 | 19 |
| Chapter 3 | *NQO1*: Candidate gene in a quantitative trait locus affecting factor V and prothrombin levels | 37 |
| Chapter 4 | Haplotypes of VKORC1, NQO1 and GGCX, their effect on activity levels of vitamin K-dependent coagulation factors, and the risk of venous thrombosis | 53 |
| Chapter 5 | Thrombophilia and venous thromboembolism: implications for testing | 61 |
| Chapter 6 | Incidence of postpartum hemorrhage in women receiving therapeutic doses of low-molecular-weight heparin | 85 |
| **Part II** | **Association between venous and arterial thrombosis** | |
| Chapter 7 | Risk factors of arterial cardiovascular complications in patients with prior venous thromboembolism | 101 |
| Chapter 8 | Inflammation markers, D-dimer and the risk of recurrent venous thrombosis | 113 |
| Chapter 9 | Risk factors for idiopathic retinal vein occlusion | 133 |
| Chapter 10 | Risk of arterial thrombosis in double heterozygous carriers and homozygous carriers of factor V Leiden and prothrombin G20210A; a retrospective family cohort study | 153 |
| Chapter 11 | Summary and discussion | 161 |
| | Samenvatting (summary in Dutch) | 173 |
| | Dankwoord | 181 |
| | Curriculum Vitae and publications | 185 |