EpilepsieNL

Midwinter Meeting

Scientific Section
Dutch League Against Epilepsy

Epilepsy in a New Era

22 November 2024

Kempenhaeghe, Heeze

Scientific Research Section

Mission
The Scientific Research Section (SWO) of the Dutch League against Epilepsy aims to catalyze epilepsy research in the Netherlands by bringing together scientists of diverse backgrounds.

Membership
Membership is open to all professionals who are a member of the Dutch League against Epilepsy and are working in the field of epilepsy research. As a member you will receive e-mail alerts on upcoming SWO events the magazine “Epilepsie, periodiek voor professionals” as well as considerable discounts on conferences organized by the International League Against Epilepsy. Membership costs are € 50,- per year. To apply for membership: go to www.epilepsieliga.nl.

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Secretary’s office
Rob Rouhl
Maastricht UMC+, Department of Neurology
P. Debijelaan 25
6229HX Maastricht
phone +31 43 387 2911
e-mail r.rouhl@mumc.nl

Epilepsy in a new era

Program

9:30	Doors open / Registration
10:15	**Welcome, opening**
10:20	EpilepsieNL projects

1. Unraveling the role of the complement system in epilepsy: the link with mTOR deregulation (M. Luinenburg)
2. The role of ageing related cerebrovascular changes in epilepsy (E. van Vliet)
3. Exploring the utility of human iPSCs to understand and treat epilepsy (Y. Elgersma)
4. Unraveling the role of tRNAs in temporal lobe epilepsy (V. Vangoor)
5. Risk enhancing and protective factors for behavioural problems in people with Dravet Syndrome and a pilot study on the feasibility and efficacy of an individualized intervention (A. Postma)

11:50	Datablitz presentation (*see abstracts*)
12:45	**Lunch and Poster Session**
13:50	Degeneracy in epilepsy: Multiscale computational modelling of multiple routes to hyperexcitable brain circuits *Peter Jedlicka, Giessen University, Germany*
14:50	**Coffee/tea break**
15:10	Photopharmacology as future precision therapy for epilepsy? *Robrecht Raedt, University of Ghent, Belgium*
15:35	Prize Ceremony Young Investigator Awards and Closing
15:45	**Drinks**

Abstracts of the datablitz session (in order of presentation)

- **A. Bosch**, *Stichting Epilepsie Instellingen Nederland, the Netherlands*
  How often do caregivers attend their child when a seizure detection device alerts for a major motor seizure?
- **E. van Boxstael**, *UCLouvain, Belgium*
  Functional connectivity profile in VNS responders: a retrospective fMRI study
- **S. Gefferie**, *Stichting Epilepsie Instellingen Nederland, the Netherlands*
  Resting motor thresholds potentially track the seizure response to intraveneous immunoglobulines in autoimmune encephalitis
- **J. Gula**, *Academic Center for Epileptology Kempenhaeghe/Maastricht University Medical Center+, the Netherlands*
  the CONTACT study
- **M. Jansen**, *Eindhoven University of Technology, the Netherlands*
  Outcome Prediction of Epilepsy Surgery Based on Functional Brain Network Features Derived from MEG
- **G. Krivoshein**, *Leiden University Medical Center, the Netherlands*
  Functional EEG metrics to identify risk of epilepsy and anti-seizure medication efficacy
- **M. Lajtos**, *UGent – 4BRAIN, Belgium*
  Studying Brain Connectivity in the Rat Collagenase Model for post-ICH Epilepsy
- **E. Lemmen**, *Kempenhaeghe/Maastricht University, the Netherlands*
  Cost-effective application of seizure detection devices for high-risk night-time epileptic seizures
- **A. van Nieuw Amerongen**, *Stichting Epilepsie Instellingen Nederland, the Netherlands*
  Real world smartphone data can trace the behavioural impact of epilepsy: a case study
- **E. Niggl**, *Erasmus MC, the Netherlands*
  mTOR-dependent metabolic changes in the brain of murine Tsc1-/- epilepsy model
- **M. Vergaelen**, *UGent – 4BRAIN, Belgium*
  Photopharmacological adenosinergic modulation of hippocampal excitability

Additional posters (no datablitz, no abstracts)

- **N. Kolsters**
  A systematic approach to develop a predictable, human stem cell-derived model for SCN1A-related epilepsies
- **H. Kwetsie, A. van Eeghen**
  Verstandelijke beperking en epilepsie bij volwassenen: cognitieve beloop en aanknopingspunten voor zorg en behandeling
- **S. van der Salm,** *Universitair Medisch Centrum Utrecht, the Netherlands*
  Uniform of maatwerk? Het optimale diagnostische EEG algoritme na een eerste insult
- **R. Thijs**, *Stichting Epilepsie Instellingen Nederland, the Netherlands*
  Betere aanvalsdetectie op maat: de eSTAMP-trial
- **V. Vangoor**, *University Medical Center Utrecht, the Netherlands*
  Unraveling the role of tRNAs in temporal lobe epilepsy

Abstracts datablitz

How often do caregivers attend their child when a seizure detection device alerts for a major motor seizure?

Anemoon T. Bosch MD, F.S.S. Leijten MD PhD, Roland, D, Thijs, MD PhD FEAN

Stichting Epilepsie Instellingen Nederland (SEIN), Heemstede, the Netherlands
Brain center, Department of Neurology, University Medical Center Utrecht, Utrecht, the Netherlands
Department of Neurology, Leiden University Medical Centre (LUMC), Leiden, the Netherlands
UCL Queen Square Institute of Neurology, London, UK

Introduction: Development in seizure detection devices has mainly focused on detection performance. Yet in order to serve their function in preventing harmful situations and even SUDEP, caregivers need to respond to seizure alarms. This has not yet been reported. We therefore determined in a family home setting caregiver attendance in response to an alarm from a seizure detection device, and the determinants affecting this rate.
Methods: We evaluated attendance using video recordings form the PROMISE trial, a home based study to evaluate the performance of the NightWatch seizure detection device. Attendance was evaluated for true positive alarms, defined as when a caregiver approached the child within 15 minutes after the alarm. For each true alarm we randomly selected one false alarm of the same subject if available. We also collected several child- and alarm-related determinants, which we analysed for effect on attendance using a generalized estimated equation (GEE).
Results: We included 461 true positive alarms for 31 children. 64% of the alarms were attended, with a median individual attendance rate of 100% per child. We selected 311 false alarms, for which the median individual attendance rate was significantly lower (50%). Attendance rates were equal for eleven children for false and true alarms. In the multivariate analysis seizure related sounds (OR 7.3, 95% CI 3.4-15.5), the Positive Predictive Value (PPV; OR 0.97, 95% CI 0.96-0.99), and age remained significant (OR 0.79, 95% CI 0.63-1.00) were significant predictors.
Conclusion: We found that attendance rates to nocturnal major motor seizure alarms were generally high, though variation existed among caregivers. This research underscores the importance for physicians to encourage caregivers of people with epilepsy using a nocturnal SDD to respond promptly to alarms. This seems more important in older SDD users, when no seizure sounds are made and in those with higher PPV scores.

Functional connectivity profile in VNS responders: a retrospective fMRI study

V. Joris[1,2], **E. Van Boxstael[3]**, A. Berger[2], L. Dricot[2], R. El Tahry[2,3]

1 Dept of Neurosurgery, Cliniques universitaires Saint-Luc, Brussels, Belgium
2 Institute of NeuroScience (IoNS), Université Catholique de Louvain, Brussels, Belgium
3 Dept of Neurology, Cliniques universitaires Saint-Luc, Brussels, Belgium

Aim
To identify markers of VNS response and unravel its mechanism of action through functional connectivity (FC) analysis.

Methods
Patients implanted with a VNS device were included retrospectively. Resting-state functional Magnetic Resonance Imaging (rs-fMRI) was performed, as part of a broader research protocol (Study number: 2021/18FEV/086 (1,2)). We used BrainVoyager and a customized Matlab code (3,4) to calculate cross-correlations between the average time-course signals of the rs-data, extracted from 280 regions (Brainnetome and Suit atlas (5,6)). Using connectome-based predictive modeling (CPM), we tested for predictive models of brain–success of VNS relationship using cross-validation (7).

Results
Nineteen patients (10 (partial) responders, 9 non-responders) were included (age: 37, range 19-62, 11 females). Mean epilepsy duration was 13 years and mean implantation time was 6 years (range 0.5-19). Two patients suffered from generalized-onset, 3 from multifocal-onset and 14 from focal-onset epilepsy.
CPM revealed that the correlation between the predicted and actual success of implant was 0.28 (corrected for age and sex). The prediction significance, based on 2.000 permutations, resulted in a p value of 0.07. Although not significant, trends toward reduced FC were found in patients demonstrating higher therapeutic efficacy compared to non-responders. Nodes with the highest degree, corresponding to the regions with most different FC between responders and non-responders, where the left nucleus accumbens, the left dorso-lateral and left ventro-lateral thalamus, all showing decreased connectivity, mainly with the right hemisphere.

Conclusions
Our results show a trend toward lower connectivity between left nucleus accumbens, amygdala and thalamus – key structures of the vagal afferent network (8) - and the right hemisphere in patients with higher therapeutic effects compared to non-responders.
Further longitudinal studies, with higher number of patients are needed to confirm these findings and specify whether the observed connectivity profile reflects the neuromodulatory effect of VNS, or a prior connectivity profile predictive for future VNS response.

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Resting motor thresholds potentially track the seizure response to intraveneous immunoglobulines in autoimmune encephalitis

S.R. Gefferie (1,2); Y.S. Crijnen (3); M.J. Titulaer (3); R.D. Thijs (1,2,4)

1 Stichting Epilepsie Instellingen Nederland (SEIN), Heemstede, Achterweg 3, 2103 SW, The Netherlands
2 Department of Neurology, Leiden University Medical Centre, Albinusdreef 2, 2333 ZA, Leiden, The Netherlands
3 Department of Neurology, Erasmus University Medical Centre, Dr. Molewaterplein 40, 3015 GD, Rotterdam, The Netherlands
4 Department of Clinical & Experimental Epilepsy, UCL Queen Square Institute of Neurology, London WC1N 3BG, United Kingdom

Background. Seizures are common in autoimmune encephalitis and often resistant to anti-seizure medications alone. Resolution of seizures after initiation of immunotherapy, such as intravenous immunoglobulins (IVIg), occurs more frequently. As cortical excitability appears increased during greater seizure likelihood, excitability biomarkers might support the early separation of responders and non-responders to IVIg. Transcranial magnetic stimulation with electromyography (TMS-EMG) has demonstrated increased resting motor thresholds (rMTs) after anti-seizure medication intake and increased intracortical inhibition following tonic-clonic seizures, both indicating reduced cortical excitability. We examined the potential of TMS-EMG to track the seizure response in people with autoimmune encephalitis treated with IVIg.

Methods. We included people with autoimmune encephalitis due to antibodies against extracellular (e.g. anti-LGI1 encephalitis) and intracellular (e.g. anti-GAD encephalitis) epitopes, experiencing weekly seizures before IVIg treatment. We performed three TMS sessions per participant: at baseline, and at week 6 and week 12 after IVIg initation. Each session involved measurement of the rMT, short-interval intracortical inhibition (SICI) and long-interval intracortical inhibition (LICI). We determined whether changes of TMS-EMG parameters at week 6 compared to baseline were associated with the seizure response, dichotomised based on a >50% seizure reduction cut-off. Among those with three TMS sessions, we also identified cases with typical seizure response patterns (“improving response”, “stabilising response”, “early-to-non response”, “non-response”) to visualise the corresponding rMT courses.

Results. We conducted TMS sessions in 23 participants. A trend towards stronger increase of the rMT at week 6 compared to baseline in responders than in non-responders was observed, though not significant ($p = 0.10$). In selected cases, the rMT showed a consistent increase in those with an improving or stabilising response but an eventual decrease or stable course for (early-to-)non response. The change in SICI ($p = 0.67$) or LICI ($p = 0.72$) between week 6 and baseline did not separate responders from non-responders.

Discussion. The trend towards larger increase of the rMT in responders compared to non-responders to IVIg did not reach significance. The rMT, however, closely tracked the clinical course in selected cases, rendering an artifactual or change finding unlikely. The rMT, thus, may bear potential for tracking seizure burden, though the discriminative power is weak and inter-subject variability prevents individual application.

The CONTACT study

Gula J., van Hoof R. H. M., Slegers R. J., Hunyadi B., Krishnan B., Mischi M., van Kranen-Mastenbroek V.H.J.M., Hendriks M.P.H., van Kuijk S.M.J., Hofman P., Backes W. H., Van Straaten E.C.W., Hilkman D., Wagner L., Colon A. J., Schijns O. E. M. G., Jansen J. F. A., Tousseyn S.

Department of Radiology and Nuclear Medicine, Maastricht University Medical Center, Maastricht, the Netherlands, Mental Health and Neuroscience (MHeNS) Research Institute, University Maastricht, Maastricht, The Netherlands, Academic Center for Epileptology, Kempenhaeghe and Maastricht UMC+, Heeze, The Netherlands, Department of Neurosurgery Maastricht University Medical Center, Maastricht, the Netherlands, Circuits and Systems, Delft University of Technology, Delft, the Netherlands, F Epilepsy Center, Neurological Institute, Cleveland Clinic, 9500 Euclid Avenue, Cleveland, OH 44195, United States of America, Department of Electrical Engineering, University of Eindhoven, Eindhoven, the Netherlands, Department of Clinical Neurophysiology, Maastricht University Medical Centre (MUMC+), the Netherlands, Medical Psychology, Kempenhaeghe, Heeze, The Netherlands, Epidemiology / Statistics, Maastricht University Medical Center, Maastricht, the Netherlands

Introduction
RadiofrequencyThermocoagulation(RFTC) is a therapeutic option for drug-resistant epilepsy(DRE) patients. It produces thermolesions with in the seizure onset zone(SOZ). One advantage of this procedure is that it uses depth electrodes, which are already employed to identify the SOZ. RFTC is also used in areas that are difficult to reach with open surgery, minimizing invasiveness and reducing risks for patients. However, RFTC demonstrates moderate efficacy, with a **23%seizure-freedom rate** and a **58%responder rate** at one year, highlighting the need for further research.

Participants
Ninety adult patients (age≥18years) with DRE will be recruited from the epilepsy surgery program of the Academic Center for Epileptology, Kempenhaeghe and MUMC+. Sixty of the 90 patients implanted with SEEG-electrodes are expected to proceed with an RFTC treatment. Previous non-invasive examinations indicated the need for additional intracranial SEEG exploration.

Studydesign
A combination of electrophysiology and neuroimaging data will be used to determine critical network nodes in epilepsy patients. SEEG and MRI sequences will be recorded before and after RFTC. The surgical efficacy will be evaluated according to ILAE-classification at one-year follow-up.
We will examine: 1) RFTC-induced changes in network activity and their association with seizure outcome, 2) the relationship between pre-RFTC network biomarkers and treatment effect
3) role of neuroimaging biomarkers as a predictor of SEEG network biomarkers to guide future SEEG-implantation planning.

Current results
In the last project we showed that 1) RFTC alters brain network including contacts distant from the coagulated site, 2) Both increased and decreased connections were observed, 3) The ratio of significantly changed RMS appears independent of the proximity to the nearest coagulation site.

Future study will investigate the relationship between these connectivity changes and seizure outcome.

Outcome Prediction of Epilepsy Surgery Based on Functional Brain Network Features Derived from MEG

M. Jansen (1), S. Zinger (1), A. Hillebrand (2), E.C.W. van Straaten (1,2,3)

(1) Department of Electrical Engineering, Eindhoven University of Technology, Eindhoven, the Netherlands.
(2) Department of Clinical Neurophysiology and Neurology, Amsterdam UMC, the Netherlands
(3) Academisch centrum voor Epileptologie, Kempenhaeghe & Maastricht UMC+

Patients who suffer from drug-resistant epilepsy can qualify for surgery to reduce the number of seizures they experience. However, these surgeries are not always successful. Therefore there exists a need to predict the outcome of the surgery to prevent unnecessary surgery and risk. Currently, structural and functional Magnetic Resonance Images (MRI) are obtained and electroencephalography (EEG) is used to determine the functional connectivity (the interaction between brain regions) in prospective surgery candidates. These techniques are also used to predict surgery outcome and determine the area that needs to be resected [1–3]. However, magnetoencephalography (MEG) can expand the prediction methods and may improve surgery outcome prediction. Besides conventional MEG features, obtained from time series analysis, and the location of abnormalities, this can be done by using graph theoretical measures describing the MEG functional brain networks. These brain networks are obtained from MEG measurements and the pairwise comparisons of the time series (in signal space or source space). From the connectivity matrices, graph measures can be derived as features. These features can be used to train a classifier to predict whether a patient will be seizure-free after surgery or not. This research aims to show the feasibility of creating a classifier based on MEG-based network features to predict epilepsy surgery outcomes.

Methods

The method proposed to make a classifier consists of three main steps: pre-processing, feature extraction and training the classifier. The dataset used, consists of 44 patients of whom the international league against epilepsy (ILAE) score for postsurgery outcome at one year is known (32 patients with a good and 12 patients with a poor surgery outcome). We considered a score of 1 or 2 a good surgery outcome, and a score of 3 or higher a poor surgery outcome. For each patient, the resting-state soure-space MEG is available. This MEG is reconstructed to source space using an atlas-based beamforming approach [4, 5], resulting in 246 channels of neuronal activity for the regions-of-interest (ROIs) in the Brainnetome atlas. First, in the pre-processing step, the MEG data, is band-pass filtered in bands of 4-8 Hz, 8-16 Hz and 16-30 Hz to adhere to previous literature. For each frequency band, the connectivity matrix is obtained using corrected amplitude envelope correlation (AECc). From the resulting connectivity matrices, the normalised betweenness centrality (BC) is obtained for each ROI, using Brandes' algorithm. The BC is a graph theoretical measure, indicating the number of shortest paths passing through a node, thus indicating the relative importance of the node. The proposed approach to create the classifier, is to train a support vector machine (SVM) using the BC. We propose to use the BC of all 246 channels as well as subsets of the network. These subsets will consist of the regions corresponding to the default mode network, both with and without the subcortical nodes.

Results

When comparing the connectivity matrices, it is seen that patients with a poor surgery outcome have higher connectivity values than patients with a good surgery outcome. This indicates a difference between poor and good surgery outcomes, which forms a basis for training a classifier. The normalised BC values are also higher for the patients with poor surgery outcomes, thus indicating that this measure can be used as a feature to train the SVM.

Conclusions

The goal of this research is to create a classifier, using features describing the MEG functional connectivity networks, to predict surgery outcomes for epilepsy patients to show feasibility. The classifier will be trained using the BC of the MEG functional connectivity networks, since there is difference in BC between good and poor surgery outcome groups. Work on

this research continues with further training of the SVM and investigating other feature possibilities and combinations of features. This research aims to show the feasibility of using MEG measurements to train a classifier to predict epilepsy surgery outcomes. Using MEG measurements to train the classifier may improve currently available surgery outcome prediction methods, since these methods, to the best of our knowledge, do not use MEG measurements yet. To train a classifier for clinical use in future work, the dataset for training needs to be increased.

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Functional EEG metrics to identify risk of epilepsy and anti-seizure medication efficacy

Georgii Krivoshein, Arn M.J.M van den Maagdenberg, Else A. Tolner

Leiden University Medical Center

The variable response of Dravet Syndrome (DS) patients to anti-seizure medications (ASMs) may be linked to differing extents of disinhibition and related hyperexcitability. Here, we investigate theta-gamma phase-amplitude coupling (θ-γ PAC) as an EEG marker to assess changes in the excitation-inhibition (E/I) ratio in the Scn1a knockout mouse model of DS, potentially reflecting favourable or adverse ASM effects. To explore the broader applicability of θ-γ PAC, we also tested it in a mouse model of Alzheimer's disease (AD) and Alternative Hemiplegia of Childhood (AHC). Both neurological conditions are characterized by selective impairment of inhibitory neuronal networks associated with a high risk of epilepsy.

We assessed ASM effects on EEG features following baseline cortical and hippocampal local field potential (LFP) EEG recordings (3-6 weeks of age) in freely behaving Scn1a+/- DS mice. To assess ASMs effects on EEG features diazepam, known to enhance inhibition, and carbamazepine, known to exacerbate seizures in DS, were tested at 7 weeks of age. Proposed θ-γ PAC measures were derived from seizure-free REM-sleep epochs up to 5 hours post-drug or vehicle administration. At the end of the study, hyperthermic seizure threshold tests were conducted to confirm anti- or pro-seizure drug effects. In addition, θ-γ PAC values were examined in cortical LFP EEG of APP/PS1 AD (3-12 months) and E815K+/- AHC mice (2-4 months) during active wakefulness.

Overall, θ-γ PAC outcomes as an EEG-based E/I metric successfully indicated beneficial or adverse effects of ASMs. Additional observations of θ-γ PAC alterations in AD and AHC mutant models revealed patterns reminiscent of those seen in DS mice, suggesting broader applicability of this EEG-based E/I metric for assessing disease severity and ASM response. Parallel analyses of clinical scalp and depth EEG data during medication tapering may facilitate future translation and validation of θ-γ PAC indicators for potential clinical use.

Studying Brain Connectivity in the Rat Collagenase Model for post-ICH Epilepsy

Melissa Lajtos (1,2);
Christian Vanhove (2);
Veerle De Herdt (1);
Robrecht Raedt (1)

(1) 4BRAIN, Ghent University, Ghent, Belgium;
(2) IBiTech-MEDISIP-INFINITY, Ghent University, Ghent, Belgium

Background

Intracerebral haemorrhage (ICH) is a devastating disease with high mortality and morbidity that affects over 2 million people worldwide each year. It is also a known risk factor for the development of epilepsy. Data regarding seizures after ICH are scarce, and the frequency and predictors of seizures in patients with ICH are poorly understood. The rat collagenase model, widely used to study ICH pathophysiology, has also been shown to induce epileptic seizures. This project aims to investigate post-ICH brain reorganization by tracking structural and functional connectivity changes in the rat collagenase model to better understand the pathophysiology of post-ICH seizures.

Methods

Sprague Dawley rats twenty weeks of age are injected with 0.7 µl of 0.6 U collagenase (n=30) or saline (n=6; control group) into the left striatum to induce an ICH. Dynamic [18F]-FDG PET, diffusion MRI, and functional MRI scans are acquired of each animal 1 week before, and 1, 10, and 18 weeks after ICH-induction. These imaging modalities are utilized to monitor lesion volume and assess alterations in metabolic, structural, and functional brain connectivity.

Following imaging, the animals undergo continuous video-EEG monitoring for six weeks. The data obtained from these recordings are screened for epileptic activity, which is correlated with the findings from the longitudinal imaging study.

Results

Currently, the first 18 animals have undergone injections and are under investigation.
Preliminary analysis of 12 animals using permutation tests revealed reduced metabolic connectivity 1 week post ICH compared to baseline involving the tegmentum, hippocampal formation, thalamus, and substantia nigra.

Discussion/Conclusion

As this is still work in progress, it is too early to draw any conclusions. Based on previous studies, we expect 1/6 animals to develop post-ICH epilepsy. With the strong multimodal imaging dataset we are acquiring in this study, we aim to achieve an in-depth understanding of longitudinal brain connectivity changes following an ICH and how they correlate to post-ICH epilepsy.

Cost-effective application of seizure detection devices for high-risk night-time epileptic seizures (KANS)

Eefke Lemmen
Silvia Evers
Marian Majoie
Hans van Dijk

Academic Centre for Epileptology, Kempenhaeghe & Maastricht University, Heeze, the Netherlands
Department of Health Services Research, Care and Public Health Research Institute (CAPHRI), Maastricht University, Maastricht, the Netherlands
Department of Psychiatry and Neuropsychology, Mental Health and Neuroscience Research Institute (MHeNS), Maastricht University, Maastricht, the Netherlands

Background
In about one in three epilepsy patients, seizures are hard to control with medication. This can lead to serious, potentially lethal complications, especially for seizures occurring during the night. Seizure detection devices have been proven to detect over 80 percent of all major night-time seizures. However, many care facilities still rely on other methods for seizure detection, such as audio monitoring, to monitor epilepsy patients during the night.
Design/methods
Participants for this study are 44 patients living in long term care facilities with at least one major night-time epileptic seizure per month. We will compare 3 months of care as usual to a 3-month period where participants will wear a seizure detection device during the night. Video monitoring will be used during this period to determine the percentage of missed and correct visits from healthcare workers after a seizure. Further information on health care utilisation, quality of life and user-friendliness will be obtained through questionnaires for another 12-months, during which participants will continue to wear the device without video monitoring.
Expected findings
This study will start late 2024, final results are expected in 2027. We expect adequate seizure detection will reduce the number of missed seizures, increase alarm specificity and the number of valid visits from healthcare workers, increasing quality of life and decreasing complications caused by epileptic seizures, hence reducing healthcare costs.
Practical application/discussion
If adequate seizure detection proves to be cost effective, steps can be taken to improve quality of care and patient safety.

Real world smartphone data can trace the behavioural impact of epilepsy: a case study

Arthur R. van Nieuw Amerongen (1,2), Anne Marthe Meppelink (1), Arko Ghosh (3), Roland D. Thijs (1,2,4)

(1) Stichting Epilepsie Instellingen Nederland(SEIN), Heemstede, The Netherlands; (2) Department of Neurology, Leiden University Medical Center, Leiden, The Netherlands; (3) Cognitive Psychology Unit, Institute of Psychology, Leiden University, Leiden, TheNetherlands; (4) UCL Queen Square Institute of Neurology, London, UK

Background
Neurobehavioural comorbidities have a detrimental effect on the quality of life of people with epilepsy, yet tracking their impact is challenging as behaviour may vary with seizures and anti-seizure medication (ASM) side effects. Smartphones have the potential to monitor day-to-day neurobehavioural patterns objectively. We present the case of a man in his late twenties with drug-resistant focal epilepsy in whom we ascertained the effects of ASM withdrawal and a convulsive seizure on his touchscreen interactions.

Methods
Using a dedicated app, we recorded over 185 days the timestamps of 718,357 interactions. We divided the various smartphone behaviours according to the next-interval dynamics of the interactions by using a joint interval distribution (JID). During two ASM load transitions, namely before versus during tapering and tapering versus restarting medication, we used cluster-based permutation tests to compare the JIDs. We also compared the JID of the seizure day to the average of the previous 3 days.

Results
The cluster-based permutation tests revealed significant differences, with accelerated next-interval dynamics during tapering and a reversal upon medication restart. The day of the convulsion exhibited a marked slowing of next-interval dynamics compared to the preceding 3 days.

Conclusion
Our findings suggest that the temporal dynamics of smartphone touchscreen interactions may help monitor neurobehavioural comorbidities in neurological care.

mTOR-dependent metabolic changes in the brain of murine Tsc1-/- epilepsy model

Eva Niggl 1,2,#, Nils Meijer 3,4,#, Ilse Wallaard 1,2,#, Roos Monshouwer 1,2, Susan Zwakenberg 3,4, Fabienne Berrard 1,2, Judith Jans 3,4, Ype Elgersma 1,2,* & Fried Zwartkruis 3,4,*

1 Department of Clinical Genetics, Erasmus MC, Rotterdam, The Netherlands
2 ENCORE expertise center, Erasmus MC, Rotterdam, The Netherlands
3 Department of Genetics, UMC Utrecht, Utrecht
4 dLAB and Center for Molecular Medicine, UMC Utrecht, Utrecht
# These authors contributed equally

Tuberous sclerosis complex (TSC) is a genetic disorder characterized by the formation of benign tumors in multiple organs, including the brain. Epilepsy is one of the most severe and common manifestations, affecting the majority of individuals with TSC. Despite its prevalence, the mechanisms driving epileptogenesis—the process by which epilepsy develops—are not fully understood, limiting the development of effective treatments.
In this study, we investigated transcriptomic changes during epileptogenesis using a mouse model with neuron-specific deletion of Tsc1, which leads to severe epilepsy and sudden unexpected death in epilepsy (SUDEP). Early during epileptogenesis, pathway analysis revealed disruptions in metabolic processes, particularly the dysregulation of ATF4 and several amino acid transporters. Metabolomic profiling of the cortex and hippocampus further identified elevated glycine levels and reduced threonine and glutamine levels, all of which were restored by treatment with mTOR inhibitors. Importantly, modulating glycine and glutamine levels, either by lowering glycine or increasing glutamine, significantly reduced seizure frequency post-onset, comparable to the effects of vigabatrin in this model.
Our findings demonstrate that amino acid supplementation can mitigate seizure activity in TSC mice, offering a potential therapeutic strategy for TSC-related epilepsy. However, these effects are less potent than mTOR inhibitors. This study underscores the value of multi-omics approaches in uncovering disease-relevant pathways and provides further evidence that metabolic dysregulation plays a key role in the pathogenesis of TSC-associated epilepsy.

Photopharmacological adenosinergic modulation of hippocampal excitability

Marijke Vergaelen(1), Jeroen Spanoghe(1), Jeroen Missinne(2), Serge Van Calenbergh(3), Paul Boon(1), Kristl Vonck(1), Robrecht Raedt(1)

1 4BRAIN, Department of Head and Skin, Ghent University, Belgium
2 Center for Microsystems Technology, Imec and Ghent University, Ghent, Belgium
3 Laboratory of Medicinal Chemistry, Department of Pharmaceutics, Ghent University, 9000 Ghent, Belgium

The adenosine A1 receptor (A1R) is a promising therapeutic target in epilepsy by mediating neuronal inhibition. In this study, we investigated whether A1R signaling is still functional in the intrahippocampal kainic acid (IHKA) mouse model for temporal lobe epilepsy (TLE). Moreover, we evaluated the feasibility of spatial selective inhibition of specific hippocampal subregions through photopharmacology. Electrically evoked field postsynaptic potentials (fPSPs) were recorded in the CA1 and DG of acute hippocampal slices. The effect of adding 40 nM of the A1R agonist N6cyclopentyladenosine (CPA) on population spike (PS) amplitude to fPSP slope, an index of excitability, was evaluated in epileptic IHKA versus healthy mice. Subregion selective inhibition of fPSP slope, a measure for neurotransmission, was evaluated through application of spatially restricted illumination to CA1 or DG of slices incubated with 3µM coumarin-caged CPA (cCPA). Administration of CPA similarly decreased hippocampal excitability in epileptic versus healthy mice for CA1 ($n=8$) and DG ($n=12$, $p<0.01$ for CPA effect, $p>0.05$ for CPA-by-group interaction, linear mixed model). In slices from healthy ($n=3$) and epileptic ($n=6$) mice incubated with cCPA, neurotransmission decreased selectively in the illuminated hippocampal subregion ($p<0.001$ for Region-by-illumination-by-illuminated region interaction, linear mixed model). To conclude, the decrease in excitability is comparable in hippocampal slices of IHKA versus healthy mice upon exposure to CPA, indicating preserved A1R signaling in IHKA mice. The use of cCPA allows modulation of hippocampal subregions through localized illumination. These results indicate that photopharmacology has the potential to become a targeted therapy for TLE.

Nederlandse Liga tegen Epilepsie

De Nederlandse Liga tegen Epilepsie is de vereniging van professionals die werken in de medische en sociale epilepsiezorg en aanverwante terreinen.

Inspiratie
'De Liga biedt mij de mogelijkheid om mijn passie voor mijn vak met collega-professionals te delen.'

Netwerk
'De contacten met anderen verrijken me. Ik vind het belangrijk aangesloten te zijn bij een platform dat als enige in Nederland actief is over de volle breedte van de epilepsiewereld.'

Kennis
'De Liga is voor mij de plek om mijn kennis op het terrein van epilepsie te verdiepen en bij te houden.'

Als professional merkt u dagelijks dat uw vak in beweging is. Vakinhoudelijk, maar zeker ook in de omgeving waarin u met die kennis en ervaring aan het werk bent. De inbreng van de overheid en de medische maatschappelijke veranderingen in de epilepsiezorg vragen aandacht. U wilt op de hoogte blijven en uw vak goed uitoefenen.

Nederland kent één beroepsvereniging die in de volle breedte van de epilepsiezorg actief is: de Nederlandse Liga tegen Epilepsie. Dit is de nationale afdeling van de International League Against Epilepsy (ILAE), die de epilepsiezorg in internationaal verband stimuleert. Speerpunt van de Liga is het stimuleren van en informeren over de zorg bij epilepsie en het wetenschappelijk onderzoek naar epilepsie. De Liga slaat daarbij een brug tussen praktijk en wetenschap. Vele verpleegkundigen, maatschappelijk werkers, neurologen, kinderartsen, psychologen, neurochirurgen en andere professionals binnen de epilepsiezorg hebben de weg naar de Liga inmiddels gevonden. Het lidmaatschap van de Liga biedt het volgende:

- **Vakblad "Epilepsie, periodiek voor professionals"**
  Een informatief vakblad met wetenschappelijk onderzoek, psychosociale aspecten van epilepsie en data van congressen en evenementen. Ligaleden ontvangen het blad vier maal per jaar.

- **Website www.epilepsieliga.nl**
  Actuele informatie over de epilepsiezorg en het Nederlands epilepsieonderzoek.

- **Commissies en werkgroepen**
  De volgende commissies en werkgroepen vormen het kloppend hart van de Liga.
  - Sectie Wetenschappelijk Onderzoek (SWO);
  - Commissie Epilepsieverpleegkundigen
  - Werkgroep Multidisciplinaire Psychosociale Hulpverlening
  - Werkgroep Nervus Vagus Stimulatie

De Liga verwelkomt graag nieuwe leden. Bent u beroepsmatig werkzaam in de epilepsiezorg, epilepsieonderwijs of epilepsieonderzoek? Dan zult u de Liga als een inspiratiebron ervaren. Als student of assistent in opleiding (AIO, PhD student) bent u ook welkom. U kunt zich aanmelden via www.epilepsieliga.nl/lid-worden/