

Poster presentation at ESRS 2024 (P736).

Requier, F., Charonitis, M., Hostaux, Y., Salmon, E., Bastin, C. (2024). Alzheimer's disease is associated with increased cognitive but not physical fatigue: A preliminary study. *Journal of Sleep Research*, 33 (1), 315

## **Alzheimer's disease is associated with increased cognitive but not physical fatigue: A preliminary study.**

Requier, F.<sup>1,2</sup>, Charonitis, M.<sup>1,2</sup>, Hostaux, Y.<sup>2</sup>, Salmon, E.<sup>1</sup>, Bastin, C.<sup>1,2</sup>, & Collette, F.<sup>1,2</sup>,

<sup>1</sup>GIGA CRC In Vivo Imaging, University of Liège, Liège, Belgium

<sup>2</sup>Psychology and Cognitive Neuroscience Research Unit, University of Liège, Liège, Belgium

### **Introduction**

Fatigue (both physical and mental) is a frequent complaint in neurological disorders and has a deleterious effect on patient's cognition. However, the question of mental fatigue in Alzheimer's disease (AD) has not been investigated. AD patients often exhibit pathophysiological traits—such as structural and functional brain changes, impaired serotonergic transmission, and sleep disturbances—typically associated with pathological fatigue. Despite this, research into the prevalence and specific triggers of mental fatigue in this population is scarce. This study aims at investigating the frequency and characteristics of fatigue in Alzheimer patients and its relationships with global cognition.

### **Methods**

19 patients with mild to moderate AD and 150 healthy participants (HP) completed the Fatigue Scale for Motor and Cognitive Functions (FSMC). The FSMC measures trait fatigue for physical and cognitive aspects. Global cognitive status was assessed with the MoCA test. Generalized mixed effect models (with subjects set as random effect) were used to determine presence of group effect on cognitive and physical fatigue levels at the FSMC, controlling for age, sex, and education.

### **Results**

The two groups differed on age ( $p=.04$ ,  $AD>HP$ ), sex ( $p=.02$ , more women in the HP group) and global cognition performance ( $p<.001$ ,  $AD<HP$ ) but not on education ( $p=.82$ ). Higher scores were observed in AD patients for cognitive fatigue (estimate: 5.34, 95% IC: [1.48, 9.20],  $p=.007$ ,  $R^2_{sp}=.05$ ) but not for physical fatigue (estimate: 1.98, 95% IC: [-0.19, 6.16],  $p=.35$ ), with a complaint of cognitive fatigue in 79% of the patients but 44% of HP. Physical fatigue was also reported in 79% of AD patients, and in 63% of HP. No significant association between fatigue level and MoCA performance was observed in AD or HP.

### **Conclusion**

These preliminary results indicate that Alzheimer's disease is associated with higher cognitive fatigue, but not physical fatigue. However, the level of cognitive fatigue does not seem related to global cognitive functioning. A better understanding of mental fatigue and its relationships with brain lesions and specific cognitive processes could help to manage this symptom in order to improve cognitive functioning in daily life.