

Long COVID and chronic COVID syndromes

We thank Dr. Garg et al.¹ for their interest in our work and their useful comments. We agree that our cohort of hospitalized patients is correspondingly older, more likely to have had severe disease and have more comorbidities than groups whose primary coronavirus disease 2019 (COVID-19) infection was mild and managed in the community. This could be one of the reasons for the high prevalence of residual symptoms. Our results are comparable to the Italian study that followed-up 143 individuals 7 weeks postdischarge.²

Garg et al.¹ note that some of the symptoms we reported may be due to pre-existing comorbidities. We would highlight that our screening tool (a version of C19-YRS) does specifically ask about new or worsened symptoms, as compared with symptoms pre-COVID-19.³ Therefore, we have reported on the degree to which these symptoms have worsened since their COVID-19 infection and is a true reflection of long COVID in this cohort of patients.

We agree with there is a need for more sophisticated categorization of post-COVID-19 symptoms, including by precise etiology, as this will impact on treatment and rehabilitation decisions. Our work provides an overview of the volume of symptomology in the group, but it necessarily lacks the power to determine whether any one individual's symptoms are related to the infection itself, treatments received or interaction with their chronic condition. Complex symptoms such as fatigue and breathlessness, in many cases, will be multifactorial.

Garg et al.¹ suggest subgroup analysis including only those with mild COVID infection, to better illuminate the postviral syndrome. As our sample comprises hospitalized patients, most of the infections were of moderate or severe nature. Patients with milder symptoms are more likely to be found in the community and not needing hospitalization. Data on this is likely to become available from the UK's nationwide COVID symptoms app study and our planned future research looking at these patients.

We agree that the evaluation of fatigue needs laboratory investigations to rule out other common causes of fatigue. We however know from the fatigue literature that a significant proportion of cases have no abnormality detected in these tests. There is no doubt that lung pathology does contribute to fatigue, however, it is well established that postviral fatigue also has a central phenomenon (inflammatory-mediated and neurocognitive dysfunction).⁴


Garg et al.¹ suggest we share our management pathway for these problems. Long COVID or postacute COVID (symptoms beyond 3 weeks) and chronic post-COVID syndrome (beyond 12 weeks) are multisystem syndromes and need a multifaceted

approach to tackle the physical, cognitive, psychological, social, and vocational domains of this health condition. In Leeds, we have established an integrated COVID-19 rehabilitation pathway that provides targeted intervention to survivors based on their symptoms and needs.⁵ Needs in isolated health domains (e.g., breathlessness alone) can be met by unidisciplinary services (physiotherapy) whereas complex needs in multiple domains require a multidisciplinary team that has representation from hospital medical specialists (respiratory medicine, cardiology, rehabilitation medicine) and cognate disciplines (including physiotherapy, occupational therapy, psychology, speech and language therapy, and dietetics). We have also developed telerehabilitation protocols that will be explored in our future research.

In previous outbreaks of severe acute respiratory syndrome and the Middle East respiratory syndrome, we did not have the opportunity to intervene early and prevent the chronicity of these longer-term problems.⁶ Health services around the globe need to invest in specialist multidisciplinary rehabilitation services now to reverse these symptoms before they become established. This can prevent a future tsunami of chronic disability that is likely to drain healthcare resources and adversely affect our economies.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

Stephen Halpin^{1,2} 

Rory O'Connor^{1,2} 

Manoj Sivan^{1,2} 

¹Academic Department of Rehabilitation Medicine, Leeds Institute of Rheumatic and Musculoskeletal Medicine, School of Medicine, University of Leeds, Leeds, UK

²National Demonstration Centre in Rehabilitation Medicine, Leeds Teaching Hospitals NHS Trust, Leeds, UK

Correspondence

Dr. Manoj Sivan, Academic Department of Rehabilitation Medicine, D Floor, Martin Wing, Leeds General Infirmary, Leeds LS1 3EX, UK.

Email: M.Sivan@leeds.ac.uk

ORCID

Stephen Halpin  <http://orcid.org/0000-0002-0417-8928>

Rory O'Connor  <http://orcid.org/0000-0002-4643-9794>

Manoj Sivan  <http://orcid.org/0000-0002-0334-2968>

REFERENCES

1. Garg P, Arora U, Kumar A, Wig N. The “Post-COVID” syndrome: how deep is the damage? [published online ahead of print August 27, 2020] *J Med Virol*. <https://doi.org/10.1002/jmv.26465>
2. Carfi A, Bernabei R, Landi F. Persistent symptoms in patients after acute COVID-19. *JAMA*. 2020;324:e2012603.
3. Sivan M, Halpin SJ, Gee J. Assessing long-term rehabilitation needs in COVID-19 survivors using a telephone screening tool (C19-YRS tool). *Adv Clin Neurosci Rehabil*. 2020;19:14-17.
4. Islam MF, Cotler J, Jason LA. Post-viral fatigue and COVID-19: lessons from past epidemics. *Fatigue: Biomed, Health Behav*. 2020;8(2):61-69.
5. Sivan M, Halpin S, Hollingworth L, Snook N, Hickman K, Clifton IJ. Development of an integrated rehabilitation pathway for individuals recovering from COVID-19 in the community. *J Rehabil Med*. 2020; 52(8):jrm00089.
6. Ahmed H, Patel K, Greenwood DC, et al. Long-term clinical outcomes in survivors of severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome coronavirus (MERS) outbreaks after hospitalisation or ICU admission: a systematic review and meta-analysis. *J Rehabil Med*. 2020;52(5): jrm00063.