Correspondence

Whole body point-care ultrasound for COVID-19: a multi-system approach to a multi-system disease

We read with great interest the recent article by Smith et al., which summarised the important role that lung ultrasound can play in patients with COVID-19 [1]. They also explore the mechanisms by which an expanded lung ultrasound workforce can be deployed and advocated for frameworks to support consolidation of lung ultrasound skills and competency during, and after, the pandemic. Ultrasonography is an essential modality that is widely deployed for patients, both in the intensive care unit and the wards, to diagnose and guide treatment of patients with cardiopulmonary failure. Narasimhan et al. [2] suggested changing from a compartmentalised approach to ultrasound, which focused on a single body system, to a standard whole body sonography which included thoracic, cardiac and limited abdominal scanning, as well as evaluation for deep vein thrombosis.

In patients with COVID-19, in addition to a broad range of pulmonary symptoms, ranging from mild pneumonia to severe acute respiratory distress syndrome, there is often involvement of other organ systems, especially the cardiovascular system and thromboembolic disorders. Two recent studies noted that patients hospitalised with COVID-19 had a high incidence of myocardial injury (19.7–27.8%) and this was associated with a higher mortality [3, 4]. It has been hypothesised that this myocardial injury may be related to plaque rupture, demand ischaemia, systemic inflammation or myocarditis. With the rising burden on our healthcare system and an increase in the number of critically ill patients, as well as the risk of exposure and nosocomial transmission, obtaining serial formal echocardiograms to assess the rapidly changing clinical scenarios is not feasible. During these extraordinary times, knowledge and skill in point of care echocardiography may be essential in clinical decision-making and identifying the underlying cause of worsening cardiopulmonary status. In addition, it has become clear that another hallmark of COVID-19 is coagulopathy, with 71.4% of patients meeting International Society on Thrombosis and Haemostasis criteria for disseminated intravascular coagulation. This is not characterised by a bleeding diathesis but rather a predominantly thrombotic disseminated intravascular coagulation, which explains the high venous thromboembolism rates, elevated D-dimer levels, elevated fibrinogen levels and low antithrombin-3 levels [5]. A point-of-care deep vein thrombosis study in these patients with a high index of suspicion may be warranted to guide management plans such as use of anticoagulants. These patients may also present with sub-massive or massive pulmonary embolism, with right heart strain that can be easily identified by a point of care echocardiogram.

The use of multi-organ ultrasound by intensivists, emergency doctors, and anaesthetists has previously been well described to decrease utilisation of other tests and costs, and aid in real time decision-making [2]. Multiple hospital systems in the USA have incorporated this strategy into daily clinical practice. In a pandemic such as this, with severe burden on our healthcare system, a well-trained clinician-sonographer performing a clinically-directed multi-organ ultrasound can answer multiple questions and at the same time reduce the risk of nosocomial transmission as well as personal protective equipment use by decreasing utilisation of specific services. While the authors agree with the assertion by Smith et al. [1] that one legacy of the current pandemic may be the expansion of lung ultrasound use, the authors urge that consideration be given to the consolidation of skills and expertise to a whole body approach to point of care ultrasound.

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