Accepted Manuscript

Title: Algorithm for automatic detection of spontaneous seizures in rats with post-traumatic epilepsy<!–<query id="Q3">Your article is registered as a regular item and is being processed for inclusion in a regular issue of the journal. If this is NOT correct and your article belongs to a Special Issue/Collection please contact a.thayappan@elsevier.com immediately prior to returning your corrections.</query>–>

Authors: Pedro Andrade, Tomi Paananen, Robert Ciszek, Niina Lapinlampi, Asla Pitkänen

PII: S0165-0270(18)30194-8
DOI: https://doi.org/10.1016/j.jneumeth.2018.06.015
Reference: NSM 8037

To appear in: *Journal of Neuroscience Methods*

Received date: 20-4-2018
Revised date: 14-6-2018
Accepted date: 19-6-2018

Please cite this article as: { https://doi.org/

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Research Article

Algorithm for automatic detection of spontaneous seizures in rats with post-traumatic epilepsy

Pedro Andrade[1], Tomi Paananen[1]*, Robert Ciszek[1], Niina Lapinlampi[1], Asla Pitkänen[1]*

[1]A. I. Virtanen Institute for Molecular Sciences, University of Eastern Finland, Kuopio, Finland

*Shared first authorship

Corresponding author: Asla Pitkänen, MD, PhD, A. I. Virtanen Institute for Molecular Sciences, University of Eastern Finland, PO Box 1627, FI-70211 Kuopio, Finland, Tel: +358-50-517 2091, Fax: +358-17-16 3030, E-mail: asla.pitkanen@uef.fi

Highlights

- An algorithm that has 100% sensitivity to find spontaneous seizures in rats with epilepsy after traumatic brain injury
- Algorithm is 70 times faster than an experienced technician in screening the seizures
- A novel tool to speed up antiepileptogenesis studies after traumatic brain injury

Abstract

Background: Labor intensive electroencephalogram (EEG) analysis is a major bottleneck to identifying anti-epileptogenic treatments in experimental models of post-traumatic epilepsy. We aimed to develop an algorithm for automated seizure detection in experimental post-traumatic epilepsy.

New Method: Continuous (24/7) 1-month-long video-EEG monitoring with three epidural screw electrodes was started 154 d after lateral fluid-percussion induced traumatic brain injury (TBI; n=97) or sham-injury (n=29) in adult male Sprague–Dawley rats. First, an experienced researcher screened a total of 90,720 h of digitized recordings on a computer screen to annotate the occurrence of spontaneous seizures.

Download English Version:

https://daneshyari.com/en/article/8840223

Download Persian Version:

https://daneshyari.com/article/8840223

Daneshyari.com