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EFFECTS OF EARLY MOBILIZATION ON INTENSIVE CARE UNIT PATIENTS: A SYSTEMATIC REVIEW

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Abstract: Introduction: Mobilization interventions performed in the ICU environment are considered a therapeutic intervention that potentially prevents or attenuates the functional compromise of muscle weakness acquired in the ICU. This way, the effect of early mobilization in seriously ill patients in the ICU must be reexamined Objective: To openly evaluate the evidence available on the effect of early mobilization in seriously ill patients in the ICU. **Materials and methods:** This is a systematic review of articles indexed in the databases SciELO, PubMed, LILACS, SPRINGERLINK, SCIENCE DIRECT and LATINDEX, in the period from October to November 2023. This includes original articles involving the effects of early mobilization in patients of units of intensive therapy. The collection was carried out by two independent reviewers and the interobserver agreement analysis was observed by means of the Kappa test (Bioestat V 5.0). **Result:** At the end of the search, 12 articles were selected, characterized by what we show, the method for evaluation and the main results. Eleven (91.66%) two twelve studies showed positive results in relation to early mobilization in patients subjected to this experience, these four (33.33%) articles also revealed associations between early mobilization and possible adverse effects and only one (8.33%) study Negative results were found in relation to early mobilization in patients. Conclusion: The results of this review show evidence in favor of early mobility, therefore, it is recommended that more studies be carried out with more rigorous documentation of mobilization and progress procedures to confirm these clinical benefits.

Keywords: early mobilization; intensive care units; muscle weakness.

INTRODUCTION

Prolonged hospitalization in intensive care units has been associated with increased morbidity and mortality in the long term after hospital discharge. It is estimated that approximately 20-50% of intensive care unit (ICU) patients acquire acquired frailty in the intensive care unit (FA-ICU) during their hospitalization (STEVENS et al., 2007; Gosselink et al., 2008).

FA-UTI includes a wide variety of disorders caused by polyneuropathy and myopathy after admission to the ICU and is associated with reductions in health-related quality of life and an increased risk of death after hospital discharge and is potentially aggravated by long periods Rest is not due to sedation and mobility managed routinely (Jolley; Bunnell; Hough, 2016; Friedrich et al., 2015). Currently, mobilization interventions carried out in the ICU environment are considered a therapeutic intervention that potentially prevents or attenuates the functional compromise of AF in the ICU (Li et al., 2013; Pinheiro; Christofoletti; 2012). However, the initial period of mobilization is still a fairly debated issue.

Early mobilization was proposed as a promising intervention to neutralize FA in UTI because it mitigates muscle weakness associated with critical conditions (Verceles et al., 2018). In 2013, Berry et al. (2013) report that early exercise has the potential to reduce the time of hospitalization and better function in patients with acute respiratory failure. In 2017, Santos et al. (2017) proposed that early mobilization seems to be important to prevent post-operative complications, improve functional capacity and reduce hospitalization time of patients undergoing cardiac surgery. Not the same year, a study by Nydahl et al. (2017) reported that early mobilization and physical rehabilitation for seriously ill patients appear to be safe and present low risk of potential adverse events. According to another published in 2018, early mobilization in the ICU has a positive and safe effect on hospital outcomes for patients who require mechanical ventilation (MV), because it confers a significant benefit of reducing the duration of MV and the duration of MV (Gensheng et al., 2018).

However, various opposing opinions have been reported in many published articles. In 2015, a meta-analysis carried out by Castro-Ávila et al. (2015) will argue that early rehabilitation during ICU hospitalization is not associated with better functional status, muscular strength, quality of life or results of health care utilization. In 2016, a qualitative review suggested that early exercise in the ICU is feasible and safe, but the potential benefit of early initiation of the program was not clearly demonstrated (Laurent et al., 2016). In 2018, another study also demonstrated mixed results for the effect of movement or early exercise in physical function and the difficulty in determining whether movement or early exercise performed by seriously ill people in ICU improved their abilities to perform daily activities, muscular strength or quality of life (Doiron et al., 2018).

In addition to the two data presented above, the most recent direction on Sleep, Agitation/ Sedation, Delirium, Immobility and Sleep Disruption (PADIS) (2018) suggests that rehabilitation or mobilization can be initiated safely in severely ill adults when cardiovascular problems occur, respiratory, and neurological states are still present (Devlin et al., 2018). Also discussed, many recent studies have been published focusing on the effect of early rehabilitation in the ICU. The effect of early mobilization in seriously ill patients in the ICU must be reexamined. Thus, this study seeks to comprehensively evaluate the evidence available on the effect of early mobilization in seriously ill patients in the ICU.

METHODS

This is a systematic review. To carry out this study, the databases were consulted: SciELO (Scientific Electronic Library Online); PUBMED (National Library of Medicine); LILACS (Latin American and Caribbean Literature in Health Sciences); SPRINGERLINK; SCIENCE DIRECT and LATINDEX. The electronic search was carried out during the period from October to November 2023. For selected articles without time restrictions, in English and Portuguese languages. For prospective studies, the descriptors are used in combination by means of Boolean operators (AND). Our banks from SciELO, PUBMED, SCIENCE DIRECT, LILACS, SPRINGERLINK and LATINDEX consider the combination: "effects of early mobilization" AND / OR "intensive care unit".

To calculate the total number of studies, it was verified that the studies were not repeated on more than one basis, with each item being considered only once. From two identified studies, those that met the criteria for their inclusion were selected, considering the reading of two titles and abstracts.

Original articles for early mobilization in patients in intensive care units were included in this review, prioritizing the most relevant studies. Excluded are review articles, studies with models involving animals and those that refer to early mobilization, however, they are not returned to intensive care units.

The search was carried out by two independent reviewers, with an analysis of interobserver agreement carried out by means of the Kappa test, through the Bioestat V 5.0 software, according to the method of Landis and Koch (1977). The value found was K = 0.78 (Substantial agreement).

The articles were critically analyzed through an interpretation guide, used to assess their individual quality, based on the studies of Greenhalgh (1997) and adapted by Macdermid et al. (2009). The quality validation items of two items are expressed by points in Table 1, not which 0 = absent; 1 = incomplete; and 2 = complete.

RESULTS

A summary of the electronic search in the selected databases is presented in Figure 1. Initially, 2,432 items were identified, with 2,230 items excluded because we did not possess relevant data or because they were duplicates, leaving 202, the files submitted to the analysis of two titles and two We summarize and verify the inclusion and exclusion criteria. These, all formed in their entirety, two of which only 11 articles (Yayla, A.; Ozer, N. (2019) Koyuncu, F.; Lyigun, E. (2022) Lai, C; Chou, W.; Chan, K. et al. (2017) Chou, W.; Lai, C.; Cheng, K. et al. (2019) Hodgson CL, Bailey M, et al. (2022) Fraser, D.; Spiva, L.; Forman, W. et al. (2015) AVERT (2015) Zhou, W.; Yu, L.; Fan, Y. et al. (2022) Zhou, J.; Zhang, C. Zhou, J. et al. (2022) Eggmann, S.; Verra, M.; Luder, G.; et al (2018) Dantas, C. et al. (2012) adequately fulfilled all the inclusion criteria being, as well, selected for this integrative review.

Seven (58.33%) two twelve studies in this review will use the distribution method in a random manner to constitute two control and intervention groups, five (41.66%) studies will carry out the constitution of two groups according to specific criteria, these being selected from non-randomized.

Ten (93.33%) two twelve studies obtained a sample higher than one hundred individuals, only two (16.66%) studies obtained a sample lower than these values. Twelve studies showed positive results in relation to early mobilization in patients subjected to this experience, these four (33.33%) articles also revealed associations between early mobilization and possible adverse effects and only one (8.33%) study Negative results were found in relation to early mobilization in

	Appraisal criteria												
Studies	1	2	3	4	5	6	7	8	9	10	11	12	Total (%)
Yayla, A.; Ozer, N. (2019)	1	2	0	NA	2	2	2	2	2	1	1	2	77.27
Koyuncu, F.; Lyigun, E. (2022)	1	2	0	NA	1	2	2	2	2	1	1	2	72.72
Lai, C; Chou, W.; Chan, K. et al. (2017)	2	2	0	NA	1	2	2	2	2	2	1	1	77.27
Chou, W.; Lai, C.; Cheng, K. et al. (2019)	2	1	0	NA	2	2	2	1	1	1	1	2	63.63
Hodgson CL, Bailey M, et al. (2022)	1	2	0	NA	2	2	2	1	2	2	1	1	72.72
Fraser, D.; Spiva, L.; Forman, W. et al. (2015)	1	2	0	NA	2	2	1	1	2	2	1	1	68.18
AVERT (2015)	2	2	0	NA	2	2	2	2	2	2	2	2	90.90
Zhou, W.; Yu, L.; Fan, Y. et al. (2022)	2	2	0	NA	2	2	1	1	2	1	1	1	68.18
Zhou, J.; Zhang, C. Zhou, J. et al. (2022)	1	2	0	NA	2	2	2	2	2	1	1	2	77.27
Eggmann, S.; Verra, M.; Luder, G.; et al (2018)	2	2	0	NA	2	2	2	2	2	2	1	2	86.36
Dantas, C. et al. (2012)	2	2	0	NA	1	2	1	2	2	2	1	1	72.72

Table 1: Analysis of the quality of two articles found regarding the presence of a persistent median artery and its relationship to carpal tunnel syndrome.

Abbreviations: NA, not applicable to paper.

* Assessment criteria: 1. Thorough literature review to define the research question; 2. Specific inclusion/exclusion criteria; 3. Specific hypotheses; 4. Appropriate scope of psychometric properties; 5. Sample size; 6. Monitoring; 7. The authors refer to specific procedures for administration, punctuation and interpretation of procedures; 8. Standardized measurement techniques; 9. The data presented for each hypothesis; 10. Appropriate statistics - specific estimates; 11. Appropriate statistical error estimates; 12. Valid conclusions and clinical recommendations.

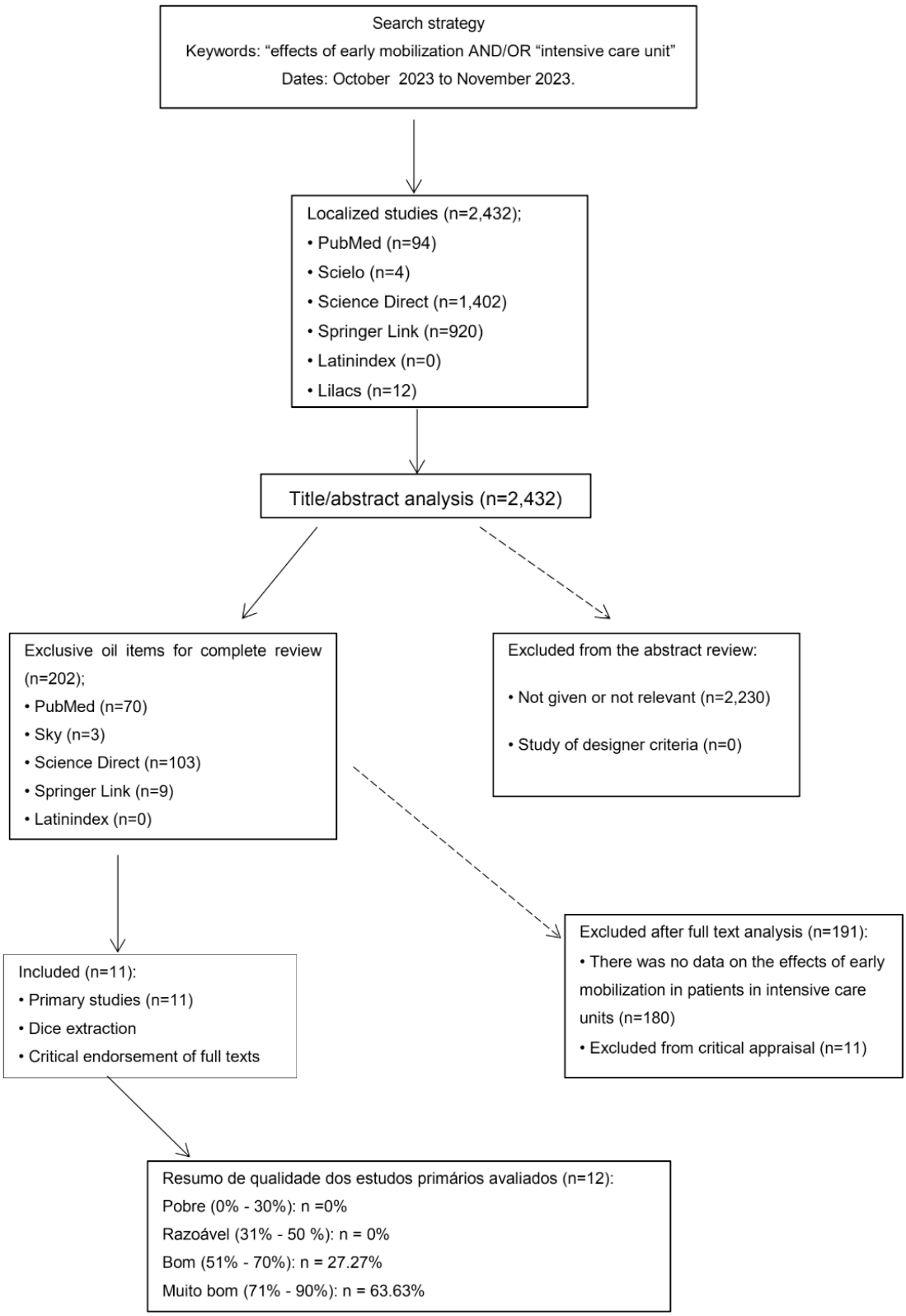

Figure 1. Studies included and excluded in the review on the effects of early mobilization in inpatients in intensive care units.

STUDY	SAMPLE	METHODS	MAIN RESULTS
Yayla, A.; Ozer, N. (2019)	102 pacientes (51 alocados no grupo experimental e 51 no grupo controle).	An introductory characteristics form, Richards-Campbell Sleep Questionnaire (RCSQ), hospital stay time (post-operative) and a late post-operative complications form are used.	The results of the study will reveal that the patients in the experimental group have better CRSQ scores, shorter hospitalization times and fewer late complications after surgery than the patients in the control group. Early mobilization is available in adult patients undergoing cardiac surgery and provides significant benefits. More research is recommended on the effectiveness of early mobilization in different groups of patients.
Koyuncu, F.; Lyigun, E. (2022)	42 patients underwent open abdominal surgery, 21 in the control group and 21 in the intervention group.	The groups were accompanied sequentially and the data from the control group (n = 21) were collected before the intervention group (n = 21). The patients in the control group were mobilized post-operatively by the nurses according to the decision of the nurse and the doctor of the intensive care unit (ICU) on the day of the operation. There was no master protocol for mobilization in the ICU.	According to the post-operative comparison between the patients in the intervention group and the control group, the patients in the intervention group will begin mobilization but after admission to the intensive care unit, the total mobilization time on day 0 (128 minutes) will increase. versus 34 minutes), they presented lower flatus passage time, shorter hospitalization time in the intensive care unit and hospital, and higher sound quality and satisfaction scores.
Lai CC, Chou W, Chan KS, et al. (2017)	Adult patients in MV (N=153), 63 patients in the group before the protocol and 90 in the group after the protocol.	A multidisciplinary team starts the protocol within 72 hours after the start of MV, when patients are hemodynamically stabilized. Early mobilization is carried out twice a day, 5 days/ week during family visits (30 minutes each time).	Patients in the protocol group have shorter MV durations and retention in the ICU than before two patients in the protocol group. Early mobilization was negatively associated with the duration of MV and the risk of MV for ≥7 days was lower in patients who were subjected to early mobilization. The introduction of early mobilization for patients with MV in the ICU shortened MV and hospitalization time in the ICU. A multidisciplinary team that includes the patient's family can work together to improve the patient's clinical outcomes.
Chou, W.; Lai, C.; Cheng, K. et al. (2019)	105 ICU patients with COPD and ARF who require MV	During the study period, 35 patients with COPD were subjected to early rehabilitation in the ICU and 70 patients matched demographically and clinically with stage of COPD, cause of intubation, type of respiratory failure and similar pregnancy levels, who had not been submitted Early rehabilitation in ICU foram selected as comparative controls.	The analysis of the two results will show that the early rehabilitation group has a higher rate of survival and a higher rate of extubation before it happens, a shorter duration of MV, a shorter time of hospitalization in the ICU and in the hospital, and lower medical costs. Furthermore, a controlled multiple regression model for age, sex, APACHE II and TISS, COPD status, hemoglobin and albumin levels, comorbidities and respiratory failure induced by the pulmonary system showed that early mobilization was significantly negatively associated with duration of the day. VM, but not significantly associated with the length of stay in the ICU and the hospital, or with medical costs. The early rehabilitation of patients in the ICU with comorbid COPD and ARF shortened the duration of MV.

Hodgson CL, Bailey M, et al. (2022)	750 adults on invasive mechanical ventilation	We randomly distributed 750 adult patients to an ICU undergoing invasive mechanical ventilation to receive more early mobilization (minimization of sedation and daily physiotherapy) or routine care (the level of mobilization normally provided in each ICU). The primary reason was the number of days that patients will remain alive and outside the hospital 180 days after randomization.	The median number of days that patients remained alive outside the hospital was 143 (interquartile range, 21 to 161) in the early mobilization group and 145 days (interquartile range, 51 to 164) in the routine care group. The average daily duration (±DP) of active mobilization was 20.8±14.6 minutes and 8.8±9.0 minutes in the two groups, respectively (difference, 12.0 minutes per day). A total of 77% of patients in both groups managed to stay put for an average interval of 3 days and 5 days, respectively. On day 180, death occurred in 22.5% of two patients in the early mobilization group and in 19.5% of those in the care group. Among the survivors, the quality of life, the activities of daily life, the disability, the cognitive function and the psychological function are similar in two groups. Serious adverse events were reported in 7 patients in the early mobilization group and in 1 patient in the usual care group. Adverse events potentially due to mobilization (arrhythmias, arterial pressure alteration and desaturation) were reported in 34 371 patients (9.2%) in the early mobilization group and in 15 370 patients (4.1%) in the care group habitual group (P = 0.005). Among adults undergoing mechanical ventilation in the ICU, an increase in early active mobilization did not result in a significantly greater number of days in which patients remained alive outside the hospital with the usual level of mobilization in the ICU. The intervention was associated with an increase in adverse events.
Fraser, D.; Spiva, L.; Forman, W. et al. (2015)	132 patients, with 66 randomly designated for intervention groups and 66 for routine care group.	This is a retrospective longitudinal study in an acute care community hospital; Patients are randomly assigned to intervention or routine care groups. The interventions are grouped into four phases that successively require greater strength, balance, hemodynamic stability, and the ability to participate in activities. Phase 1 included passive range of motion and repositioning exercises every two hours – activities that nurses, nursing assistants and family members could perform without assistance from the mobility team. Phases 2, 3 and 4 will consist of sitting on the bed and standing, transferring from the bed to the chair and ambulating, respectively.	The 66 patients who received the mobility intervention had significantly fewer stays, events associated with mechanical ventilation, pressure ulcers, and urinary tract infections associated with catheters than the 66 patients in the routine care group. The mobility group also has lower hospital costs, fewer days of delirium, lower levels of sedation and better functional independence in comparison with the routine care group. Patients in the mobility group will get up and go to bed 2.5 days more than patients in the routine care group. There were also no adverse events in the mobility group.
AVERT Trial Collaboration group. (2015)	2,104 patients (community ≥18 years) with ischemic or hemorrhagic cerebral vascular accident, first or recurring	This is a randomized clinical trial, where 2,104 patients were randomly distributed to receive early mobilization (n=1,054) or routine care (n=1,050); 2,083 (99%) patients were included in the 3-month follow-up assessment. 965 (92%) patients were mobilized within 24 hours in the very early mobilization group, compared to 623 (59%) patients in the usual care group.	Fewer patients in the early mobilization group had a favorable outcome than those in the usual treatment group (n = 480 [46%] vs n = 525 [50%]. 88 (8%) patients had fewer patients in the early mobilization group in comparison with 72 (7%) patients in the routine care group, 201 (19%) patients in the early mobilization group and 208 (20%) in the routine care group experienced a serious, non-fatal adverse event, without a reduction in complications related to them. mobilization with early mobilization. The first mobilization occurred within 24 hours for most of the patients in this study. A higher dose, the early mobilization protocol, was associated with a reduction in the probabilities of a favorable outcome at 3 months.

Zhou, W.; Yu, L.; Fan, Y. et al. (2022)	150 patients were included and distributed equally in the three groups.	A prospective, double-center, randomized and controlled study was carried out. The control group was subjected to parental care without a pre-established routine of mobilization and nutrition. The early stimulation group (EM) was subjected to mobilization, individualized and progressive in 24 hours after admission to the ICU. The group of early mobilization combined with early nutrition (EMN) underwent mobilization, similar to the group comparison with an early mobilization, also of early nutrition based on guidelines (within 48 hours of admission to the ICU).	Patients receiving only routine care are more susceptible to AF-UTI when discharged from UTI than those in the MS or MND groups (16% vs. 2%; p = 0.014 for both) and have a lower Barthel Index. than others. The EMN group showed better muscular strength and better nutritional status than the control group. Both interventions are associated with less muscle weakness in the ICU. EM and EMN had positive effects. There is little difference between the effects of EM and EMN, except in the best case of muscular strength. Both EM and EMN can lead to a lower incidence of muscle weakness acquired in the ICU and a better functional independence from the standard treatment. EMN can benefit more from the nutritional status than usual care and promote better muscle strength.
Zhou, J.; Zhang, C. Zhou, J. et al. (2022)	320 patients, with 160 included in the intervention group (early progressive mobilization) and 160 in the control group (habitual care)	Patients who received early progressive mobilization were included in the intervention group (n = 160), and other patients matched to the intervention group by sex, age and APACHE II score, and these patients who received routine intervention were included in the control (n = 160). Then, indices involving muscle strength, Barthel index, functional independence, incidence rates of muscle weakness in the ICU and other complications were analyzed comparatively between the 2 groups.	The percentages of patients who were able to take a bath, put on clothes, eat, get into bed, get out of bed and use the toilet in the intervention group were significantly higher than those in the control group. The incidence rates of muscle weakness in the ICU and the overall incidence rates of complications in the intervention group were significantly lower than those in the control group. Early progressive mobilization can effectively increase muscle strength and basic daily movement capacity, improve functional status and reduce the risk of muscle weakness acquired in the ICU in seriously ill patients undergoing mechanical ventilation, and has an attractive application value in the clinic.
Eggmann, S.; Verra, M.; Luder, G.; et al (2018)	115 patients allocated to the control group (57) and the intervention group (58)	Previously independent, mechanically ventilated, seriously ill adults with expected permanence in intensive care ≥72 hours (n = 115) were randomized to a control group receiving physical therapy for patients, including early mobilization, or to an experimental group with early resistance and resistance training. combined with mobilization.	Physiotherapy began within 48 hours after admission to intensive care, while 97% of the participants were still ventilated and 68% were using inotropes. Compared to the control group (n = 57), or experimental group (n = 58), they received significantly more physiotherapy (sessions: 407 vs 377, p<0.001; tempo/session: 25min vs 18min, p<0.001) and have fewer days with sedation. Adverse events are rare (0.6%) and have no consequences. There were no significant differences between the groups in the 6-minute walking distance (123m experimental (IQR 25-280) vs control 100m or functional independence. Likewise, no differences were found for the secondary defects, except for a tendency toward better health. mental non-experimental group after 6 months (84 (AIQ 68-88) vs 70 (AIQ 64-76); p = 0.023). Independence at hospital discharge compared to physiotherapy in early childhood, but it can improve mental health 6 months after discharge in intensive care.

Dantas, C. et al. (2012)	59 patients of both genders, in mechanical ventilation.	Clinical, controlled and randomized trial carried out in 59 patients of both genders, in mechanical ventilation. The patients were divided into the conventional physiotherapy group - the control group, n=14, who performed industrial physiotherapy, and the early mobilization group, n=14, who received a systematic early mobilization protocol. Peripheral muscular force was validated by the Medical Research Council and respiratory muscular force (given by maximum inspiratory pressure and maximum expiratory pressure) was measured using a manovacometer with a one-way valve.	For the values of maximum inspiratory pressure and the Medical Research Council, significant gains were found in the early mobilization group. Meanwhile, the maximum expiratory pressure and the time of mechanical ventilation (days), time of confinement in the intensive care unit (days), and time of hospital confinement (days) do not present statistical significance. We gain inspiration and peripheral muscular strength for a population studied when subjected to an early and systematized mobilization protocol. We can identify a significant increase in Pimax after the study period in the early mobilization group (GMP) (52.71±12.69 versus 66.64±26.44; p=0.02), a phenomenon not observed for patient's conventional physiotherapy (GFC) (67.86±33.72 versus 73.86±34.26; p=0.60). In the analysis of expiratory muscular force, no significant results were found in the Pemax values, both for GFC and GMP. The peripheral muscular force did not present a significant increase after the non-GFC study period (39.21±14.63 versus 40.29±10.51; p=0.82), however non-GMP (49.29±11. 02 versus 55.86±4.40; p=0.04) a significant increase in peripheral muscle strength was found. When comparing the two groups, significantly higher MRC values were observed before (49.29±11.02 versus 39.21±14.63; p=0.00) and after (55.86±4.40 versus 40.29±10.51; p=0.00) for carrying out the non-GMP study protocol. Comparing GFC and GMP, what does it say regarding total MV time (p=0.60), ICU confinement time (p=0.77) and hospital confinement time (p=0.25), no observed formats significant differences.

Table 2. Characteristics of two studies that evaluate the effects of early mobilization in critically ill patients in intensive care units.

patients.

The most prevalent condition in this review was a lower incidence of muscle weakness acquired in the ICU and a better functional independence in patients undergoing early mobilization, followed also by a lower number of stays, events associated with mechanical ventilation, pressure ulcers and associated infections, as well. such as lower hospital costs, fewer days of delirium, lower sedation nights.

DISCUSSION

Various studies have been conducted with the objective of evaluating the effects of early mobilization in patients in intensive care units, considering that this public is commonly found to be critically ill and, in turn, develop serious muscle weakness due to hypercatabolism, use of deep sedation and mobility during the hospitalization period. Likewise, muscle weakness impairs functional capacity, delays recovery, prevents mechanical ventilation (VM) from being weaned, increasing financial costs and decreasing the quality of life of survivors (FARHAN et al., 2016; HERMANS et al., 2015; HERMANS et al., 2015).

In our results, we observed that some of the two studies analyzed demonstrate that individuals exposed to early mobilization obtain shorter hospitalization times in the intensive care unit and hospital and higher quality and sleep satisfaction scores (Yayla; Ozer, 2019; Koyuncu; Lyigun, 2022). Furthermore, it was also possible to note in most of the studies that patients receiving mobility intervention had significantly fewer stays, events associated with mechanical ventilation, pressure ulcers and urinary tract infections associated with catheters. The group also has lower hospital costs, fewer days of delirium, lower levels of sedation and better functional independence in comparison with the routine care group (FRASER; SPIVA; FORMAN et al., 2015).

According to Zhou, Yu, Fan et al. (2022) in this study, the patients subjected to routine care are more susceptible to FA-UTI upon discharge from the UTI than those in the groups of early stimulation and stimulation associated with nutrition. Furthermore, it has been seen that early stimulation combined with early nutrition can further benefit the nutritional status of the usual care and promote better muscular strength, similar aspects seen by a recent study carried out in 2022, where it was also possible to verify that Early progressive mobilization effectively affects muscle strength and basic daily movement capacity, also improving functional status, thus reducing the risk of FA-UTI (Zhou; Zhang; Zhou et al., 2022).

Peripheral muscular force also showed an increase in the early mobilization group in relation to the conventional physiotherapy group, but there is no significant increase in expiratory muscular force, according to the authors. Such a reduction was expected, since the study method does not cite any type of resource to work forcefully on the muscles in the quest (DANTAS et al., 2012). Many systematic reviews report that early mobilization is viable, safe and well tolerated and promotes better functional results in ICU patients (SANTOS et al., 2017; ADLER; MALONE, 2012; GOSSELINK et al., 2008). Therefore, the dominant vision is that seriously ill patients must receive mobilization therapy as quickly as possible.

However, also evident in the curves of Eggmann, Verra and Luder et al. (2018). intensive care.

In relation to MV, it is also noted that the patients in both groups protocols require a shorter duration of MV, as well as a higher rate of extubation before it happens, and it is also possible to observe a lower time of stay in

the ICU and a higher rate of survival. analyzed patients (Lai; Chou; Chan et al., 2017; Chou; Lai; Cheng et al., 2019). Although Chou; The I; Cheng et al. (2019), we demonstrate in our findings that early mobilization was significantly negatively associated with the duration of MV, but not significantly associated with the time of hospitalization in the ICU and the hospital, or with medical costs.

The adverse events associated with early mobilization are present in two studies presented in this review, Hodgson; Bailey et al. (2022) associated with early mobilization to the increase in adverse events such as arrhythmias, arterial pressure alterations and desaturation, also stated, on a specific day of application of the protocol it was seen that 22.5% of two patients in the early mobilization group died. In relation to 19.5%, two patients belonging to the usual care group, are corroborated as those found by AVERT Trial Collaboration group (2015). Likewise, the average number of days that patients will remain alive and outside the hospital is greater than the usual care group in relation to the early mobilization group. Meanwhile, these isolated curved forams must be better evaluated.

Other reviews on early mobilization therapy in seriously ill patients also produce conflicting results, such as poor or inconsistent effects on functional recovery, quality of life, length of stay in the ICU or total hospitalization, and long-term or short-term mortality (Castro-Avila et al, 2015; Tipping et al., 2017). Conflicting results may be due to various factors, including differences in intervention, variations in reports, quality of available resources, among others. Furthermore, it must be noted that some systematic reviews will comprehensively consider the current body of literature below the ideal for comparison due to a lack of consistency or reliability in the intervention carried out (Reid et al., 2018).

For example, Reid et al. (2018) relates that two 117 studies endorsed by them, do not relate the same intervention exactly in the same way. Thirty and seven percent will not communicate the start time of the intervention and 26% will not communicate the overall duration of the intervention, limiting the understanding and generalization of the interventions. Another potentially confusing factor is the variety of patient populations (and services) evaluated in early mobilization studies in ICUs, which generally include patients hospitalized for acquired cardiac, respiratory and cerebral diseases, among other critical conditions, or that make it difficult to conclude the two. real effects of early mobilization therapy.

Although independent studies have reported a variety of benefits of early mobilization therapy, including reduction of days of mechanical ventilation, reduction of hospital stay time and functional results, several reviews confirm only the benefits of a short period of early mobilization intervention, questioning The high costs of resources and labor offset these benefits in the short term (Connolly et al., 2015).

Furthermore, even though most of the steps in our review have been favorable to early mobility, more studies with more rigorous documentation of mobilization and progression procedures are necessary to confirm these clinical benefits.

CONCLUSION

It is observed that patients undergoing early mobilization in intensive care units present a shorter duration of MV, as well as a higher rate of extubation before it happens, and it is also possible to observe a shorter time of permanence in the ICU and a higher rate of survival of two patients analyzed, also fewer stays, fewer events associated with mechanical ventilation, pressure ulcers, urinary tract

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infections associated with catheters, lower hospital costs, fewer days of delirium, lower levels of sedation and better functional independence em comparison to groups exposed only to routine care.

However, more large-scale research studies are needed and designed to provide more robust evidence to support the effectiveness and safety of early mobilization of seriously ill patients in the ICU environment.

REFERENCES

Yayla A, Özer N. Effects of early mobilization protocol performed after cardiac surgery on patient care outcomes. *Int J Nurs Pract*. 2019;25(6):e12784.

Koyuncu F, Iyigun E. The effect of mobilization protocol on mobilization start time and patient care outcomes in patients undergoing abdominal surgery. *J Clin Nurs*. 2022;31(9-10):1298-1308.

Lai CC, Chou W, Chan KS, et al. Early Mobilization Reduces Duration of Mechanical Ventilation and Intensive Care Unit Stay in Patients With Acute Respiratory Failure. Arch Phys Med Rehabil. 2017;98(5):931-939.

Chou W, Lai CC, Cheng KC, Yuan KS, Chen CM, Cheng AC. Effectiveness of early rehabilitation on patients with chronic obstructive lung disease and acute respiratory failure in intensive care units: A case-control study. Chron Respir Dis. 2019 Jan-Dec;16:1479973118820310.

Stevens RD, et al. Disfunção neuromuscular adquirida em doença crítica: uma revisão sistemática. Terapia Intensiva Med 2007; 33 :1876–91.

Gosselink R, et al. Fisioterapia para pacientes adultos com doenças críticas: recomendações da Sociedade Respiratória Europeia e da Sociedade Europeia de Medicina Intensiva Grupo de Trabalho sobre Fisioterapia para Pacientes Críticos. Terapia Intensiva Med 2008; 34 :1188–99.

Jolley SE, Bunnell AE, Hough CL. Fraqueza adquirida na UTI. Baú 2016; 150 :1129–40.

Connolly B, et al. Intervenções de reabilitação física para pacientes adultos com doenças críticas ao longo do continuum de recuperação: uma visão geral do protocolo de revisões sistemáticas. Rev. do sistema 2015; 4 :130.

Castro-Avila AC, et al. Efeito da reabilitação precoce durante a permanência na unidade de terapia intensiva no estado funcional: revisão sistemática e meta-análise. PLoS Um 2015; 10 :e0130722.

Tipping CJ, et al. Os efeitos da mobilização ativa e da reabilitação na UTI sobre a mortalidade e a função: uma revisão sistemática. Terapia Intensiva Med 2017; 43 :171–83.

Reid JC, et al. Intervenções de reabilitação física na unidade de terapia intensiva: uma revisão de escopo de 117 estudos. J Terapia Intensiva 2018; 6:80.

Friedrich O, Reid MB, Van den Berghe G, Vanhorebeek I, Hermans G, Rich MM, et al. The Sick and the Weak: Neuropathies/ Myopathies in the Critically Ill. Physiol Rev. 2015; 95(3): 1025–1109. 10.1152/physrev.00028.2014

Li Z, Peng X, Zhu B, Zhang Y, Xi X. Active mobilization for mechanically ventilated patients: A systematic review. Archives of Physical Medicine and Rehabilitation. 2013; 94(3): 551–561.

Pinheiro AR, Christofoletti G. Motor physical therapy in hospitalized patients in an intensive care unit: a systematic review. Revista Brasileira de terapia intensiva. 2012; 24(2): 188–196.

Verceles AC, Wells CL, Sorkin JD, Terrin ML, Beans J, Jenkins T, et al. A multimodal rehabilitation program for patients with ICU acquired weakness improves ventilator weaning and discharge home. J Crit Care. 2018; 47: 204–210.

Berry MJ, Morris PE. Early Exercise Rehabilitation of Muscle Weakness in Acute Respiratory Failure Patients. Exercise and Sport Sciences Reviews. 2013; 41(4): 208–215.

Santos PMR, Ricci NA, Suster EAB, Paisani DM, Chiavegato LD. Effects of early mobilisation in patients after cardiac surgery: a systematic review. Physiotherapy. 2017; 103(1): 1–12. 10.1016/j.physio.2016.08.003

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): 766–777. 10.1513/AnnalsATS.201611-843SR

Gensheng Zhang KZ, Wei Cui1, Yucai Hong, Zhongheng Zhang. The effect of early mobilization for critical ill patients requiring mechanical ventilation a systematic review and meta-analysis. Journal of Emergency and Critical Care Medicine. 2018; 2(9): 1–13. 1

Laurent H, Aubreton S, Richard R, Gorce Y, Caron E, Vallat A, et al. Systematic review of early exercise in intensive care: A qualitative approach. Anaesthesia Critical Care & Pain Medicine. 2016; 35(2): 133–149.

Doiron KA, Hoffmann TC, Beller EM. Early intervention (mobilization or active exercise) for critically ill adults in the intensive care unit. Cochrane Database Syst Rev. 2018;3(3):CD010754.

Dantas CM, Silva PF dos S, Siqueira FHT de, Pinto RMF, Matias S, Maciel C, et al. Influência da mobilização precoce na força muscular periférica e respiratória em pacientes críticos. Rev bras ter intensiva [Internet]. 2012Apr;24(2):173–8.

Farhan H, Moreno-Duarte I, Latronico N, Zafonte R, Eikermann M. Fraqueza Muscular Adquirida na Unidade de Terapia Intensiva Cirúrgica: Nosologia, Epidemiologia, Diagnóstico e Prevenção. Anestesiologia. 2016; 124 (1): 207–234.

Hermans G, Van den Berghe G. Revisão clínica: fraqueza adquirida na unidade de terapia intensiva. Cuidado crítico. 2015; 19 (1): 274 10.

Hermans G, Van Mechelen H, Bruyninckx F, Vanhullebusch T, Clerckx B, Meersseman P, et al. Valor preditivo para fraqueza e mortalidade em 1 ano de testes eletrofisiológicos de triagem na UTI. Medicina Intensiva. 2015; 41 (12): 2138–2148.

Santos PMR, Ricci NA, Suster EAB, Paisani DM, Chiavegato LD. Efeitos da mobilização precoce em pacientes após cirurgia cardíaca: uma revisão sistemática. Fisioterapia. 2017; 103 (1): 1–12. 10.1016/j.fisio.2016.08.003

Adler J, Malone D. Mobilização precoce na unidade de terapia intensiva: uma revisão sistemática. Cardiopulm Phys Ther J. 2012; 23 (1): 5–13.