Rapid eye movement sleep behavior disorder

Rapid eye movement (REM) sleep behavior disorder is a sleep disorder in which you physically act out vivid, often unpleasant dreams with vocal sounds and sudden, often violent arm and leg movements during REM sleep — sometimes called dream-enacting behavior.

Functional connectivity (FC) changes can occur prior to structural changes. A study by Byun et al. from the Seoul National University Hospital aimed to evaluate data-driven whole-brain FC associated with isolated rapid eye movement sleep behavior disorder (iRBD) using multivariate pattern analysis (MVPA).

This was a cross-sectional study of 50 polysomnography-confirmed iRBD patients and 20 age- and sex-matched controls. They used MVPA implemented in the connectome-MVPA CONN toolbox to identify data-driven seed regions for post hoc seed-to-voxel connectivity analysis. The association between FC changes and clinical characteristics, including cognition, depression, autonomic function, and daytime sleepiness, was evaluated.

MVPA revealed one significant cluster located in the left posterior insular cortex. Seed-to-voxel FC analysis using the cluster as a seed showed significantly reduced FC with two clusters located in the precuneus in iRBD patients compared to the controls. The degree of FC was associated with the Montreal Cognitive Assessment-Korean version scores ($r = 0.317$, $p = 0.025$).

This study emphasizes the insula as an important neural correlate associated with iRBD that was associated with cognitive function [1)].

Autonomic dysfunctions including sudomotor abnormalities commonly occur in early Parkinson's disease (PD), but little is known about potential sudomotor abnormalities in idiopathic Rapid eye movement sleep behavior disorder (iRBD), a strong prodromal marker of PD.

The aim of a study of Al-Qassabi from the Department of Neurology and Neurosurgery, McGill University, Montreal, QC, Canada. Sultan Qaboos University, Muscat, Oman. Hôpital du Sacré-Cœur de Montreal, Department of Neurobiology, Division of Clinical Geriatrics, Care Sciences and Society (NVS), Karolinska Institutet, Stockholm, Sweden was to assess sudomotor dysfunction by galvanic skin response using SudoScan, as well as other autonomic markers in 49 iRBD, 40 PD (21 with RBD, 19 without), 20 atypical parkinsonisms, and 41 age-matched controls. All subjects underwent SudoScan of their hands and feet, a 30-second electrocardiogram with assessment of beat-to-beat variability, assessment of orthostatic blood pressure changes and autonomic symptom questionnaires. The galvanic skin response in the hands of PD patients with RBD was significantly smaller than controls (hand mean difference = -7.877, 95% CI (-13.283, -2.470), p-value = 0.004) and PD patients without RBD (hand mean difference = -9.578, 95% CI (-17.215, -1.941), p-value = 0.014). iRBD and atypical parkinsonism did not have different SudoScan profiles than controls. Galvanic skin responses, as measured by SudoScan did not demonstrate significant sudomotor dysfunction in iRBD, but decreases were seen in the PD subtype associated with RBD [2)].

The REM Sleep Behavior Disorder Screening Questionnaire is not Valid in De Novo Parkinson's Disease [3].

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Byun JI, Cha KS, Kim M, Lee WJ, Lee HS, Sunwoo JS, Shin JW, Kim TJ, Moon J, Lee ST, Jung KH, Chu K, Kim MH, Kim HJ, Shin WC, Lee SK, Jung KY. Altered insular functional connectivity in isolated REM sleep behavior disorder: a data-driven functional MRI study. Sleep Med. 2021 Jan 2;79:88-93. doi: 10.1016/j.sleep.2020.12.038. Epub ahead of print. PMID: 33485260.

2)
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3)
Halsband C, Zapf A, Sixel-Döring F, Trenkwalder C, Mollenhauer B. The REM Sleep Behavior Disorder Screening Questionnaire is not Valid in De Novo Parkinson's Disease. Mov Disord Clin Pract. 2018 Mar 1;5(2):171-176. doi: 10.1002/mdc3.12591. eCollection 2018 Mar-Apr. PubMed PMID: 30009211; PubMed Central PMCID: PMC6033034.