

particularité et la ponction lombaire montre une hyperprotéino-rachie majeure à 4g/L.

Résultats Les Ig-iv ont été débutées, mais malgré un traitement bien conduit, la patiente a continué à s'aggraver avec majoration de son ataxie proprioceptive et du déficit moteur ainsi que du tremblement, devenu invalidant. Un traitement par corticoïdes a été débuté, avec une réponse dose-dépendante. Devant la présentation clinique, l'absence de réponse aux Ig-iv et l'amélioration dose-dépendante sous corticoïdes, la recherche des anticorps impliqués dans les nodo-paranodopathies a été entreprise et a mis en évidence la présence d'anticorps anti-Caspr1. Un traitement par Rituximab a été mis en place avec l'amélioration progressive de la symptomatologie.

Conclusion Il convient d'évoquer une nodo-paranodopathie chez les patients présentant une PIDC sévère, d'évolution subaiguë et résistante aux Ig-iv afin de débiter rapidement un traitement par Rituximab, souvent très efficace dans ces sous-types de PIDC.

Mots clés Anticorps anti-Caspr1 ; PIDC ; Rituximab

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Can we use the cardiorespiratory coupling to evaluate alertness in the resting state fMRI studies?



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Background Alertness assessment during resting state fMRI studies is crucial. However, EEG is not easy to use in such case. Recent studies have showed that some vegetative variables easier to record in MRI room may predict alertness.

Objectives We have tested a cardio-respiratory coupling index, MRI compatible, in order to know if it can be use during resting state fMRI studies.

Methods In 16 young normal subjects, a polysomnographically recorded nap was performed twice at least two weeks apart outside a MRI room. In one hand, sleep stages were scored based on EEG, EOG and EMG derivations. On the other hand, ECG, plethysmographic and respiratory signals were analyzed, mainly with specifically developed Matlab routines, in order to compute heart rate variability indexes, pulse transit time and cardiorespiratory coupling index based on both breathing cycles and tachogram.

Results Compare to wake stage, subjects in N2 showed a longer heart beat interval (1.04 ± 0.17 vs. 1.10 ± 0.16 , $P < 0.01$) associated with a higher variability (RMSSD: 59.4 ± 30.3 vs. 72.7 ± 31.7 , $P < 0.05$) and a less tidal volume (704.7 ± 327.4 vs. 439.3 ± 278.2 , $P < 0.001$). Paradoxically, cardiorespiratory coupling index was highly significantly increased (0.35 ± 0.13 vs. 0.53 ± 0.15 , $P < 0.001$).

Conclusion Results show that cardiorespiratory coupling assessment would be a useful alternative to evaluate alertness when polysomnography recordings are hard to achieve. Ongoing analysis will be the comparisons of the performance of machine learning pre-

dictions based on the previous features of the signals and automatic feature extractions achieved using recurrent and convolutional deep learning networks.

Keywords Alertness; Cardiorespiratory coupling; Polysomnography

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Transcranial direct current stimulation (tDCS) modify the interictal epileptiform activity in deep cerebral structures observed on SEEG (stereoencephalographie)



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Background tDCS is a widely investigated noninvasive neuromodulation technic in neurological and psychiatric disorders. Some studies demonstrate the effect of tDCS on interictal epileptiform discharges (IED) (Fregni et al., 2006).

Objectives The objective of our study was to investigate the tDCS effect on IED (frequency of occurrence and amplitudes) in intracerebral structures thanks to SEEG investigation.

Methods Two patients with focal drug-resistant epilepsy were included: one medial and one lateral temporal lobe epilepsy. In average, they were implanted with 15 SEEG electrodes. Thanks to the SEEG recordings (5 days), epileptologists localized the irritative zone. The experiment was divided in 3 sessions: 20 min sham, then 20 min tDCS (−1 mA) and finally 20 min sham. The amplitudes and the number of occurrences were analyzed. The results were compared between the sessions.

Results For the medial temporal lobe study, 64 and 33 IED were detected respectively before and after tDCS. The averaged amplitudes in the hippocampus were respectively $742 \pm 422 \mu\text{V}$ and $152 \pm 43 \mu\text{V}$ correspond to a 20% decrease ($P < 0.001$; Mann–Whitney U test). For the lateral temporal lobe study, we detected respectively 192 and 165 discharges. The averaged amplitudes in the superior temporal gyrus were respectively $136 \pm 55 \mu\text{V}$ and $117 \pm 36 \mu\text{V}$ correspond to a 14% decrease ($P < 0.001$; Mann–Whitney U test).

Conclusion In this study, we demonstrated that the cathodal tDCS can reduce the number and the amplitude of epileptic discharges in intracerebral structures. The strength of this study is related to the simultaneous SEEG recordings with non-invasive tDCS and the in-vivo human brain investigation (deep and superficial).

Keywords Epilepsy; SEEG; tDCS

Disclosure of interest The authors declare that they have no competing interest.

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