EEG reactivity for prognostication after cardiac arrest

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Appendices

Abbreviations

ACNS American Clinical Neurophysiology Society

ARAS Ascending Reticular Activating System

AUC Area Under the Curve

CA Cardiac Arrest

cEEG continuous EEG

CI Confidence Interval

CPC Cerebral Performance Categories

CRS-R Coma Recovery Scale-Revised

CT Computed Tomography

DoC Disorders of Consciousness

DOR Diagnostic Odds Ratio

EEG Electroencephalography

EEG-R EEG Reactivity

GCS Glasgow Coma Score

GTB Gradient Tree Boosting

HIBI Hypoxic-Ischemic Brain Injury

ICC Intra-class Correlation Coefficient

ICU Intensive Care Unit

ILCOR International Liaison Committee on Resuscitation

LR Logistic Regression

MCS Minimally Conscious State

ML Machine Learning

MRI Magnetic Resonance Imaging

NFL NeuroFilament Light chain

NN Neuronal Network

NPV Negative Predictive Value

NSE Neuron Specific Enolase

NVD NeuroVascular Disease

PPV Positive Predictive Value

QUIPS QUality In Prognostic Studies

RF Random Forest

ROC Receiver Operator Curve

ROSC Return Of Spontaneous Circulation

SIRPIDs Stimulus Induced Rhythmic or Periodic Discharges

SSEP SomatoSensory Evoked Potentials

SVM Support Vector Machine

TBI Traumatic Brain Injury

TMI Toxic-Metabolic-Infectious encephalopathy

TTM Targeted Temperature Management

UWS Unresponsive Wakefulness Syndrome

VS Vegetative State

WLST Withdrawal of Life Sustaining Treatment

PhD Portfolio

PhD student: M.M. Admiraal

PhD period: 2015-2019

PhD supervisors: prof. dr. M.J. Schultz, prof. dr. ir. M.J.A.M. van Putten, dr. J. Horn, dr. A.F. van Rootselaar

General courses	**Year**	**ECTs**
Practical Biostatistics	2015	1.1
Oral Presentation	2015	0.8
BROK	2015	0.9
AMC World of Science	2015	0.7
Unix	2016	0.5
E-science	2016	0.6
Other courses		
Course on simplified EEG monitoring after cardiac arrest, Skane University Hospital, Lund, Sweden	2015	0.3
Advanced Wilderness Life Support, Outdoor Medicine, The Netherlands	2018	0.7
Presentations		
Status epilepticus na reanimatie; Case presentation at continued learning meeting Dutch society of clinical neurophysiology	2016	0.5
EEG reactivity in patients after cardiac arrest: A close look at stimuli; Poster presentation at International Symposium on Intensive Care and Emergency Medicine	2016	0.5
EEG reactivity testing: methods and definitions; Pecha Kucha presentation at continued learning meeting Dutch society of clinical neurophysiology	2016	0.5
EEG and SSEP on the ICU; Oral presentation at Amsterdam symposium	2017	0.5
EEG reactivity for prognostication after cardiac arrest: preliminary study results; Oral presentation at Congress of the European Academy of Neurology	2017	0.5
EEG reactivity for prognostication after cardiac arrest: preliminary study results; Oral presentation at International Symposium on Post Cardiac Arrest Care	2017	0.5
EEG reactiviteit voor prognose na reanimatie: voorlopige studie resultaten; Oral presentation at Dutch society of neurology research convention	2017	0.5
EEG reactivity in postanoxic coma; Oral presentation at mini symposium Neurophysiological observations in cerebral ischemia	2018	0.5
EEG reactivity for prognosis after cardiac arrest; Poster presentation at Amsterdam Neuroscience Annual Meeting	2018	0.5

EEG reactivity predicts good outcome after cardiac arrest; Poster presentation at Congress of the Dutch society of intensive care medicine	2019	0.5
Attended conferences		
2nd International Symposium on Post Cardiac Arrest Care, Lund, Sweden	2015	0.5
International Symposium on Intensive Care and Emergency Medicine (ISICEM), Brussels, Belgium (poster presentation)	2016	1
3rd Congress of the European Academy of Neurology, Amsterdam, The Netherlands (oral presentation)	2017	1
3rd International Symposium on Post Cardiac Arrest Care, Lund, Sweden (oral presentation)	2017	0.5
Nederlandse Vereniging voor Neurologie Wetenschapsdagen, Nunspeet, The Netherlands (oral presentation)	2017	0.5
International Conference for Clinical Neurophysiology, Washington DC, USA (poster presentation)	2018	0.75
KNF dagen Nederlandse Vereniging voor Klinische Neurofysiologie, Rotterdam, The Netherlands	2019	0.5
Other activities		
Intensive care research meeting (weekly)	2015-2019	16
Intensive care journal club (monthly)	2015-2019	4
Clinical neurophysiology residents training (weekly)	2015-2019	8
Teaching		
ICU fellows lecture: "EEG op de IC"	2016, 2017, 2018	0.5
Lecture master Neuroscience, track Cognitive Neurobiology & Clinical Neurophysiology, University of Amsterdam: "EEG after cardiac arrest"	2017, 2018, 2019	0.5
Supervisor internship Technical Medicine, Twente University (8x)	2014-2019	8
Supervisor master internship Technical Medicine, Twente University (2x)	2015, 2018	8
Supervisor bachelor thesis Technical Medicine, Twente University	2016	1
Supervisor research internship Neuroscience, University of Amsterdam (2x)	2016, 2018	4
Supervisor thesis internship Neuroscience, University of Amsterdam	2017	1
Awards		
Bursary for participation 3rd Congress of European Academy of Neurology 2017 (abstract based)	2017	
Best oral presentation Wetenschapsdagen Nederlandse Vereniging voor Neurologie	2017	
Poster presentation award Amsterdam Neuroscience Annual Meeting	2018	

List of publications

1. **Admiraal MM**, Van Rootselaar AF, Horn J. Electroencephalographic reactivity testing in unconscious patients: a systematic review of methods and definitions. Eur J Neurol 2017;24:245–54.

2. **Admiraal MM**, Gilmore EJ, Van Putten MJAM, Zaveri HJ, Hirsch LJ, Gaspard N. Disruption of Brain–Heart Coupling in Sepsis. J Clin Neurophysiol 2017;34(5):413–420.

3. **Admiraal MM**, van Rootselaar AF, Horn J. International consensus on EEG reactivity testing after cardiac arrest: Towards standardization. Resuscitation. 2018 Oct;131:36-41.

4. **Admiraal MM**, van Rootselaar AF, Hofmeijer J, Hoedemaekers CWE, van Kaam CR, Keijzer HM, van Putten MJAM, Schultz MJ, Horn J. Electroencephalographic reactivity as predictor of neurological outcome in postanoxic coma: A multicenter prospective cohort study. Ann Neurol. 2019 Jul;86(1):17-27.

5. **Admiraal MM**, Horn J, Hofmeijer J, Hoedemaekers CWE, van Kaam CR, Keijzer HM, van Putten MJAM, Schultz MJ, van Rootselaar AF. EEG reactivity testing for prediction of good outcome in patients after cardiac arrest. Submitted

6. **Admiraal MM**, Ramos LA, Delgado Olabarriaga S, Marquering HA, Horn J, Van Rootselaar AF. Quantitative analysis of EEG reactivity for neurological prognostication after cardiac arrest. Submitted

7. Wirtz M, Moekotte J, Balvers K, **Admiraal MM**, Pittet JF, Colombo J, Wagener B, Goslings JC, Juffermans N. Autonomic nervous system activity and the risk of nosocomial infection in critically ill patients with brain injury. Submitted

8. Arnts H, Van Erp WS, Boon LI, Bosman CA, **Admiraal MM**, Schrantee A, Pennartz CMA, Schuurman R, Stam CJ, Van Rootselaar AF, Hillebrand A, Van

den Munckhof, P. Awakening after a sleeping pill: restoring functional brain networks in severe brain injury. Submitted

9. Van Soest T, Van Rootselaar AF, **Admiraal MM**, Potters WV, Horn J. SSEP amplitudes add information for prognostication in postanoxic coma. Submitted

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