

Monika Zawadka-Kunikowska<sup>1</sup>, Paweł Zalewski<sup>1</sup>, Julia L. Newton<sup>2</sup>

<sup>1</sup>Department of Hygiene, Epidemiology, Ergonomics and Postgraduate Education, Ludwik Rydygier Collegium Medicum in Bydgoszcz Nicolaus Copernicus University in Torun, Poland

<sup>2</sup>Population Health Science Institute, The Medical School, Newcastle University, Framlington Place, United Kingdom

# The similarities between Long-haul COVID-19 and myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS)

**Key words:** ME/CFS, Long-haul COVID-19, fatigue

## To the Editor:

A large number of research studies are currently collecting data about the whole range of short- and long-term health effects associated with SARS-CoV-2 infection. Long COVID-19, post-COVID-19 also known as Long-haul COVID-19 is the current name being given to the long-term sequelae (persistent symptoms experienced longer than 6 weeks) of SARS-CoV-2 infection. An estimated 10% of patients with COVID develop Long-haul COVID-19 symptoms [1]. Initial reports suggest that post viral fatigue (PVF) and Post viral fatigue syndrome (PVFS) are the most common long term issues in individuals infected with SARS-CoV-2. The severity and duration of the acute viral infection are strong risk factors for the development of fatigue syndromes. According to an Australian research group, approximately 12% of 253 subjects developed a Post Viral Syndrome that involved fatigue, cognitive dysfunction, mood disturbance and musculoskeletal pain [2].

Postinfectious syndromes including those seen with persistent symptoms after COVID-19, often share a common symptom phenotype, that is either self-limiting or has features that are very similar to myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) [1, 3]. Recently, there have also been reports about a high frequency of patient-reported Long-haul-COVID-19 symptoms that as well as fatigue include cognitive difficulties (problems with short term/working memory, concentration, information processing), pain, orthostatic intolerance (problems in remaining upright,

feeling dizzy), anxiety/depression, sleep and autonomic disturbances [4]. One symptom that is considered to be unique to ME/CFS is post-exertional malaise (PEM). PEM can be described as delayed and significant exacerbation of ME/CFS symptoms that always follow physical and cognitive activity [1].

Although ME/CFS and Long-haul COVID-19 are medically distinct, they share a common pathological process including viral infection, altered mitochondrial dynamics with sequent oxidative stress, pro-inflammatory state, cytokine production, and cell death [3]. Acute Epstein-Barr virus (EBV) infection is an important virus trigger of ME/CFS. Some researchers speculate that SARS-CoV-2 could replace the EBV as being the most frequent precipitating event for ME/CFS or Long-haul COVID-19. Considering the overlapping of symptoms, ME/CFS and Long-haul COVID-19 should be better characterized as post active phase of infection syndromes (PAPIS) [1]. Furthermore, the opportunities to learn about pathophysiology and treatments from the study of these commonalities and differences in each disease should be recognised.

PVFS may also result from immune system over-reaction associated with ongoing production of increased cytokine levels, especially interleukins 6 and 10. These cytokines are also thought to play a key role in immune dysregulation and are frequently reported as abnormal in many cases of ME/CFS. In patients with Longhaul-19 symptoms lasting for more than 3 months with a functional impairment that prevents a return to everyday activities (education, employment) a diagnosis of ME/CFS should be considered. [2–3].

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**Corresponding author:** Paweł Zalewski, Department of Hygiene, Epidemiology, Ergonomics and Postgraduate Education, Ludwik Rydygier Collegium Medicum in Bydgoszcz Nicolaus, Copernicus University in Torun, Poland, e-mail: p.zalewski@cm.umk.pl

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Patient evidence also indicates that a good initial approach to the management of PVS reduces the probability of this turning into ME/CFS. The standard approach to the management of any form of significant post viral fatigue involves convalescence and a gradual return to normal daily activities. A recent study using an MRI scan showed cardiac inflammatory involvement in both hospitalised and non-hospitalised subgroups. Thus, proper evaluation of cardiac and respiratory function is needed [2]

This is an important time for those currently with, or at risk of postinfectious syndromes which includes some with ME/CFS. Exploration of the causation and effective treatment of such syndromes will improve the understanding and treatment regardless of the triggering illness. Novel research into COVID-19 may

lead to a much better understanding of the role of the immune response and why some people develop post viral syndromes and ME/CFS [1, 4].

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