

University of Groningen

The role of cell savers and filters in cardiac surgery

Vermeijden, Jan Wytze

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:

2015

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

Citation for published version (APA):

Vermeijden, J. W. (2015). *The role of cell savers and filters in cardiac surgery*. University of Groningen.

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).

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.

The role of cell savers and filters in cardiac surgery

Jan Wytze Vermeijden

The printing of this thesis was financially supported by:

Afdeling intensive care, Medisch Spectrum Twente
Stichting research intensive care Enschede (SRICE)

Colofon

The role of cell savers and filters in cardiac surgery
Thesis, Rijksuniversiteit Groningen, The Netherlands

Copyright © 2015 A.D. Vermeijden, Enschede, the Netherlands

All rights reserved. No parts of this publication may be reproduced or transmitted in any form or by any means, electronic, mechanical, including photography, photocopying, recording or otherwise, or stored in any information or retrieval system of any nature, without prior written permission from the copyright owner.

ISBN: 978-94-6233-139-6

ISBN digital: 978-94-6233-145-7

Cover: Gildeprint, Enschede

Layout: Nicole Nijhuis, Gildeprint, Enschede

Printed by: Gildeprint, Enschede



**rijksuniversiteit
groningen**

The role of cell savers and filters in cardiac surgery

Proefschrift

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

De openbare verdediging zal plaatsvinden op

woensdag 25 november 2015 om 11:00 uur

door

Jan Wytze Vermeijden

geboren op 9 december 1972
te Haarlem

Promotores

Prof. dr. T.W.L. Scheeren

Prof. dr. M.A. Mariani

Beoordelingscommissie

Prof. dr. C. Boer

Prof. dr. J.G. Grandjean

Prof. dr. C.J. Kalkman

Table of Content

| | | |
|------------|--|-----|
| Chapter 1 | General introduction and outline of thesis | 7 |
| Chapter 2 | Effects of cell saving devices and filters on transfusion in cardiac surgery: a multicenter randomized study Annals of Thoracic Surgery 2015; (99): 26–32 Letters to the editor and authors reply Annals of Thoracic Surgery 2015;100(1): 378 | 25 |
| Chapter 3 | Do repeated runs of a cell saver device increase the pro-inflammatory properties of washed blood? European Journal of Cardio-thoracic Surgery 2008; (34): 350-353 | 41 |
| Chapter 4 | Additional post-operative cell salvage of shed mediastinal blood in cardiac surgery does not reduce allogeneic blood transfusions: a cohort study Accepted by Perfusion in revised form (2015) | 51 |
| Chapter 5 | Clinical efficacy and biocompatibility of three different leukocyte and fat removal filters during cardiac surgery Artificial Organs 2005; 30(6): 452–457 | 65 |
| Chapter 6 | Influence of mechanical cell salvage on red blood cell aggregation, deformability, and 2,3-diphosphoglycerate in patients undergoing cardiac surgery with cardiopulmonary bypass Annals of Thoracic surgery 2008; (8): 1570-5 | 79 |
| Chapter 7 | Summary, general discussion and future perspectives | 93 |
| Chapter 8 | Nederlandse samenvatting | 105 |
| Chapter 9 | Curriculum Vitae and Bibliography | 115 |
| Chapter 10 | Dankwoord | 121 |

