



EDITORIAL

Defining the prevalence of chronic critical illness



Since the survival rates of patients with life-threatening conditions admitted to intensive care units (ICUs), has significantly increased thanks to the improvements in medical care, interest in outcome measures has expanded to include survivors. ICU survivors frequently face a complex recovery trajectory; it is increasingly recognised that chronic critical illness (CI) is a medical condition in itself and these patients are prone to physical, psychological, and cognitive-related dysfunctions during the hospital stay and after discharge.^{1,2} So far, more attention has been given to the physical conditions of critically ill patients, and this is particularly evident in respiratory settings. However, limited data are available to guide therapeutic choices in these subjects, and a univocal definition is not available yet to precisely identify chronic CI.

Marchioni and Colleagues report the results of an interesting observational prospective cohort study, exploring the prevalence and the development of chronic CI in a population of patients with de novo acute respiratory failure (ARF) admitted to a specialised respiratory intensive care unit (RICU).³

It is well known that about 20–30 % of patients hospitalised in RICUs for ARF will require a tracheostomy to be weaned off mechanical ventilation (MV). These tracheostomies will usually be removed before hospital discharge, although some patients who require prolonged MV keep the tracheostomy longer, experiencing long-term complications.⁴

In the study by Marchioni and Colleagues, chronic CI was defined as the condition of ICU survivors with both a hospital stay >8 days and with tracheostomy due to the need of MV >21 consecutive days for at least 6 h/day.³ In the cohort investigated, about one-third of the patients developed chronic CI during the RICU stay. The majority of them were affected by an acute exacerbation of chronic obstructive pulmonary disease (AECOPD), and septic shock; 45 %, and 19 %, respectively.

We must underline the study has some limitations. First, the use of the term 'de novo' respiratory failure is questionable. Although severe end-stage COPD patients, requiring home oxygen and/or ventilatory support, were excluded by definition, 'de novo' respiratory failure refers specifically

to a respiratory failure occurring in subjects without prior history of chronic respiratory disease.⁵

Second, the definition of chronic CI in the study excluded patients with persistent signs of organ dysfunction (i.e., renal failure) or without any need for tracheostomy and prolonged MV. As clinicians interpreting these data, it is crucial to understand the target population. A multicentre research would have doubtlessly returned more robust figures. However, we must recognise that the interesting findings from this study highlight the need to understand ICU survivorship better and providing targeted support to this population.

An exciting aspect that emerged from the study by Marchioni and Colleagues is the possibility of enrolling patients, developing chronic CI resulting from de novo ARF, in a daily mobility programme during the RICU stay.³ Due to profound deconditioning after critical illness, the importance of focusing on attempting to restore physical function is well established. Limiting the period of immobility and promoting early physiotherapy, are interventions directed at enhancing the recovery and preventing physical impairments and poor outcomes. In this context, The European Respiratory Society and European Society of Intensive Care Medicine recommends a comprehensive treatment for ICU survivors during all phases of the recovery pathway.⁶ A particular target of rehabilitative interest is the diaphragm muscle, as pointed out by the results of the study which show that diaphragmatic dysfunction represents a risk factor in the specific population of difficult-to-wean patients.³ This field deserves additional further investigation, aimed at establishing targets for physiotherapy among patients with chronic CI. These subgroups of subjects should be identified to provide them with different types of care, from acute respiratory interventions to early rehabilitation.

The evaluation of the diaphragm muscle with ultrasounds and the early detection of its dysfunction help to identify those patients who are most likely to benefit from an intensive respiratory rehabilitation programme. Such practice can contribute to reducing the adverse effects of critical illness and MV on the respiratory system; to restoring both physical and respiratory functions; preventing the need of MV and subsequent hospitalisation, resulting in improved patients' quality of life. An extensive body of evidence is

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already present in the literature, highlighting both appropriateness and feasibility of rehabilitation in acute respiratory settings.

Another exciting topic explored by Marchioni and Colleagues is the correlation between C-reactive protein (CRP) serum levels — and their increase during the first week of hospital admission —, and chronic CI.³ Although specific inflammatory cytokines were not assessed, stratifying patients according to the level of CRP should help to identify those subjects most likely to benefit from rehabilitation.

On the other hand, high costs related to the hospitalisation of chronic CI patients in acute settings, have contributed and still are contributing, to the growth of the number of long-term acute care facilities — particularly in the United States.⁷ Although these centres appear to offer a more favourable ratio between costs/quality and services/outcomes, Italy still seems to have a long way to go in this specific direction. In fact, due to the paucity of specialised post-acute facilities, chronic Italian CI patients are currently prone to the risk of prolonging their hospitalisation in acute settings. Prevalence of chronic CI — if related to rehabilitation — seems to be another factor that certainly deserves further analysis to plan appropriate and effective physiotherapeutic interventions.

Defining prevalence in chronic CI is a challenging effort because of varied definitions of the condition. Additionally, the increased risk of detrimental complications of chronic CI, even after stabilisation of the clinical conditions, necessitates the development of a universal and concordant definition.

The study by Marchioni and Colleagues³ contributes to estimating the prevalence of chronic CI also encouraging rigorous randomised trials to explore further — through an interdisciplinary approach including physicians and physiotherapists — which are the specific interventions and the expected outcomes in patients with chronic CI.

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Conflicts of interest

The authors declare that they have no conflict of interest.

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