

The place of early rehabilitation in ICU for Covid-19

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LETTER TO THE EDITOR

Coronavirus disease 2019 (COVID-19) created a previously unseen pressure on public health systems. A main issue during the peak of the disease is the availability of Intensive Care Unit (ICU) beds to manage the severe complications of COVID-19 (1). Currently, the major focus is on acute care but the surging number of people who recover from the infection is shifting medical attention to survivors discharged from ICUs.

The challenge of COVID-19 requires a multidisciplinary approach. Rehabilitative intervention should be part of the treatment pathway from the early stages of the disease. There is an urgent need to build a knowledge base on the most effective non-pharmacological measures to ensure the earliest discharge and the best recovery after complicated COVID-19 infection. Multimodal Rehabilitation, in every stage of the illness, must be part of a holistic medical approach, but consensus on timing and type of intervention is still missing.

In light of the pressure on ICUs during the epidemic peak, we highlight the role of an often-undervalued approach to reduce the length of hospital stay and the burden on health care systems. Early physiotherapy (PT) in Acute Respiratory Distress Syndrome (ARDS), beginning early in ICU is a critical therapeutic tool to reduce complications of immobilization in critical illness such as myopathy, neuropathy, and ventilator-dependency. Benefits include improved residual respiratory, musculoskeletal, neurological and psychological function; it prevents readmissions in the medium and long term, improves health status, and perceived quality of life post-discharge (2-4). Interventions in an acute setting may also motivate active recipients' involvement in their rehabilitation pathway, increasing the compliance with treatment after discharge.

The benefits of early rehabilitative intervention in ICU for ARDS (5) are clear but if this approach is appropriate for COVID-19 co-infection is still controversial. There are suggestions that rehabilitation is not required in the acute stage of the condition (6) or recommended only after weaning (7).

To clarify this topical issue, authors set up an interventional, two-arms, non-randomized trial comparing hospital length of stay in individuals receiving early physiotherapy in ICU vs those who did not (NCT04381338). Participants are enrolled in two teaching hospitals in the Veneto region (Padova and Verona, Italy), which each provide a different standard of care, with early intervention in one but not in the other.

In Padova, all individuals with COVID-19 admitted to ICU with a diagnosis of ARDS are enrolled, in an early rehabilitation intervention protocol as part of the local standard of care (for details, see <https://clinicaltrials.gov/ct2/show/NCT04381338?term=rehab&cond=COVID&draw=2&rank=1>).

At admission, a multidisciplinary assessment confirms enrolment criteria (5). Stable cardiovascular, respiratory and general parameters (i.e. fever, thoracic RX) are mandatory to start and continue sessions (20 minutes each, 3 times daily/6 day a week). In Verona, no rehabilitative intervention takes place during ICU admissions.

The program is based on the level of consciousness [Glasgow Coma Scale (8)], regardless of ventilation modality: unconscious individuals ($GCS \leq 8$) are offered passive mobilization and pronation, whereas conscious persons start a hierarchical, personalized protocol. The program includes endurance, functional, respiratory and strength training. Dysphagia, which often complicates intubation, is also treated during sessions.

After ICU discharge, multimodal physiotherapy treatment continues throughout the hospital stay. An individualized program is agreed for home discharge, focusing on recovering autonomous daily-living skills and counteracting muscular and cardiovascular deconditioning

An assessment on the role of individual clinical history, pre-COVID 19-performance status, pre-existing drug therapy, level of ventilator support, haemodynamic and postural management during admission, and complications to correlate with the intervention and outcomes will be made. Findings will provide essential information in case of a new wave of COVID-19 infection and will be instrumental to support timely and personalized rehabilitation in these people.

In view of the difficult circumstances, it is essential that this information is shared, particularly about practices that it is not yet fully cognizant to establish if they have a role to play.

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