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POINT OF VIEW

Physiotherapy in the ICU: Past, present, and future

Fisioterapia en UCI: pasado, presente y futuro

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Physical therapy in the Intensive Care Unit (ICU) has been integral to the multidisciplinary approach to critically ill patients since the early 1980s. However, in recent decades, and particularly since the COVID-19 pandemic, which served as a catalyst to highlight the importance of physical therapy in these settings, physiotherapy has experienced an increasing demand for its services. The presence of physical therapists in the ICU has evolved significantly with the support of scientific evidence and clinical practice. However, despite being considered an essential element for critically ill patients' functional and respiratory recovery, the incorporation of physiotherapy has been heterogeneous between countries, hospitals, and units. In Spain, for example, although the presence of physiotherapists in the ICU has increased significantly since the COVID-19 pandemic, the recommendations of the European Society of Intensive Care Medicine are rarely followed. These recommendations describe the need for full-time physiotherapists in the ICU

every day of the week and, depending on the level of complexity of the unit, at a rate of one professional for every 5–12 beds.^{1,2}

Initially, the role of physiotherapy in the ICU was focused on the prevention or treatment of pulmonary complications using respiratory physiotherapy techniques, such as *clapping* or postural drainage, which have become obsolete with time and the lack of scientific support. Nowadays, manual chest compressions,³ pulmonary hyperinflation, or, more recently, mechanical insufflation-exsufflation,⁴ are the most commonly used techniques in these patients, based on airflow modulation⁵ and specifically on the scientifically proven concept of the gas-liquid two-phase mechanism. These techniques are used not only to prevent or treat pulmonary complications during admission but also, for example, before and after extubation in order to reduce the risk of reintubation.

Since the 2000s, the focus of physiotherapy in the ICU has shifted to early mobilization, which is supported by abundant scientific evidence of its positive effects in terms of the physical and functional improvement of critical patients or even, depending on the population studied, reduction in the use of mechanical ventilation or ICU stay.^{6–8} Physical therapists contribute to the development of early mobilization protocols within the multidisciplinary team. In recent years

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their role has focused on the planning and implementation of early therapeutic physical exercise. The improvement of knowledge and the individualization of care have led to the consideration of a paradigm shift in physiotherapy, moving away from early mobilization as a global and main technique in relation to motor recovery in the ICU and towards the need to apply the principles of individualized early therapeutic exercise to critical patients.⁹ In this sense, it is not unreasonable to say that the future of physiotherapy in the ICU will also focus on the optimization and implementation of early therapies based on the assessment of muscle activation, functional movement, and physical activity levels, which should be implemented through therapeutic interventions that adjust and adapt the exposure times to physical exercise in terms of load, specificity, progression and periodicity according to the individual characteristics and clinical context of the patient. These aspects will be key to progress in the degrees and types of mobilization, ensuring a safe and efficient approach to achieving the therapeutic goals not only during ICU stay but also during admission to the hospital ward and after discharge.¹⁰

We must not forget the technological advances seen in the ICU and, therefore, the importance of learning and integrating professionals into this new situation. Physical therapists, due to their transversal nature, are continuously trained in continuous training in devices such as pulmonary bioimpedance, sedation monitoring, and ultrasound. These are helpful elements for the current role of physiotherapists in the ICU as professionals who are not only in charge of secretion management on an isolated basis but also analyze the patient from admission. In this regard, they are helpful in processes such as the synchronization of mechanical ventilation, weaning from both orotracheal intubation and tracheostomy, and physical and respiratory muscle improvement. In this context, current technology, including virtual reality, allows the application of therapeutic interventions based on physical activity and exercise that safely facilitate the treatment, prevention, and reduction of immobilization in the ICU and its sequelae.

Finally, self-criticism is fundamental, and it is not enough to ask for the presence of physiotherapists in the ICU, as recommended by national and European guidelines; it is necessary to go a step further and raise awareness of the importance of their specialization in the field of critical care. Specific training in physiotherapy in the ICU is the key to the optimal work of physical therapists and to establish their presence on an equal footing within the multidisciplinary team caring for critical patients.

CRedit authorship contribution statement

Both authors are involved in patient care. Both authors participated in writing and revising the manuscript.

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Declaration of competing interest

The authors declare that they have no conflicts of interest.

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Appendix A. Supplementary data

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