



Universiteit
Leiden

The Netherlands

Lessons from rare diseases: pathophysiology of stress-related diseases and organization and evaluation of care for patients with Cushing's syndrome

Haalen, F.M. van

Citation

Haalen, F. M. van. (2023, April 11). *Lessons from rare diseases: pathophysiology of stress-related diseases and organization and evaluation of care for patients with Cushing's syndrome*. Retrieved from <https://hdl.handle.net/1887/3594043>

Version: 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/1887/3594043>

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

LESSONS FROM RARE DISEASES

Pathophysiology of stress-related diseases and organization and evaluation of care for patients with Cushing's syndrome

Femke Maria van Haalen

ISBN: 978-94-93278-36-3

Year of publication 2023

Design, lay-out, and printing: Off Page, Amsterdam

Cover design: Bas van Os

Copyright © 2023 by F.M. van Haalen, Leiden, the Netherlands

The copyright of the published articles has been transferred to the respective journals. All rights reserved. No parts 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.

LESSONS FROM RARE DISEASES
**Pathophysiology of stress-related diseases and organization and
evaluation of care for patients with Cushing's syndrome**

Proefschrift

ter verkrijging van de
graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus prof. dr. ir. H. Bijl,
volgens besluit van het college voor promoties
te verdedigen op dinsdag 11 april 2023
klokke 15.00 uur

door

Femke Maria van Haalen
geboren te Leiden
in 1985

Promotor prof. dr. A.M. Pereira Arias

Copromotoren prof. dr. N.R. Biermasz
prof. dr. O.M. Dekkers

Leden promotiecommissie prof. dr. H. Pijl
prof. dr. E.J.P. de Koning
prof. dr. P.H.L.T. Bisschop (Amsterdam UMC)
dr. N.M. Appelman-Dijkstra
dr. R.A. Feelders (Erasmus MC)

TABLE OF CONTENTS

Chapter 1	General introduction and outline	7
PART I	PATHOPHYSIOLOGY OF STRESS-RELATED DISEASES – RARE DISEASES AS A MODEL FOR STRESS VULNERABILITY	19
Chapter 2	Central serous chorioretinopathy in active endogenous Cushing's syndrome	21
Chapter 3	Cushing's syndrome and hypothalamic–pituitary–adrenal axis hyperactivity in chronic central serous chorioretinopathy	39
Chapter 4	Hair cortisol concentrations in chronic central serous chorioretinopathy	55
Chapter 5	Maladaptive personality traits, psychological morbidity and coping strategies in chronic central serous chorioretinopathy	69
PART II	ORGANIZATION, OUTCOME EVALUATION AND QUALITY OF CARE FOR CUSHING'S SYNDROME	87
Chapter 6	Mortality remains increased in Cushing's disease despite biochemical remission: a systematic review and meta-analysis	89
Chapter 7	Long-term effects of Cushing's disease on visuospatial planning and executive functioning	103
Chapter 8	Current clinical practice for thromboprophylaxis management in patients with Cushing's syndrome across reference centers of the European Reference Network on Rare Endocrine Conditions (Endo-ERN)	123
Chapter 9	Long-term postoperative Cushing's disease follow-up using integrated Outcome Squares: unified outcome and evaluation	157
Chapter 10	General discussion and summary	177
Chapter 11	Nederlandse samenvatting	191
Addendum	List of abbreviations	207
	Curriculum Vitae	212
	List of publications	213
	Dankwoord	215

