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EARLY MOBILIZATION IN INTENSIVE CARE: A NARRATIVE REVIEW

Physiotherapy

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ABSTRACT

Early mobility of the critically ill patients admitted in intensive care units (ICUs) has been recommended as key strategies of care intended to prevent the complications that are attributed to long time bed rest. This grounded review critically evaluates available literature to analyse the evidence for early mobilization in the ICU, its advantages, risks and concerns on practice delivery. Various studies indicate that different levels of early mobilization have a potential to lower the incidences of developing ICU-acquired weakness, reduce mechanical ventilation length, lessen delirium eventually enhancing the functional outcome. Recent evidence has established that early mobility is safe in the majority of the critically ill patients including those receiving mechanical ventilation provided that certain criteria however, are used in implementing the same. Though, evidence exists in favor of early mobilization the way remains improsrved due to safety concerns related to patient mobility and risks, insufficient resources, ineffective role interprofessional collaboration as well as lack of standard guidelines. It entails invoking multi-professional strategies, defining standard operating procedures, provision of adequate resources and staff training. In the recent years, new mobilization technologies such as cycling on bed, neuromuscular electrical stimulation, new equipment and complex have added different forms of early activity programs for patients with many disabilities. Is disappointing that few studies reported on adverse effects of the mobilization interventions and more research needs to be conducted to establish dosing regimen that will elicit the best response, predictors of response and ways of measuring the effects for comparison between mobilization procedures. Being a part of progressive critical care that adjusts to the patient-centered care delivery early mobilization could be viewed as one of the key interventions that affect both short and long-term results of ICU treatment.

KEYWORDS

ICU-acquired weakness, Critical illness rehabilitation, Early ambulation, Mechanical ventilation, Patient safety

INTRODUCTION

The ICU is an environment where many therapeutic interventions require a sedentary posture, which is actually counterproductive because while sustaining life, is highly prejudicial to functional independence [1]. Traditionally, bed rest had been used as a part of nursing care for the critically ill patients with the philosophy that it is better for patients to avoid 'wasting' energy when they are ill [2]. Nevertheless, the past twenty years of research was able to radically question and change this view, proving the negative impact of bed rest on virtually every vital organ and subsystem of the human body, and acknowledging the early mobilisation as one of the key principles of caring for critically ill patients [3].

There are, indeed, many negative effects of staying immobile and many of them are rather grave for the critically ill patients. In patients who are admitted to the ICU for any condition that requires mechanical ventilation for more than three days, it has been estimated that 25-50% may develop some form of weakness some of the causes include severe sepsis, multiple organ failure [4]. This complication is major(skeletal) muscle atrophy and weakness which may develop for years from the time the patients are discharged from the hospital considerably affecting their quality of life and performance [5]. In addition to problems muscular, concept of immobility leads to respiratory deconditioning, so that depend on the mechanical ventilation with subsequent development of ventilator-associated pneumonia [6]. Cardiovascular: the patients may develop decreased cardiac output, especially in standing position, orthostatic intolerance, and risk of venous thromboembolism Instances in the gastrointestinal system may experience decreased motility and constipation [7].

Cognitive function is also impacted, immobility being one of the biggest issues for a condition called delirium which occurs in as much as 80% of mechanically ventilated patients and is prognostic of higher mortality rates, longer duration of stay in the hospital, and post-ventilatory cognitive disorders [8]. Mental health issues such as anxiety, depression and post-traumatic stress disorder are realised in critical illness and immobilisation, exist even after discharge as many patients would testify [9].

Early mobility ranges from gentle passive and active exercises of major joints to patient's attempts to walk with the help of assistants [10]. Most progressive mobility protocols focus commencement on bed mobility and extend to sitting, standing and reaching for the walking positions based on the improvement of the patient [11]. Mobilization commencement is a critical factor; 'early' means initiating it within 24-72 hours of ICU admission or stabilization as per various works [12].The medical evidence supporting postoperative early mobilization can be linked to exercise science finding that even low level activity is pro anti-inflammatory, promotes better insulin sensitivity, increases respiratory rate and protects muscle nerve connections. Multiple studies on animal models have suggested that early mobility decreases inflammation and reduces muscle loss in muscles in the critically ill patients [14]. Observational studies of the human subjects showed that ICU patients are confined to bed 95% of the time even though they are physiologically capable of movement asserting the propensity-mobility gap [15].

Risk, which are including specific medical contraindications to mobilization, were leading in the past pronounced in patients with hemodynamic instability, respiratory distress or multiple medical equipment [16]. Yet, the current body of knowledge points towards the fact that early mobilization is harmless if adequate screening guidelines and measures had been put in place, even among patients who are on mechanical ventilation, vasopressors, or CRRT. It is important to note there is a low incidence of major adverse events during early mobilization interventions; varying between 0.2 – 3%, however, majority are usually mild and non life-threatening and are easily reversible [18].A number of authors have attached significant importance to the notion of early mobilization, which should involve different practitioners, including physicians, nurses, physiotherapists, respiratory therapists, occupational therapists, and other staff members [19]. Some important features that should be mentioned include the presence of tool to assess mobility readiness for mobilization, the definition of clear promotion criteria and documentation of mobility activities [20]. But by now there are often the following obstacles – shortage of funds, lack of knowledge and expertise, and cultural inertia, and fear of changes in patient conditions and their stability.

The most important concept of this narrative review is to integrate the available information from the previous and present researches about early mobilization in the ICU environment, the effects on the patient's physiology and safety, the overall outcome of the patients, and the strategies for implementation and last but not the least the perspectives for future studies. We aim at finding out appropriate recommendations for clinicians through perusing through the literature so as to enhance his/her efforts in mobility management for critically ill patients with the aim of improving the overall short-and-long-term outcomes of ICU survivors.

CONCLUSION

Early mobilization is another revolutionized culture of critical care as opposed to seeing bed rest as beneficial as before. Therefore, this narrative review enables the conclusion that the investigated early mobilization interventions are safe, feasible, and effective when the crucial aspects of patient care are provided by a competent multidisciplinary team and when patients are screened carefully for the presence of contraindications. The studies mainly reveal enhancements in the physical mobility, reduced requirement of MV, lower rates of delirium, and presumably, reduced length of stay in the hospital and better post-discharge quality of life.

However, much variability in mobilisation practices remains within institutions thus the call for standardisation of protocols, assessment to measures to outcomes. It is uncertain what constitutes the most effective dose of mobilization in terms of frequency, intensity, timing, and rather the type of mobilization. Mr. This way, the correlation of the range of patient characteristics to response to early mobilization would help tailor rehabilitation interventions in the ICU.

According to IM-PEC, the patients' side factors include sedation practices, hemodynamic stability; Practice and Implementation factor contain clinician's knowledge and attitudes, team collaborative; Context factors include staffing and resources, organizational culture. Some mobility technologies such as in-bed cycling, neuromuscular electrical stimulation and ceiling mounted lifts may make the mobilization of some of the technetium patients easier but whether or not these technologies are cost effective requires further study.

With the shift in focus of critical care from the sole aspect of the mortality rates to considerations of functional recovery and quality of life, early mobilisation will ever be a mark element in the critical care unit. The future studies should aim at discovering the effective components of mobilization bundles the feasible way of developing accurate prediction models for the success of mobilization, the long-term functional outcome, and the affordability of different implementation procedures. New evidence has shown that early mobilization is a practice that can drastically change the care delivered to millions of critical ill patient across the globe.

REFERENCES

1. Needham DM, Davidson J, Cohen H, Hopkins RO, Weinert C, Wunsch H, et al. Improving long-term outcomes after discharge from intensive care unit: report from a stakeholders' conference. Crit Care Med. 2012;40(2):502-9.
2. Herridge MS, Tansey CM, Matté A, Tomlinson G, Diaz-Granados N, Cooper A, et al. Functional disability 5 years after acute respiratory distress syndrome. N Engl J Med. 2011;364(14):1293-304.
3. Schweickert WD, Pohlman MC, Pohlman AS, Nigos C, Pawlik AJ, Esbrook CL, et al. Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial. Lancet. 2009;373(9678):1874-82.
4. De Jonghe B, Sharshar T, Lefaucheur JP, Authier FJ, Durand-Zaleski I, Boussarsar M, et al. Paresis acquired in the intensive care unit: a prospective multicenter study. JAMA. 2002;288(22):2859-67.
5. Iwashyna TJ, Ely EW, Smith DM, Langa KM. Long-term cognitive impairment and functional disability among survivors of severe sepsis. JAMA. 2010;304(16):1787-94.
6. Morris PE, Goad A, Thompson C, Taylor K, Harry B, Passmore L, et al. Early intensive care unit mobility therapy in the treatment of acute respiratory failure. Crit Care Med. 2008;36(8):2238-43.
7. Brower RG. Consequences of bed rest. Crit Care Med. 2009;37(10 Suppl)
8. Ely EW, Shintani A, Truman B, Speroff T, Gordon SM, Harrell FE Jr, et al. Delirium as a predictor of mortality in mechanically ventilated patients in the intensive care unit. JAMA. 2004;291(14):1753-62.
9. Desai SV, Law TJ, Needham DM. Long-term complications of critical care. Crit Care Med. 2011;39(2):371-9.
10. Hodgson CL, Berney S, Harrold M, Saxena M, Bellomo R. Clinical review: early patient mobilization in the ICU. Crit Care. 2013;17(1):207.
11. Gosselink R, Bott J, Johnson M, Dean E, Nava S, Norrenberg M, et al. Physiotherapy for adult patients with critical illness: recommendations of the European Respiratory Society and European Society of Intensive Care Medicine Task Force on Physiotherapy for Critically Ill Patients. Intensive Care Med. 2008;34(7):1188-99.
12. Bein T, Bischoff M, Brückner U, Gebhardt K, Henzler D, Hermes C, et al. S2e guideline: positioning and early mobilisation in prophylaxis or therapy of pulmonary disorders. Anaesthesist. 2015;64(Suppl 1):1-26.
13. Parry SM, Puthucheary ZA. The impact of extended bed rest on the musculoskeletal system in the critical care environment. Extrem Physiol Med. 2015;4:16.
14. Callahan LA, Supinski GS. Sepsis-induced myopathy. Crit Care Med. 2009;37(10 Suppl).
15. Brown CJ, Redden DT, Flood KL, Allman RM. The underrecognized epidemic of low mobility during hospitalization of older adults. J Am Geriatr Soc. 2009;57(9):1660-5.
16. Stiller K. Safety issues that should be considered when mobilizing critically ill patients. Crit Care Clin. 2007;23(1):35-53.
17. Nydahl P, Sricharoenchai T, Chandra S, Kundt FS, Huang M, Fischill M, et al. Safety of patient mobilization and rehabilitation in the intensive care unit. Systematic review with meta-analysis. Ann Am Thorac Soc. 2017;14(5):766-77.
18. Hodgson CL, Stiller K, Needham DM, Tipping CJ, Harrold M, Baldwin CE, et al. Expert consensus and recommendations on safety criteria for active mobilization of mechanically ventilated critically ill adults. Crit Care. 2014;18(6):658.
19. Engel HJ, Needham DM, Morris PE, Gropper MA. ICU early mobilization: from recommendation to implementation at three medical centers. Crit Care Med. 2013;41(9 Suppl 1)
20. Balas MC, Vasilevskis EE, Olsen KM, Schmid KK, Shostrom V, Cohen MZ, et al. Effectiveness and safety of the awakening and breathing coordination, delirium monitoring/management, and early exercise/mobility bundle. Crit Care Med. 2014;42(5):1024-36.