<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Title</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:30 PM - 1:30 PM</td>
<td>Maggie Chiu, PT, DPT, GCS</td>
<td>Lung Transplant Workup of COVID-19 ARDS Patient on Life Support</td>
<td>New York-Presbyterian Hospital/Columbia University Irving Medical Center, New York, NY, USA</td>
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<tr>
<td></td>
<td>Iskandar Mrad, MSc</td>
<td>Early Mobility Intervention for COVID-19 Patients in a Tertiary Care Medical City, KFMC, Saudi Arabia</td>
<td>King Fahed Medical City, Riyadh, Saudi Arabia</td>
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<tr>
<td></td>
<td>Neha Gupta, MD</td>
<td>Quality Improvement Methodology to Optimize Safe Early Mobility in a Pediatric Intensive Care Unit</td>
<td>University of Oklahoma Health Sciences Center, Oklahoma City, OK, USA</td>
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<tr>
<td></td>
<td>Kathleen Jarvis, BSN, RN</td>
<td>Early Mobilization Nursing Protocols for Critically Ill Adults: An Integrative Review</td>
<td>Saint John Fisher College, Rochester, NY, USA</td>
</tr>
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<td>Albahi Malik, M.B.B.S</td>
<td>Perceived Barrier to Early Goal-Directed Mobility in the Intensive Care Unit: Results of a Quality Improvement Evaluation</td>
<td>Johns Hopkins Hospital, Baltimore, MD, USA</td>
</tr>
<tr>
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<td>Susan Piras, PhD, RN, CNE</td>
<td>A Multisite Study of Multidisciplinary ICU Teammember Beliefs Toward Early Mobility</td>
<td>Tennessee Tech University, Cookeville, TN, USA</td>
</tr>
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<td></td>
<td>Lauren Reightler, OTD, MS</td>
<td>Occupational Therapy for Individuals with COVID-19 Requiring Ventilator Support: A Case Study</td>
<td>Baylor University, Waco, TX, USA</td>
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<tr>
<td></td>
<td>Shanelle Middleton, PT, DPT</td>
<td>A Proposed Upright Mobility Pathway for Patients With Femoral Venous ECMO Cannulation Access: A Quality Improvement Project</td>
<td>Stanford Healthcare, Palo Alto, CA, USA</td>
</tr>
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</table>
INTRODUCTION

Lung transplantation has become the treatment of choice for select patients with advanced lung disease, however patients with acute lung injury due to infectious causes are generally not considered for transplantation. Physical therapists (PTs) serve an important role in the care of patients with end stage lung disease requiring transplantation, including airway clearance, postural re-education, strengthening and endurance training. This patient population can require ICU level of care as the disease progresses and may need circulatory and ventilatory life support. PTs provide a safe mobilization of critically ill patients to maintain physical function and slow the rate of physical deterioration. The 2019 Novel coronavirus affected a wide spectrum of patients with COVID-19 related acute respiratory distress syndrome (ARDS), with many requiring prolonged mechanical ventilation and extracorporeal life support (ECLS). As of August 2021, there are over 37.5 million afflicted with COVID-19 in the United States alone. End-stage lung disease from COVID-19 is a new and growing entity that may benefit from lung transplantation. The 2019 Novel coronavirus affected a wide spectrum of patients with COVID-19 related acute respiratory distress syndrome (ARDS), with many requiring prolonged mechanical ventilation and extracorporeal life support (ECLS). As of August 2021, there are over 37.5 million afflicted with COVID-19 in the United States alone. End-stage lung disease from COVID-19 is a new and growing entity that may benefit from lung transplantation.

METHODS

The aim of this study is to report on the role of PTs in the lung transplant workup process, management of lung transplant candidates on life support prior to COVID-19, and explore the challenges and adaptations made necessary due to the COVID-19 pandemic via:

- A systematic review of the current literature on lung transplantation and COVID-19.
- Review clinical challenges and practice adaptations to lung transplant workup.

RESULTS

This poster aims to report on the role of PTs in the lung transplant workup during COVID-19 pandemic between 2020-2021. Retrospective chart review of patient cases undergoing lung transplant workup during COVID-19 and potential for turning the recipient into a vector for viral transmission and surveillance strategies for donor transmission, absence of proven treatments for COVID-19 and the potential for SARS-CoV-2 or super-infecting pathogens associated with viral pneumonias in the native lung to recur in the allograft. Additionally, social distancing requirements, airborne isolation and scarcity of respiratory therapists required PTs to adapt to utilizing bedside portable treadmills and other creative interventions. Furthermore, the transplant process itself poses a significant risk of transmission from the procurement team. The lack of resources-effective surveillance strategies for donor transmission, absence of proven treatments for COVID-19 and potential for turning the recipient into a vector for viral transmission remains concerning.

CONCLUSIONS

As of April 2021, there have been over 103 million COVID-19 globally. There is potential that many people will require lung transplantation due to COVID-19 in the future. Findings from the current literature review and these case studies will improve the efficiency of the lung transplant workup process and begin to provide useful guidelines for rehabilitation professionals caring for this growing population.

REFERENCES

Early Mobility Intervention for COVID19 patients in a tertiary care Medical City, KFMC, Saudi Arabia

Iskandar C. Mrad PT MSc. & Ron R. Cutab PT DPT

Introduction
As the COVID19 Pandemic hit the globe, with devastating acute and critical consequences in the ICU’s, a quality improvement initiative by the Physical Therapy department and the ICU administration in KFMC was initiated.

Objectives
The implementation of an early mobility program improves functional outcome, reduces the hospital Length of Stay (LOS), and decreases the cost on the organization. This study aims to demonstrate the effectiveness of an early mobility program for COVID19 admitted patients.

Methods
This is a hospital based cohort prospective study. Data were collected by the treating Physiotherapists and from the electronic medical record. Between June 2020 and June 2021, a number of COVID19 patients were screened and followed up with an intensive and structured Physiotherapy program during admission. The Mobility Score and the 6-click tools were used to highlight the functional improvement between hospital admission and discharge. Moreover, the number of Physiotherapy sessions was calculated to measure the intensity of the service provided.

Results
376 patients screened, 115 patients passed away during their hospitalization, 54 patients were still admitted, 7 patients were transferred to other local hospitals and 2 patients were discharged before screening. A 198 patients were discharged home. 1688 Physiotherapy sessions were provided, and the sessions per patient Mean was 8.54 ± 9.76 sessions. Mean LOS of these patients was 22.35 ± 23.49 days, lower than the local average in the region. For the discharged home patients, there is a significant improvement (p <0.001) noted in the mobility score and 6-click tools between admission and discharge. There is a change by 8 points for mobility score (Median Q1-Q3 admission 1(0-3) and discharge 9(7-10)); and there is a change by 13 points for the 6-click tool (Median Q1-Q3 admission 8(6-10) and discharge 21(16-24)).

Conclusion
Implementing an intensive, structured and early mobility program for COVID19 admitted patients, will improve the functional level, decrease the hospital LOS and decrease the cost on the organization.

References
-WCPT response to COVID-19, Briefing paper 2. Rehabilitation and the Vital Role of Physiotherapy. World Confederation for Physical Therapy May 2020
Quality Improvement Methodology to Optimize Safe Early Mobility in PICU

Neha Gupta, MD1; Amber Sones, PT, DPT2; Maegan Powell, PT, DPT2; Johanna Robbins, OTR/L2; Stephanie Wilson, OTR/L2; Amy Hill, RRT3; Christy Thomas, RRT3; Sara Ledbetter, RN4; Anne Grace Schmidtke, PT, DPT2; Chrystal Rutledge, MD1; Leslie Hayes, MD1
1Department of Pediatrics, Division of Critical Care Medicine, University of Alabama at Birmingham, Birmingham, Alabama; 2Department of Physical and Occupational Therapy, Children’s of Alabama, Birmingham, Alabama; 3Department of Respiratory Therapy, Children’s of Alabama, Birmingham, Alabama; 4Department of Nursing, Children’s of Alabama, Birmingham, Alabama

OBJECTIVE

- Utilization of robust QI methodology in conjunction with traditional interventions to enhance an Early Mobility program (EMP) in a tertiary pediatric intensive care unit (PICU).

METHODS

- EMP was implemented in our PICU in May 2017. (Table 1)
- Percentage of appropriate physical (PT) and occupational therapy (OT) consults were determined. We also evaluated the activity levels received by the patient and the levels for which they qualified based on their medical condition.
- Failure Modes and Effects Analysis (FMEA) was performed to identify potential complications related to the mobilization of critically ill children.
- We created 4 simulation scenarios based on FMEA prioritized results to improve staff comfort with EM.

RESULTS

- After the implementation of EMP, appropriate PT and OT consults significantly increased (p < 0.0001). (Figure 1)
- However, most patients still failed to receive the optimal level of activity recommended by protocol. (Figure 2) This failure was partly due to concerns for safety events during mobilization.
- FMEA identified vital sign changes (RPN 97.8), staff injury (RPN 64), and pain/anxiety (RPN 60.5) as potential safety events. (Table 2)

Figure 1. Control Chart with percent of PICU patients receiving appropriate PT and OT consults before and after implementation of EM Guidelines

Table 1. EM Guidelines - Patient Activity Levels based on Severity of Illness

<table>
<thead>
<tr>
<th>Criteria for levels</th>
<th>Level 0</th>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Not stable for range of motion (ROM) or elimination (hemodynamically unstable; patients requiring airway control, no extubation)</td>
<td>- Initiated, FICO≥50%</td>
<td>- Initiated, FICO≤50%</td>
<td>- Initiated, FICO≤50%</td>
</tr>
<tr>
<td>- ICU consults in anticipation of future therapy needs</td>
<td>- One-time Extracorporeal Membrane Oxygenator - Critical care - Venous drainage medications other than morphine - Hypotensive - Spinalaccess - Acute spinal cord injury or severe traumatic brain injury (CT/48h) - Seizure and SS5≤1 to ≥2</td>
<td>- Initiated, FICO≤50%</td>
<td>- Initiated, FICO≤50%</td>
</tr>
</tbody>
</table>

Table 2. Summary of FMEA for Potential Adverse Events During Early Mobility

<table>
<thead>
<tr>
<th>Failure Modes</th>
<th>Severity (S)</th>
<th>Occurrence (O)</th>
<th>Detectability (D)</th>
<th>Risk Priority Number (RPN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vital sign changes (hypotension/ desaturation)</td>
<td>3.8</td>
<td>6.6</td>
<td>3.9</td>
<td>97.8</td>
</tr>
<tr>
<td>Staff injury</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>64</td>
</tr>
<tr>
<td>Pain/fatigue/anxiety/distress</td>
<td>5.6</td>
<td>4.7</td>
<td>2.3</td>
<td>60.5</td>
</tr>
<tr>
<td>Fall</td>
<td>7.8</td>
<td>3</td>
<td>1.5</td>
<td>95.1</td>
</tr>
<tr>
<td>Equipment failure</td>
<td>8</td>
<td>8</td>
<td>1</td>
<td>32.1</td>
</tr>
<tr>
<td>Dislodged endotracheal/ tracheostomy tube</td>
<td>8.7</td>
<td>2.1</td>
<td>1.3</td>
<td>23.9</td>
</tr>
<tr>
<td>Dislodged devices/tubes</td>
<td>5</td>
<td>5</td>
<td>2.5</td>
<td>21.6</td>
</tr>
<tr>
<td>Staff unavailability</td>
<td>4.8</td>
<td>2.5</td>
<td>1.3</td>
<td>11.6</td>
</tr>
<tr>
<td>Pressure injury if left in chair for long time</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>15</td>
</tr>
</tbody>
</table>

Figure 2. Pareto Charts demonstrating A) frequency of activity levels PICU patients could have received based on our criteria, B) activity levels PICU patients received

CONCLUSION

- We performed various in-situ simulation sessions based on these potential events.
- In post-simulation evaluations, 100% of participants agreed that the simulation experience would improve their performance in actual clinical setting.
- Common themes that emerged from participant evaluations included: 1. Preparation, 2. Teamwork, 3. Role clarity and 4. Standardization of the process.
- Feedback from simulations led to the development of an EM patient safety checklist and clinical pathway.

REFERENCES

# Early Mobilization Nursing Protocols for Critically Ill Adults: An Integrative Review

**Kathleen Jarvis, BSN, RN**  
St. John Fisher College, Wegman’s School of Nursing

## Objectives
- Despite emerging evidence on the health benefits of early mobilization (EM) among critically ill patients, perceived barriers to EM and immobility in the ICU persist.
- This integrative review aimed to summarize existing data on nurse-led EM, including how EM is defined, how EM protocols were developed, and key components of their protocol.

## Methods
- The protocol for this integrative review was developed in consultation with a trained librarian. A comprehensive search was conducted using the databases CINAHL, Embase, and ProQuest Nursing and Allied Health in April 2020. Six percent of results were independently screened by 2 reviewers and the remaining were screened by a single reviewer.
- Studies were excluded if they included patients <18 years old, were not in English, did not include original data, if the intervention took place outside of the ICU, and if their study protocol excluded mechanically ventilated patients.

## Statistically Significant Findings with EM Nursing Protocols

<table>
<thead>
<tr>
<th>Effect</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Days Using Vasopressive Drugs</td>
<td>Nogue et al., 2018</td>
</tr>
<tr>
<td>Decreased ICU Mortality</td>
<td></td>
</tr>
<tr>
<td>Decreased ICU Length of Stay</td>
<td>Windkessel et al., 2014, Klein et al., 2014, Mokhtar et al., 2017</td>
</tr>
<tr>
<td>Decreased Overall Hospital Length of Stay</td>
<td>Klein et al., 2014, Hsu et al., 2007</td>
</tr>
<tr>
<td>Decreased Sedation Days</td>
<td>Presani et al., 2012</td>
</tr>
<tr>
<td>Decreased Fatigue</td>
<td>Windkessel et al., 2018</td>
</tr>
<tr>
<td>Decreased Infection</td>
<td></td>
</tr>
<tr>
<td>Decreased Hospital Acquired Pressure Ulcers</td>
<td>Klein et al., 2015</td>
</tr>
<tr>
<td>Decreased Anxiety</td>
<td></td>
</tr>
<tr>
<td>Increased Mobility</td>
<td></td>
</tr>
<tr>
<td>Increased Number of Patients Mobilized</td>
<td>Nadali et al., 2019, Klein et al., 2015, Noges et al., 2016, Trias et al., 2012, Whitehead et al., 2019</td>
</tr>
</tbody>
</table>

## Results
- Six studies met the search criteria and were included. EM definitions commonly included implementing within a specified time frame. Protocols were developed by adapting protocols that were not initially nurse led, by an expert panel at the institution, or unspecified.
- Positive patient outcomes were associated with nurse-led EM including, but not limited to, reduction or elimination of hospital-acquired infections, reduction of vasopressor agents and sedation, and decreased length of stay with significant hospital cost savings.

## Conclusions
- Results highlight the need for consensus on nurse-led EM approaches to facilitate clinical translation and improve patient outcomes.
- Future research is needed to develop an evidence-based protocol for nurse-led EM among critically ill adults.

## Contact
Kathleen Jarvis, BSN, RN  
DNP Student in Progress at St. John Fisher College  
Email: Kahlejarvis@gmail.com  
Twitter: MCUkate

## References
Reduced barriers suggest a positive cultural change to early, goal-directed mobility implemented by nurses.

Comparison of scores for those completing survey in both 2017 and 2019.

<table>
<thead>
<tr>
<th>Survey component</th>
<th>All respondents (N=46)</th>
<th>Nurses only (N=37)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>2017</td>
<td>2019</td>
</tr>
<tr>
<td>Overall score</td>
<td>35 (8)</td>
<td>32 (8)</td>
</tr>
<tr>
<td>Knowledge subscale</td>
<td>29 (13)</td>
<td>24 (10)</td>
</tr>
<tr>
<td>Attitudes subscale</td>
<td>37 (11)</td>
<td>33 (11)</td>
</tr>
<tr>
<td>Behaviors subscale</td>
<td>36 (9)</td>
<td>34 (9)</td>
</tr>
</tbody>
</table>

Comparison of scores for those completing survey only in 2019 vs in 2017.

<table>
<thead>
<tr>
<th>Survey component</th>
<th>All respondents</th>
<th>Nurses only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2017 (N=99)</td>
<td>2019 (N=48)</td>
</tr>
<tr>
<td>Overall</td>
<td>36 (8)</td>
<td>32 (7)</td>
</tr>
<tr>
<td>Knowledge subscale</td>
<td>27 (12)</td>
<td>20 (12)</td>
</tr>
<tr>
<td>Attitudes subscale</td>
<td>37 (11)</td>
<td>33 (11)</td>
</tr>
<tr>
<td>Behaviors subscale</td>
<td>37 (9)</td>
<td>35 (8)</td>
</tr>
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</table>

Abbreviations: RN, registered nurse. NP, nurse practitioner. PA, physician assistant.

Conclusion
There was a decrease in perceived barriers to mobility. Compared to the pre-QI, there are reduced barriers to early, goal-directed mobility implemented by nurses, suggesting a positive cultural change.
Multidisciplinary ICU Team Beliefs About Early Mobility
Susan E. Piras, PhD, RN, CNE & Amy Garrett, RN, BSN, CCRN
Tennessee Tech University and Cookeville Regional Medical Center

Background
A cycle of oversedation and immobility in the Intensive Care Unit (ICU) leads to acute physical impairment: ICU-acquired weakness (ICU-AW). ICU-AW predicts prolonged physical impairment, increased length of stay, and decreased quality of life in the survivor. Early mobility (EM), as part of evidence-based bundle, improves patient outcomes. In the ICU, EM is the most difficult component of the bundle to implement. Research describing discipline-specific barriers to the intention and performance of EM is limited.

Objectives
Guided by the Theory of Planned Behavior, the purpose of this study is to describe multidisciplinary ICU providers’ beliefs about EM.

Methods
In this qualitative descriptive study, data were collected November 2018 to February 2019 in two acute care hospitals from 95 ICU team members using the Early Mobility Salient Belief tool consisting of 7 open-ended questions eliciting EM: Behavioral attitudes: benefits, disadvantages, and overall beliefs about EM Subjective norms: positive and negative social influence on EM performance Perceived control: barriers and facilitators

Results
A stepwise theory-driven thematic analysis using a cross case approach and a constant comparison method resulted in three major themes:

- Immediate risk vs. long-term reward conflict
- Nurse is the EM Initiator and coordinator
- Situational factors
  - Workload
  - Collaboration

Conclusions
Nurses weigh the risk versus reward of EM
- Fear of falls, line dislodgement, and hemodynamic instability
- Research reports adverse events during EM are rare.

Nurses are the major influencers of EM performance
- Nurses are the main coordinators of EM team tasks.
- EM is unlikely if the nurse is unsupportive

Limited time, staffing, and equipment are major barriers to EM
EM is more likely if:
- EM is an expectation within the unit
- Adequate staff and equipment available.

Implications for Practice
- EM protocols and education can help influence EM behaviors in ICU team members.
- EM requirements include available team members, accessible and functional equipment, coordinated timing, and stable patient hemodynamic status.
- Nurses are the major initiators and coordinators of EM performance and set positive and/or negative examples on their unit.

References
Occupational Therapy for Individuals with COVID-19 Requiring Ventilator Support: A Case Study

Lauren Reightler, OTD, OTR/L

SETTINGS AND BACKGROUND

In hospitals across the country, there are individuals in the intensive care unit (ICU) who are diagnosed with the novel coronavirus (COVID-19) and require ventilator support. This population may experience deficits secondary to their hospitalization and the prolonged use of the ventilator. One of the deficits that individuals are at risk for is ICU acquired delirium (Tobar et al., 2017). Occupational therapists are a member of the rehabilitation team who are trained to manage the deficits associated with the ICU, such as delirium; however, there are ICU's that do not utilize occupational therapists for this population (Schweickert et al., 2009). The objective of this case study is to report on the effect that occupational therapy sessions focused on early engagement in activities of daily living (ADL's) have on individuals diagnosed with COVID-19 requiring ventilator support.

PICO QUESTION

Is the early engagement in activities of daily living an effective intervention to improve delirium for individuals in the intensive care unit who are diagnosed with COVID-19 requiring ventilator support?

SIGNIFICANCE

Occupational therapists are a member of the rehabilitation team who are trained to work with individuals, such as those diagnosed with COVID-19, who require ventilator support in order to manage and prevent deficits, such as delirium; however, it is not clear how the effects of occupational therapy may affect this relatively new population in the ICU (Schweickert et al., 2009; Tobar et al., 2017). By better understanding the effects of occupational therapy interventions on this population, hospitals will be able to better allocate rehabilitation resources and occupational therapists will be able to better prioritize their patients.

LITERATURE REVIEW

It has been established that it is feasible to initiate occupational therapy services for intubated patients as soon as mechanical ventilation is initiated without high risk of adverse events (Pohlman et al., 2010). Individuals who are critically ill and intubated who receive early initiation of occupational therapy services may have shorter durations of delirium (Schweickert et al., 2009). By decreasing time on the ventilator and decreasing the duration of delirium, occupational therapy services may increase functional independence at baseline, promote shorter hospital stays, and decrease the risk of post-intensive care syndrome (Schweickert et al., 2009).

METHODS

The participant of the study is a 21-year-old individual diagnosed with COVID-19 admitted to the Medical-Surgical Intensive Care Unit at a level 1 trauma hospital in Northeastern Pennsylvania. He required ventilator support, prone therapy, and was on a paralytic for approximately 48 hours. He demonstrated hyperactive delirium throughout his hospitalization. The individual received occupational therapy throughout his ICU stay. Examination of occupational therapy services will be measured using the Confusion Assessment Method for the ICU (CAM-ICU) to assess delirium and the Activity Measure of Post-Acute Care (AM-PAC) to assess independence in ADL engagement.

RESULTS

• The patient engaged in 10 occupational therapy sessions while in the MSICU. One follow-up visit was completed on the floor.
• Activities of daily living (ADL) self-care interventions were the primary focus of services (>90% of sessions) while this patient was receiving occupational therapy in the MSICU.
• The patient demonstrated 5 consistent delirium-free days as occupational therapy services increased.
• As the patient received occupational therapy services, he demonstrated improved independence during occupational performance.
  • AMPAC on initial evaluation: 6/24
  • AMPAC on final session: 9/24

SUMMARY

In conclusion, initiating occupational therapy services with a focus on self-care interventions demonstrated to be an effective intervention in managing delirium and increasing independence during occupational performance for an individual diagnosed with COVID-19 requiring ventilator support. Future research is needed in order to better understand occupational therapy services for this population.

REFERENCES


A Progressive Mobility Pathway for Patients on Venovenous ECMO with Femoral Cannulation - A Quality Improvement Project

Shanelle Middleton, PT, DPT, CCS
Deepali Bankar, PT, MPT, CCS
Department of Rehabilitation Services, Stanford Health Care, Stanford, California

INTRODUCTION

Patients are placed on extracorporeal membrane oxygenation (ECMO) as a life-saving measure or bridge to transplantation. The literature supports physical therapy (PT) intervention while on ECMO (1,2).

There is currently limited research on the safety and feasibility of performing out-of-bed (OOB) mobility for patients that require femoral cannulation.

OBJECTIVE

The purpose of this quality improvement project was to determine the safety and feasibility of progressive OOB mobility in patients with a femoral venous ECMO cannula.

BACKGROUND

An assessment tool (hip flexion screen) was developed by our team to ensure safe mobilization with a femoral cannulation.

METHODS

A cohort of 10 patients participated in a progressive OOB mobility trial while receiving veno-venous ECMO.

- Inclusion Criteria
  - Richmond Agitation Sedation Scale (RASS) of -1 to 1
  - Femoral vein to internal jugular vein ECMO cannulation
  - Hip Flexion Screen passed

- Mobility progression: bed-in-chair mode, sitting edge of bed, standing transfers, sitting in chair, and gait training

- Outcome measure: Functional Status Score for the Intensive Care Unit (FSS-ICU)
- Documentation: hemodynamics, cannulation integrity (pre during and post session)
- Frequency: 3-4 days per week
- Duration: 30 - 55 minutes per session
- Multidisciplinary team: physical therapist or occupational therapist, perfusionist, and nurse (each session)

Steps to Progressive Mobility

1. Hip Flexion Screen
2. Sit Edge of Bed
3. Sit to Stand Transfers
4. Sit in a Chair
5. Gait Training

HIP FLEXION SCREEN

The “Hip Flexion Screen” is a short screening tool that was developed with the assistance of the perfusion department. The screen consists of 3 parts:
- Supine passive hip flexion
- Active hip flexion, and
- Transition to chair mode in bed.

The test is considered “passed” if patient is able to complete all 3 steps to at least 90 degrees.

RESULTS

A total of 38 treatment sessions were completed in the 10 patients.

- Ambulation >100 ft
- Transfer and Stitting in Chair
- Sitting Edge of Bed

The average increase in the FSS-ICU score was 5.6 (Range: 0 - 14). Femoral cannula integrity was preserved throughout all sessions, and hip flexion did not impede ECMO flow.

DISCUSSION

This mobility trial gave our patients the opportunity to participate in progressive OOB mobility. Progressive mobility while on ECMO requires a specialized multidisciplinary team with strong communication skills to be carried out safely. Consideration must be made for the amount of staffing and resources required to perform mobility in this manner.

There were no adverse events within this cohort related to ECMO circuity. An adverse event was defined as interruption of ECMO flow, cannula dislodgement, and/or bleeding from the cannulation site.

Progressive mobility allowed these patients to better participate with occupational therapy and speech language pathology. Early mobility is shown in the literature to reduce delirium, assist with ventilator weaning, and improve overall well-being, which was showcased in these patients.

CONCLUSION

While more investigation is needed, we hypothesize that mobility progression on ECMO, highlighting OOB functional training, can be performed safely with patients requiring a femoral venous cannulation.

This quality improvement project demonstrated that an ECMO femoral cannula alone should not hinder OOB mobility. A progressive mobility program is feasible and can demonstrate functional recovery in this high-risk population.

FUTURE GROWTH

- Assess long term functional outcomes after ECMO cannulation
- Investigate progressive OOB mobility while on cannulated veno-venous (VV) ECMO

PATIENT PERSPECTIVE

“I was in the ICU for 11 days flat on my back with ECMO and a ventilator (attached to me). When I woke up, the PT team didn’t waste much time. They wanted me to sit, stand, and then all in a chair. I didn’t think it was possible. We did it! I think if they hadn’t started moving me as soon as they did, I wouldn’t have been able to regain my strength back as fast as I did.”

REFERENCES


