

Abnormal sensory attenuation as a potential biomarker of fatigue in Parkinson's disease: results from a preliminary study

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Introduction: Fatigue is a core non-motor symptom of Parkinson's disease (PD), interfering substantially with patients' quality of life [1]. Mechanisms underlying fatigue remain unclear, thus limiting the development of treatment strategies to tackle this highly disabling symptom. A recent model has conceptualized fatigue as a disorder of sensory attenuation (SA, i.e., a perceptual phenomenon by which self-generated stimuli are perceived as less salient than external ones) [1-2]. Yet, experimental evidence on this model is still lacking.

Objective: We aimed to investigate whether reduced SA was related to fatigue in PD patients with fatigue (PDFatigue) compared with patients without it (PDNo fatigue) and healthy controls (HC).

Methods: We enrolled 10 PDFatigue (mean age \pm SD, 63.8 ± 9.9 ; 5M), 10 PDNo fatigue (mean age \pm SD, 64.4 ± 6.9 ; 9M), and 15 HC (mean age \pm SD, 64.9 ± 6.4 ; 11M). Fatigue assessment was carried out through the Fatigue Severity Scale (cut off ≥ 4). To measure SA we used the force matching task (FMT) [3]. Participants were asked to match different target forces exerted on their left index finger, either by pressing directly on their finger (direct condition) or by operating an external device (indirect condition). Usually, participants overestimate the target force in the direct condition because of SA [4].

Results: We found no significant differences between the direct and indirect condition in the PDFatigue group, while a significant force overestimation in the direct condition compared to the indirect one was found in both the HC and in PDNo-Fatigue group with a tendency to significance. No significant differences between groups were found.

Conclusions: These preliminary data suggest a selective impairment of SA in PD patients with fatigue. The current study provides preliminary evidence on the role of SA in the pathophysiology of fatigue in PD.

References:

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