The Effect of Early Mobilization in the ICU on Hospital Length of Stay

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Background

The basis for this project relates to the current lack of early mobilization protocols implemented in most ICU-based settings[3].

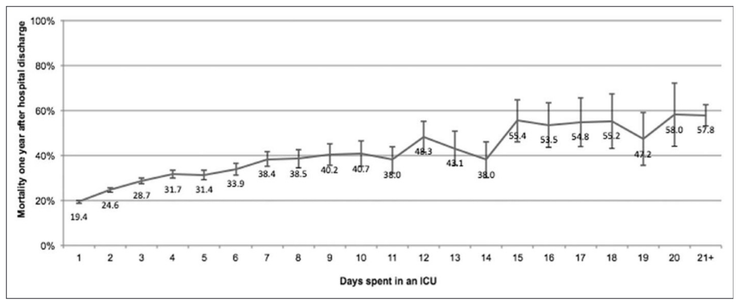
- Sedation is a common modality in the ICU due to invasive life-saving treatments and procedures required for these patients.
  - Sedation results in immobility, which can lead to a cascade of further complications.

Current practice varies by hospital, but the majority of hospitals have not adopted an early mobilization protocol into ICUs. Research has been in support of early mobilization guidelines in hospitals; however, the implementation into practice has had a slow and variable progression[4].

- **The PICOT question explored in this project is as follows; Within the Adult ICU setting, does the implementation of early mobilization protocols/techniques in comparison to the lack of early mobilization protocols/techniques result in a decreased length of hospital stay (LOS)?**

Significance

- A longer LOS in the ICU results in poorer health conditions once discharged, seen by a higher 1-year mortality rate[9].
- Protocols to facilitate assessment of mobilization ability and encourage early mobilization have had a positive influence on ICU care (Ex. ABCDEF bundle[6]).



Moitra et al. (2016)[9]

Methods

Keywords (ICU) AND (early) AND (mobil*)
Database PubMed
Inclusion High-quality clinical trials, randomized control trials published within the last seven years in English
Exclusion Pilot studies, meta-analysis, systematic review studies, case studies, literature or descriptive studies
Results Five studies included

Objectives

- A unique early mobilization protocol was implemented for each intervention group
- Resulting outcomes measured via - surveys, measurement scoring tools, and quantitative data from the hospital database
- Analysis of current evidence and determination of implications for future studies and practice

Figures

Citation	Study Objective	Design	Sample	Intervention	Outcomes Measured	Results	Rating
McWilliams et al. (2017)[8]	The use of the Sara Combilizer (a passive transfer of patients out of bed) in reducing time taken to mobilize ICU patient.	Prospective before and after cohort study	Recruited from the trauma, neuroscience, and general ICU in the Queen Elizabeth Hospital Birmingham, UK in July 2014 - March 2015. N = 80.	Patients that received therapy utilizing the Sara Combilizer.	1° - MMS score for mobilization, 2° - LOS and complications.	P value of 0.331 – insignificant difference in LOS between groups.	I[7], B[1]
Eggmann et al. (2018)[2]	Testing the addition of early endurance and resistance training ICU patients on their resulting functional mobility and hospital LOS.	Prospective, assessor-blind randomized controlled trial	Oct. 2012 - April 2016, patients were randomly selected from the mixed ICU in the Bern University Hospital in Switzerland. N = 130.	A progressive endurance and resistance training (ERT) protocol.	1° - functional ability at discharge, 2° - muscle strength, ROM at each joint, mobility level, LOS, and QOL.	Insignificant difference in the LOS (hospital, p = 0.723, and ICU, p = 0.568).	I[7], B[1]
Schaller et al. (2016)[12]	Analyze the resulting effect of implementing goal-directed early mobilization in SICUs, in comparison to standard practice of care.	Prospective, assessor-blind randomized controlled trial	Recruited from five different hospitals in Austria (1), Germany (1), and US (3). N = 200.	Early, goal-directed mobilization, facilitated by inter-professional closed-loop communication.	1° - Mean SOMS during stay, 2° - LOS, mmFIM at discharge, and global muscle strength.	Statistically significant difference in LOS (p=0·0054) – 3.0 days less with intervention group.	I[7], A[1]
Moss et al. (2016)[11]	Comparing intensive, structured PT therapy to the standard PT practice, and resulting hospital LOS and functional performance.	Prospective, randomized controlled trial	Recruited participants from five medical centers in Denver metropolitan area in August 2009 - October 2014. N = 120.	Gradually intensifying PT 7 days a week by licensed PT, continuing after discharge from the ICU.	1° – ADL functioning, 2° – LOS, mortality rate at day 28, physical functional performance.	p value of 0.97 – insignificant difference in LOS between groups.	I[7], B[1]
Morris et al. (2016)[10]	Analyze the implementation of a SRT protocol to encourage early mobilization, and how that influences the patient's hospital LOS.	Prospective, double blind randomized controlled trial	Patients were randomly selected from the Wake Forest Baptist Medical Center in North Carolina in October 2009 - May 2014. N = 300.	SRT protocol consisted of 3 exercise types: passive ROM, PT, and progressive resistance exercises, for three separate sessions, seven days a week.	1° – LOS. 2° – physical function, health-related QOL.	(p value >0.22) – insignificant difference in LOS between groups.	I[7], B[1]

Results

Four of five of the studies showed an insignificant change in hospital LOS in the intervention group when compared to the control group

- Schaller et al. (2018) is the only study that had a significant decrease in LOS for the intervention group[12]

Discussions

- High cost and requirement of the allocation of resources in order to implement early mobilization treatment groups
  - Slower adoption into current practice, and lack of studies exploring this relationship[11]
- Confounding factors may contribute to the ability of the patient to participate in therapy[2]
  - Overestimation of physical ability by initial assessment
  - Mobility complications arising as a result of immobility and sedation
- High potential for contamination between groups, skewing homogeneity

Conclusions

Conclusion There is insignificant evidence to change current practice to incorporate an intensive PT protocol into ICU-based settings.
Future Implications Incorporate interprofessional communication during rounds to determine which patients will benefit the most from intensive physical therapy regimens.

- Encourages efficient allocation of resources toward those that will benefit the most
- Establishes cohesive care
- Ability to update the plan of care frequently

CNL Role Serve as a facilitator of communication between these interprofessional roles[5]

- Includes communication training for new staff

Future Studies

- Larger sample size to increase homogeneity between treatment and control groups
- Studies focused on improving assessment tools used amongst interprofessional groups to determine mobility ability and if a patient will benefit from an intensive PT regimen

McWilliams et al. (2017)[8]

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Bibliography

Key Words