
Successive days of HRV recording reveal distinct fatigue profiles in ME/CFS

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Résumé

Introduction

Heart rate variability (HRV) is an objective, non-invasive tool for assessing autonomic dysfunction (Schmitt et al., 2013; Shaffer & Ginsberg, 2017). It is used in conditions with autonomic impairment, such as myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) (Boissoneault et al., 2019; Escorihuela et al., 2020). However, data on ME/CFS, characterized by orthostatic intolerance, remain limited. Monitoring HRV in supine and standing positions provides valuable insight into autonomic regulation. Combining this objective measure with subjective questionnaire data may improve understanding of this condition.

Method

Thirty-six participants (24F; 46.12 ± 9.88 years old) meeting the International Consensus Conference criteria for ME/CFS (Carruthers et al., 2011) completed HRV recordings and chronic fatigue assessments at home over three consecutive days. HRV was recorded daily for 15 minutes (8 supine, 7 standing) using a heart rate monitor belt. Variations in heart rate (HR), high-frequency (HF), and low-frequency (LF) components were analyzed between postures and across days. Self-reported fatigue was assessed using the Multidimensional Chronic Asthenia Scale (MCAS).

Results

Differentiated fatigue profiles emerged based on HR, HF, and LF fluctuations. Among participants, 32 exhibited a stable HRV pattern throughout the three days, while four showed fluctuations in fatigue categories. Two predominant stable fatigue profiles stood out by including more individuals: Profile A (HR \uparrow , HF \downarrow , LF \uparrow ; N=13) and Profile B (HR \uparrow , HF

*Intervenant

↓, LF ↓; N=17). Correlational analyses show significant relations ($p < 0.05$) between self-reported chronic fatigue dimensions, such as sense of restriction, life restriction, total MCAS score, and HRV components, including RMSSD, LF, and HF.

Discussion – Conclusion

Our findings suggest that ANS dysfunction in ME/CFS is more complex than a simple autonomic failure, as variations in HRV parameters between positions reveal distinct fatigue profiles. The identification of different fatigue profiles, either stable or changing over several consecutive days, highlights inter-individual differences in autonomic regulation. These findings highlight the need for personalised approaches to the assessment and management of autonomic dysfunction in ME/CFS.

Bibliographie

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