

Early mobilization in the time of COVID-19

Mobilização precoce em tempos de COVID-19

INTRODUCTION

It is essential to consider the deleterious secondary effects of coronavirus 2019 (COVID-19) disease and its consequences, especially in patients who develop the most severe forms. The survival of acute critical illness in the intensive care unit (ICU) may not reflect the patient's quality of life after hospitalization.⁽¹⁾

A study with survivors of acute respiratory distress syndrome (ARDS) found that 24 months after the disease, these patients had significantly lower exercise capacity and health status than healthy individuals. In addition, 29% of the survivors had not returned to work.⁽²⁾

The interactions among the critical illness-related complications, comorbidities, life-support treatments, organizational aspects of intensive care and adaptation during the post-ICU period may contribute to the development of post-intensive care syndrome.^(1,3) This syndrome is characterized by physical, functional, cognitive and psychiatric changes and by the development of posttraumatic stress disorder, which can lead to reduced quality of life.^(4,5)

In this context, it is suggested that the repercussions of COVID-19 resulting from treatment in the ICU include the development of ICU-acquired weakness (ICUAW) and that its consequences extend beyond the hospitalization period.

Risk factors for intensive care unit-acquired weakness in COVID-19

Many patients infected with COVID-19 require ICU admission due to severe acute respiratory failure and the development of ARDS, which is considered a risk factor for ICUAW. In addition, a systemic inflammatory process occurs via the release of proinflammatory cytokines, which contribute to the mechanism of muscle mass loss.⁽⁶⁾ In association with these factors, the duration of mechanical ventilation – another factor associated with ICUAW – for these patients is high (mean of 11.7 days)⁽⁷⁾, as are the lengths of stay in the ICU and hospital.⁽⁸⁾ Approximately 75-80% of patients hospitalized with COVID-19 have prolonged hospital stays of approximately 21 days.⁽⁹⁾

Patients with COVID-19 who are admitted to the ICU may have (multiple) organ failure, including ARDS, acute kidney injury, cardiac injury and liver dysfunction.⁽¹⁰⁾ Evidence has shown that organ dysfunction is strongly associated with muscle dysfunction.⁽¹¹⁾ In addition, some of these patients have associated comorbidities, such as advanced age, renal dysfunction, hypertension, diabetes, heart disease, which may contribute to the incidence of ICUAW.^(8,9) All these factors contribute to immobility, which, in turn, has deleterious effects on the cardiorespiratory, central nervous, musculoskeletal systems and metabolism.⁽¹²⁾ Thus, critically ill patients with COVID-19 may face a vicious cycle in which disease severity, the presence of comorbidities, prolonged invasive ventilatory support and the use of sedatives and neuromuscular blockers may contribute to the development of ICUAW and functional disorders in the short and long term (Figure 1).

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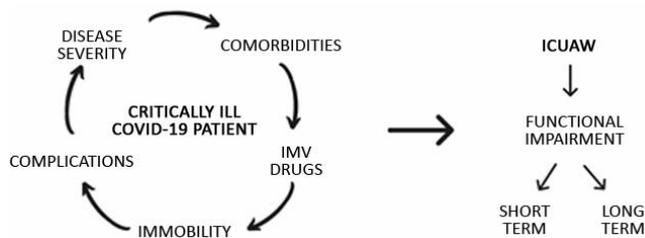


Figure 1 - Vicious cycle that contributes to the development of intensive care unit-acquired weakness and functional disorders in the short and long term in critically ill patients. IMV - invasive mechanical ventilation; ICUAW - intensive care unit-acquired weakness.

Thus, these risk factors should be used as a means of evaluation and screening of these patients to promote early rehabilitation through early mobilization (EM) protocols in order to avoid and/or minimize complications and functional decline.

Early mobilization in patients with COVID-19

Considering the clinical conditions caused by prolonged immobility and musculoskeletal deterioration, the implementation of systematized EM protocols is of fundamental relevance for patients with COVID-19, given the growing evidence of its benefit.^(13,14) EM helps to reduce the deleterious effects of the disease, especially on muscle and cardiopulmonary function, mobility and functionality. It is a safe and feasible practice that leads to improved muscle strength and functional recovery with improved quality of life.^(14,15) EM also leads to better clinical outcomes, such as reduced mechanical ventilation durations and lengths of ICU and hospital stay.^(14,15) Thus, it helps to reduce hospital costs and may also prevent readmission to the ICU/hospital.⁽¹⁶⁾

Currently, we are experiencing an overload of the health system, and ICUs are experiencing high occupancy rates or are at maximum capacity in Brazilian states; this leads to work overload for health professionals, given that ICUs are often not large enough to meet the demand.⁽¹⁷⁾ It is known that in such settings, the priority may be the provision of advanced ventilatory care. However, rehabilitation should be incorporated into pandemic response plans at the onset of hospitalization and not only after patients experience consequences. In

such cases, the multidisciplinary team plays a crucial role in the functional recovery and reintegration of these individuals into society.⁽¹⁸⁾

It is suggested that early rehabilitation interventions in patients with COVID-19, especially those who develop with severe muscle dysfunction, fatigue and dyspnea,⁽¹³⁾ be initiated during hospitalization and continue in specialized rehabilitation programs after discharge in order to improve their functionality and quality of life and prevent rehospitalization.

Strategies for implementing early mobilization in COVID-19

Physical therapists have a role in providing interventions for mobilization, exercise and rehabilitation, especially for patients at risk of developing functional decline. In this context, strategies and recommendations were developed for workforce planning and preparation.⁽¹⁹⁻²¹⁾

Planning for the number of professionals needed to implement comprehensive patient care in the ICU and on the wards is recommended. The inclusion of professionals who have experience caring for critically ill patients in a hospital environment should be prioritized, i.e., physical therapists must have specialized knowledge, skills and decision-making capacity.⁽¹⁹⁻²¹⁾

Physical therapists with previous ICU experience should be identified and the return of these professionals to the ICU should be facilitated. It is also recommended that professionals who have no experience in the ICU be identified and used to support the care of COVID-19 patients in other areas of the hospital.⁽¹⁹⁻²¹⁾

Another important point is the implementation of training and learning resources, such as the development and management of critical care skills and training on the use of personal protective equipment.⁽¹⁹⁻²¹⁾

Lastly, to minimize the impact of COVID-19 on patients undergoing home treatment postdischarge, televisits, telehealth consultations and telemonitoring services may be important treatment tools.⁽²²⁾ Thus, we suggest that future studies should develop similar approaches in Brazil to better elucidate the effects of COVID-19 on the functionality of affected individuals.

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