



Universiteit
Leiden
The Netherlands

Greater occipital nerve modulation and clinical aspects of cluster headache

Brandt, R.B.

Citation

Brandt, R. B. (2025, October 21). *Greater occipital nerve modulation and clinical aspects of cluster headache*. Retrieved from <https://hdl.handle.net/1887/4279596>

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/1887/4279596>

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

Greater occipital nerve modulation and clinical aspects of cluster headache

Roemer Berend Brandt

Greater occipital nerve modulation and clinical aspects of cluster headache

PhD thesis, Leiden University, Leiden, the Netherlands, 2025

© Roemer Berend Brandt, 2025

ISBN: 978-94-6473-954-1

Cover design: Mendel Agterberg

Layout en print: Ipskamp Printing

The research presented in this thesis was supported by grants of the Innovatiefonds Zorgverzekeraars (3.649) and the Hersenstichting (HA2017.01.03). The funding agencies had no role in the design or conduct of the studies.

Funding for publication of this thesis has been provided by the Nederlandse Hoofdpijn Vereniging (NHV), de Vereniging van Nederlandse Hoofdpijn Centra (VNHC), Medronic, Salvia BioElectronics and Teva Nederland.

Greater occipital nerve modulation and clinical aspects of cluster headache

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 21 oktober 2025
klokke 13:00 uur

door

Roemer Berend Brandt
Geboren te Voorburg
in 1991

Promotores

Prof.dr. M.D. Ferrari

Prof.dr. F.J.P.M. Huygen

(Erasmus MC)

Copromotor

Dr. R. Fronczek

Promotiecommissie

prof.dr. JJGM Verschuuren

dr. MF Contarino

prof.dr. A. Maassen van den Brink

(Erasmus MC)

prof.dr. A.P. Wolff

(UMC Groningen)

prof.dr. R.H. Jensen

*(Danish Headache Centre /
Copenhagen University)*

TABLE OF CONTENTS

Chapter 1	General introduction	9
Section I	Cluster headache characteristics	31
Chapter 2	Increased risk and reward seeking behavior in episodic cluster headache: insights from psychometric surveys and a behavioral task	33
Chapter 3	Clinical symptoms of androgen deficiency in men with migraine or cluster headache: a cross-sectional cohort study	55
Chapter 4	Visual hypersensitivity in cluster headache, as quantified by the Leiden Visual Sensitivity Scale (L-VISS): a cross-sectional study	73
Chapter 5	COVID-19 vaccination-triggered cluster headache episodes with frequent attacks	91
Chapter 6	Translating the Cluster Headache Quality of Life Questionnaire (CHQ) from English to Dutch with the TRAPD method	101
Chapter 7	Intra- and inter-individual attack frequency variability of chronic cluster headache	125
Section II	Greater occipital nerve modulation	145
Chapter 8	Repeated greater occipital nerve injections with corticosteroids in medically intractable chronic cluster headache: a retrospective study	147
Chapter 9	Greater occipital nerve injection with methylprednisolone as transitional therapy in episodic cluster headache. Results from an RCT	159
Chapter 10	Transient side-shift of cluster headache attacks after unilateral greater occipital nerve-injection.	185

Chapter 11	A prospective open label 2-8 year extension of the randomised controlled ICON trial on the longterm efficacy and safety of occipital nerve stimulation in medically intractable chronic cluster headache	195
Chapter 12	Prediction of efficacy of occipital nerve stimulation in medically intractable chronic cluster headache	227
Chapter 13	General discussion	237
Appendix		259