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EDITORIAL

SARS CoV-2 (COVID-19): lessons to be learned by Brazilian Physical Therapists

The current severe acute respiratory syndrome coronavirus 2 (SARS CoV-2) pandemic, also known as Coronavirus Disease 2019 (COVID-19), puts us at the forefront of scenarios with serious consequences for health systems in Brazil and in the world.[1] Current viral interstitial pneumonia has resulted in severe hypoxemic respiratory failure, which has resulted in overcrowding in intensive care units (ICUs), shortage of equipment and personnel, and significant mortality, especially in populations at risk who have chronic health conditions.[2] In most countries, the volume of patients has exceeded critical care capacities, with a shortage of personal protection equipment, multi-professional teams, and mechanical ventilators dominating the discussions in local hospitals and in the media.[3,4]

While COVID-19 brought several challenges to the overall health care system, it also specifically highlighted the need for physical therapists to be properly trained and prepared to respond to such pandemic. First, it demonstrated the importance for every professional being updated, trained, and qualified in all technical skills related to infection control strategies such as wearing adequate professional clothing, effective hand washing, and use of personal protective equipment.

Second, the importance of primary care in a good health care system. Patients with at least one comorbidity have higher odds of being hospitalized and being in ICUs. Also, individuals with chronic health conditions are more likely to develop a more severe form of the disease requiring ICU admission, mechanical ventilation, and more resources. Hypertension, cardiovascular diseases, hypercholesterolemia, and diabetes are the most common comorbidities in patients who died from COVID-19.[5] Consequently, the mortality rate (6.4%) of confirmed cases of COVID-19 in Brazil, within 52 days from the beginning of COVID-19 in every country, is around twice that of other countries, like Germany and Canada (3.0% and 4.1%, respectively), where the primary health care system is more effective in providing primary care.[6–8] Thus, countries that have greater control over chronic health conditions may consequently have a lower mortality rate, with a population in better health being an important benefit in pandemic situations like the one we are witnessing with COVID-19.

Third, the importance of the Cardiorespiratory and Intensivists (CRI) Physical Therapists in the Brazilian health system. CRI Physical Therapy is an established profession worldwide; however, the number of professionals in Brazil is much higher, and dozens of thousands work in hospitals. Interestingly, the ventilatory support and the improvement in musculoskeletal dysfunctions in ICUs are assisted by two professionals (Physical Therapists and Respiratory Therapists) in most countries; however, the CRI Physical Therapists are responsible for both in Brazil. The cumulative function reinforces the importance of the CRI Physical Therapists in the ICUs, as part of the multiprofessional team, minimizing the consequences of hospitalization and facilitating the recovery of patients.

Ventilatory support in patients with COVID-19 includes several approaches: assistance in orotracheal intubation, support and management in mechanical ventilation, removal of airway secretion, changing patient's decubitus to improve gas exchange, and weaning patients from mechanical ventilation.[9] Additionally, these patients can present with consequences due to intensive care syndrome, including prolonged intubation, continuous sedation, and use of neuromuscular blocking agents that result in muscle weakness.[10] All these consequences from prolonged stay in the ICU are associated with an increase in morbidity and mortality.[11] Therefore, it is essential to start early rehabilitation in the ICU to promote rapid functional recovery. Some of these patients will present low exercise capacity, low physical activity level, increased sedentary behavior, dyspnea on exertion, and poorer quality of life after hospital discharge. CRI Physical Therapists will also be requested to help with the post hospital discharge rehabilitation program.

Fourth and finally, this pandemic reinforces the importance for physical therapists to remain scientifically updated. The COVID-19 pandemic resulted in a significant increase in the number of studies reporting the impact of

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the disease[9]; despite that, the pulmonary repercussion of the disease remains poorly known.[12] The difficulty in understanding how to offer optimal ventilatory support was the primary barrier for the CRI Physical Therapists. The previous professional experience was to administer ventilatory support for pneumonia based on the pathophysiology of Acute Respiratory Distress Syndrome (ARDS), where the severity of hypoxemia is associated with lung compliance. However, in COVID-19, CRI Physical Therapists faced, at least, two distinct phenotypes. Some patients present severe hypoxemia with respiratory system compliance remaining near normal, where hypoxemia seems to occur due to the loss of the hypoxic pulmonary vasoconstriction and impaired regulation of pulmonary blood flow. In another group of patients, severe hypoxemia is associated with lower compliance values, a condition similar to severe ARDS.[12] The difference between COVID-19 and ARDS required CRI Physical Therapists to be updated almost daily to understand how to give the proper ventilatory support.

In conclusion, COVID-19 imposed a huge impact on the health care system in all countries, and everyone had to respond promptly in a very short time. Brazilian hospitals entire buildings and wards have been converted in semi-intensive and ICUs, and multidisciplinary teams, including CRI Physical Therapists, Physicians, and Nurses, have to receive special training for COVID-19. The Brazilian health system presents a special environment because it can count on the presence of CRI Physical Therapists as part of the ICUs multidisciplinary team. However, this is a unique moment in human history, and the countries that have adequately invested in research, the entire health care system, and hospital infrastructure are those that will suffer less in this war.

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Conflicts of interest

The authors declare no conflicts of interest.

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