A worldwide perspective of long COVID management: how can we END-COVID?

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A global survey revealed marked heterogeneity in long COVID management worldwide https://bit.ly/4dVTJ2t

As of 15 May 2024, >775 million confirmed cases of COVID-19 and >7 million deaths have been reported to the World Health Organization [1]. Although most patients with COVID-19 survive, survivors are at risk of long COVID, the sequelae of the viral infection affecting multiple organ systems [2]. Long COVID poses a substantial burden to individuals and society, even with a conservative estimate of 10% prevalence among COVID-19 survivors [3–5]. However, as the symptoms of long COVID vary substantially, ranging from respiratory symptoms, such as dyspnoea and cough, to fatigue and cognitive impairment [6], developing a standard set of investigations and management protocols for patients with long COVID is challenging.

How can this challenge be addressed? The first step may be to acknowledge the current situation. In this issue of *ERJ Open Research*, Nigro *et al.* [7] make an important contribution to identifying long COVID management worldwide. They conducted a survey, named the European Respiratory Network for Data Sharing on COVID-19 (END-COVID), in collaboration between the European Respiratory Society and five other international societies, including the Asociación Latinoamericana de Tórax, the Asia Pacific Society of Respirology, the American College of Chest Physicians, the European Society of Clinical Microbiology and Infectious Disease, and the Pan African Thoracic Society, covering all continents. Over 1000 healthcare professionals (HCPs) from 110 different countries participated in the study. HCPs specialising in pulmonology (61%) and those working at university hospitals (47%) comprised the majority of study participants. Approximately half of the participating institutions had dedicated long COVID clinics and ~86% of the dedicated clinics catered for patients with COVID-19 who had been hospitalised, with the most common criterion being acute respiratory failure requiring oxygen supplementation or mechanical ventilation. Telemedicine was used by approximately half of the participants and the first visit to a long COVID clinic after hospital discharge from COVID-19 varied from 2 weeks to 3 months; however, 90% of the first visits were face to face, and the main criteria used to decide the time of the first visit were pulmonary complications such as fibrosis, respiratory failure or intensive care unit admission during the acute phase and need for oxygen after discharge. The most frequently performed investigations at the long COVID clinics were blood tests, respiratory symptom questionnaires, pulmonary function tests, chest imaging and the 6-min walking test.

Perhaps the most intriguing aspect of the study was its demonstration of the heterogeneity in long COVID management according to geography, national income and speciality of HCP [7]. In particular, the availability and use of diagnostic tools at the first visit and during follow-up visits varied among the COVID-19 clinics participating in the study. As Nigro *et al.* [7] suggest, it is important to develop standard operating procedures to determine a set of initial investigations for individuals presenting with long COVID, because the investigations may also serve to assess symptoms due to ongoing COVID-19, rule out serious complications or search for new and unrelated diagnoses [8]. Conversely, the varied

diagnostic workup for long COVID reflects the variability of the available resources in different settings; therefore, ideal future guidelines for long COVID need to incorporate standard operating procedures and enable flexibility according to the local clinical environment. In line with this, unexpectedly, the study revealed that low-income countries were more likely than high- or middle-income countries to use telemedicine for long COVID care [7]. This phenomenon suggests that a limited number of dedicated long COVID clinics and travel costs may have enhanced the early adoption of telemedicine in low-income countries. Although the use of telemedicine is a good example of long COVID clinics adjusting to the local clinical environment, telemedicine clinical care for long COVID should be validated as has been done for other chronic respiratory diseases [9, 10].

However, two questions remain unanswered. First, is it sufficient to screen and manage long COVID-19 only among patients hospitalised for COVID-19? Previous studies have suggested that the likelihood of developing ongoing symptomatic sequelae of COVID-19 is not linked to the severity of acute COVID-19, including whether the patient was hospitalised [6, 8]. Therefore, efforts need to be made to screen for persistent symptoms, even in individuals with mild COVID-19, to successfully reduce the disease burden of long COVID. Second, do long COVID clinics focus disproportionately on respiratory system evaluations? Nigro et al. [7] reported that pulmonologists primarily led long COVID clinics worldwide, and pulmonologist-led clinics were more likely to perform pulmonary function tests and chest computed tomography scans than clinics led by other types of HCP. Of course, long COVID is known to frequently involve the respiratory system [11] but the availability of more comprehensive electronic health data for hospitalised patients with COVID-19 may lead to a bias towards respiratory presentations and less focus on nonhospitalised patients who are more likely to present with neurological manifestations or chronic fatigue syndrome [3]. In this regard, when patients with long COVID do not present with respiratory symptoms such as dyspnoea, cough and chest pain, or have a low respiratory symptom burden on a validated questionnaire such as the St George's Respiratory Questionnaire [12], clinicians should refer them to another speciality or other HCPs within a long COVID multidisciplinary department team without performing extensive lung assessments.

In summary, this international survey-based study revealed that only half of the participating institutions provided dedicated long COVID care. Therefore, more attention needs to be paid to long COVID and improving its management. The set of investigations on long COVID varied substantially across clinics. Furthermore, long COVID management varied substantially according to geographic region, national income and whether the clinic was led by pulmonologists or other HCPs. Future studies are warranted to develop standard operating procedures for assessing and managing long COVID while also allowing flexibility according to the local clinical setting and symptoms of individual patients.

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