

عنوان مقاله:

Dynamical Assessment of Intrinsic Brain Networks in Insomnia Disorder

محل انتشار:

هفتمین همایش نقشه برداری مغز ایران (سال: 1399)

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خلاصه مقاله:

IntroductionInsomnia disorder (ID) is accompanied by cognitive and emotional impairments, however, its neural underpinning is poorly understood [1]. Whole-brain neural dynamics (WBND) are coordinated for controlling efficient functions of the brain system and it has integrative roles in human cognition. So deflection of large-scale neural dynamics is an important field of study [Y]. Here, we assessed WBND in terms of attractor dynamics in the energy landscape of fMRI resting-state networks including the salience network (SAN) and default mode network (DMN) in ID [14]. Methods Participants were ar healthy controls and Fr ID patients (aged Y)-FA years; F/M ratio~=Y; 1.aT MRI) recruited from the Sleep Disorders Research Center, in the Kermanshah University of Medical Sciences. The diagnosis was based on ICSD-m and psychiatric interview. After standard pre-processing, we prepared a time series of average fMRI signals of seven functional brain networks, binarized them, and fitted a pairwise maximum entropy model (MEM), which represent brain activity patterns [F]. We calculated energy values of all the possible brain activity patterns and searched for dominant brain activity patterns that showed locally minimum energy (attractor) values (Fig ו)[Y].ResultsThe MEM with ... איז error fitted on data. We observed ו- and וו attractors in the control and patient group respectively and " different attractors between them (Fig Y). For example, in #1 attractor F networks (sensorimotor network (SMN), visual network (VIS), SAN, dorsal attention network (DAN)) were in approximately similar energy state.ConclusionEnergy landscape indicates the appearance probability of each brain activity pattern and lower energy activity patterns are more inclined and should be stable with higher appearance. Calculating energy state is a way to understand between-network connectivity [F] and when we see F networks in attractor, with more study, more .brain activity patterns must be found, even if it's not demonstrated through other ways like connectivity

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