Early Mobilization in the Intensive Care Unit: A Systematic Review


Introduction:
While in the Intensive Care Unit patients undergo prolonged immobilization and mechanical ventilation. This may lead to impaired exercise capacity, suboptimal quality of life, neurophysiological impairments, and high costs of health care utilization. Recently, attention has been drawn in clinical and literature aspects to the idea of early mobilization of ICU patients. The effects of physical therapy on multiple factors have been studied. These factors include: patient safety, ambulation capacity, muscle strength, functional outcomes on daily living, duration of mechanical ventilation, length of stay and mortality. However, some complications, such as, tenuous hemodynamic status, severe weakness, multiple central catheters, life supporting monitors and artificial airways, make it more difficult to carry out physical therapy with critically ill individuals.

Purpose:
The goal of this study was to evaluate the research that focused on early mobilization of critically ill patients, with a focus on functional outcomes and patient safety. This was done in hopes of bringing awareness to the need for physical therapy earlier in the ICU. The key factor to healing was thought to be rest and high sedation so that there would be less energy expenditure. However, with this research, awareness can be made to the whole approach to healing in the ICU with early mobilization directly modifying the negative effects that may occur with prolonged immobilization in the ICU.

Methods and Materials:
A literature search was done on the electronic databases of PubMed, CINAHL/Nursing Medline (Ovid), and the Cochrane Library. Key search terms, “mobilization,” “exercise” and “physical therapy” were combined with “intensive care unit” and “critical lines.” Articles that were included in this review contained both prospective and retrospective data. The limitations included articles that focused on adults and published in English between January 1, 2000 and June 1, 2011. Exclusion criteria included review articles, studies of nonmobility interventions, and/or described programs or protocols designed to promote early mobilization. Sackett’s Levels of Evidence was used to evaluate the level of research.

Results:
Fifteen studies, categorized in two groups (safety and functional outcomes), were in this review and analyzed. Four of these studies reported on muscle strength, two on quality of life/patient symptoms, and thirteen on functional mobility. Randomization occurred in three studies, ten studies examined cohort populations or samples of convenience, and four studies were retrospective analyses. Of all these studies, unfortunate events occurred in <4% of total patient interactions with the most common being oxygen desaturation lasting less than three minutes. Respiratory and musculoskeletal strength were observed in several studies. In four studies ambulation time and length were greater than 180 minutes. Respiratory and musculoskeletal strength, two on quality of life/patient symptoms, and thirteen on functional mobility.

Discussion:
The articles reviewed concluded that early mobilization can be done safely with minimal risk to the patient. Studies that addressed muscle strength showed improvement at the time of discharge. Time to mobility milestones were reduced and functional outcomes (FIM and Barthel Index) showed improvement and over 59% of patients achieved functional independence compared with 35% of control group.

Clinical Significance:
It is important to bring about the awareness of early intervention in mechanically ventilated patients for the purpose of directly reducing the risks of neuromuscular deterioration, multiple readmissions, and prolonged hospital stay.

Conclusion:
In summary, the body of research regarding early mobilization of critically ill patients is limited. However, early mobilization has been demonstrated as feasible and safe. Further research should focus on the level of expertise that the therapist must obtain before working with these individuals, the intensity, frequency, and dose of PT) and also if there are optimal patients.

Article #1
This article, Mobilizing Patients in the Intensive Care Unit, supports the need for early mobilization with critically ill patients. It explains that an emerging body of literature demonstrates prolonged neuromuscular complications are caused by immobilization in the ICU. Thus, movement should be made to decreased sedation and earlier activity. (1)

Article #2
This article, Early mobilization improves functional outcomes in critically ill patients, supports early mobilization in the ICU. This article concluded that early rehabilitation interrupting sedation including PT and OT was safe, resulted in better functional outcomes, and also resulted in more ventilator free days compared with standard care. (2)

Summary:
Early mobilization in the ICU should be practiced routinely in hospitals. This would help to reduce neuromuscular weakness, prolonged hospital stays, and decreased quality of life. In addition, further research should be continued to answer more in-depth questions.

References:

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