

Complex Regional Pain Syndrome type 1

Assessment and treatment targeting central sensitization

Susan Collins

The work presented in this thesis was carried out at the Department of Anesthesiology, VU University Medical Centre Amsterdam, in collaboration with the Department of Anatomy and Neurosciences, VU University Medical Centre Amsterdam and the EMGO+ Institute for Health and Care Research, VU University Medical Centre Amsterdam. The EMGO+ Institute participates in the Netherlands School of Primary Care (CaRe) which was re-acknowledged in 2005 by the Royal Netherlands Academy of Arts and Sciences (KNAW).

This PhD project was performed within TREND (Trauma RElated Neuronal Dysfunction), a consortium that integrates research on epidemiology, assessment technology, pharmacotherapeutics, biomarkers and genetics on Complex Regional Pain Syndrome. TREND is supported by a Dutch Government grant (BSIK03016).

Financial support for the printing of this thesis has kindly been provided by the VU University, the Nederlandse Vereniging van Posttraumatische Dystrofie Patiënten, Astellas Pharma BV, Grünenthal BV and Nycomed BV.

ISBN 97890-8570-815-5

Cover photo: Jean-Marc Spaans

Image processing: Agniet Snoep, web.mac.com/snoep

Layout: Jo-Ann Snel, boekenbent.com

Printed by: Wöhrmann Print Service

© S. Collins, Amsterdam, 2011

All rights reserved. No parts of this book may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopy, recording or any information storage and retrieval system without written permission from the holder of the copyright.

VRIJE UNIVERSITEIT

Complex Regional Pain Syndrome type 1

Assessment and treatment targeting central sensitization

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad Doctor aan
de Vrije Universiteit Amsterdam,
op gezag van de rector magnificus
prof.dr. L.M. Bouter,
in het openbaar te verdedigen
ten overstaan van de promotiecommissie
van de faculteit der Geneeskunde
op dinsdag 24 mei 2011 om 11.45 uur
in de aula van de universiteit,
De Boelelaan 1105

door

Susan Collins

geboren te Rotterdam

promotoren: prof.dr. W.W.A. Zuurmond
prof.dr. S.A. Loer
copromotor: dr. R.S.G.M. Perez

Contents

Chapter 1	General Introduction	7
Chapter 2	Diagnostic criteria for CRPS 1: differences between patient profiles using three different diagnostic sets	19
Chapter 3	Development of a symptoms questionnaire for Complex Regional Pain Syndrome and potentially related illnesses: the TREND Symptoms Inventory	35
Chapter 4	Reliability of the Semmes Weinstein Monofilaments to measure coetaneous sensibility in the feet of healthy subjects	53
Chapter 5	Increased N-Methyl-D-Aspartate receptor expression in sweat glands of Complex Regional Pain Syndrome type 1 patients	71
Chapter 6	NMDA receptor antagonists for the treatment of neuropathic pain	89
Chapter 7	Intravenous Magnesium for Complex Regional Pain Syndrome type 1 (CRPS 1) patients: a pilot study	115
Chapter 8	Magnesium retention in Complex Regional Pain Syndrome type 1 patients	135
Chapter 9	General discussion	151
	Summary	161
	Samenvatting	167
	Dankwoord	173
	Curriculum Vitae	177