<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
<th>Title</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 AM - 8:30 AM</td>
<td>Patricia Mesa, MD</td>
<td>Delirium Incidence in the Intensive Care Unit and Its Associated Variables In Two Age Ranges</td>
<td>ICU Pasteur Hospital, Montevideo, Uruguay</td>
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<tr>
<td></td>
<td>Rachel Troch, MD</td>
<td>Slow and Steady: Reducing Setbacks in Pediatric Chronic Critical Illness</td>
<td>Children's National Hospital, Washington, DC, USA</td>
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<td></td>
<td>Matthew Thackeray, BSc</td>
<td>Changes in Body Composition in the Year Following Critical Illness</td>
<td>Deakin University and Barwon Health, Victoria, Australia</td>
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<td>Karina Knutsen, MSc</td>
<td>Nursing and Early Rehabilitation in Long-Term Patients in Intensive Care Units: a Qualitative Study</td>
<td>Nord University, Bodø, Norway</td>
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<td>Logan Russell, PT, DPT</td>
<td>Building Trusting Relationships Throughout Prolonged ICU Stays During the COVID-19 Pandemic</td>
<td>Virginia Hospital Center, Arlington, VA</td>
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<td>Debora Schujmann, PhD</td>
<td>Functional Status and Physical Variables in Post-Intensive Care Unit COVID-19 Patients: Characterization and Prognostic Factor</td>
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<td>Kelly Bennett, PT</td>
<td>Safety and Feasibility of Mobilizing Patients with Femoral Arterial and Hemodialysis Catheters in the Intensive Care Setting</td>
<td>Yale New Haven Hospital, New Haven, CT, USA</td>
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<td>Samantha Torres Grams, MSc</td>
<td>Feasibility and Safety of Functional Electrical Stimulation in COVID-19 Critically Ill Patients</td>
<td>Hospital Sírio-Libanês, São Paulo, Brazil</td>
</tr>
</tbody>
</table>
Delirium incidence in the intensive care unit and its associates variables in two age ranges

BACKGROUND

Delirium, the most common form of acute brain dysfunction, serving both as a marker of:

BRAIN VULNERABILITY WITH DECREASED RESERVE
A POTENTIAL MECHANISM FOR PERMANENT COGNITIVE DAMAGE

OBJECTIVE

To study the incidence of delirium, its risk factors and its association with length of hospital stay (LHS) and mortality in two age ranges.

STATISTICAL ANALYSIS

- Define demographic and clinical variables using descriptive statistics, continuous variables using means and SD or medians, depending on the distribution of the data.
- The comparison between delirium and non-delirium for continuous variables was performed using the Student’s t-test for independent samples for normally distributed data or Mann-Whitney test or if they do not meet the previous condition, and by the tests of χ² or Fisher’s test for qualitative variables. The normality of the variables was tested by the Kolmogorov-Smirnov test.
- In the determination of risk factors associated with the development of delirium, an univariate analysis was performed in the first instance. Values <0.05 were considered significant.
- The variables that were significant in the univariate analysis and the variables with p <0.20 clinically relevant, were used for the multivariate analysis by logistic regression.
- The results of multivariate analysis were expressed as odds ratios with 95% confidence intervals. The software used for all the calculations was SPSS (State Corp LP, version 13).

METHODS

DESIGN

This study was a single center descriptive, prospective, observational cohort study that included all patients admitted from March 1st to May 31st, 2011.

EXCLUSION CRITERIA

- ICU readmissions in less than 90 hours.
- Patients with severe neurological or neuropsychiatric pathology.
- Patients who came in and are transferred to another health care center.

SETTING

Postau Hospital, Assistance of State Health Services (ASSE), Montevideo, Uruguay. It is a General ICU with medical and surgical patients.

INCLUSION CRITERIA

- 85 years old and older.
- ICU stay longer than 96 hours.

We divided the population into two groups:

- Population with 50 years old and older: 146 patients included
- Population with 85 years old and older: 92 patients included

RESULTS

- TABLE 1: Baseline characteristics and clinical outcomes by delirium status in patients 50 years old and older
- TABLE 2: Multiple logistic regression model using delirium as dependent variable in patients 50 years old and older
- TABLE 3: Multiple logistic regression model using hospital mortality as dependent variable in patients 50 years old and older

- TABLE 4: Baseline characteristics and clinical outcomes by delirium status in patients 65 years old and older
- TABLE 5: Multiple logistic regression model using delirium as dependent variable in patients 65 years old and older
- TABLE 6: Multiple logistic regression model using hospital mortality as dependent variable in patients 65 years old and older

IN SUMMARY

- Multiple logistic regression model using delirium as the dependent outcome variable revealed that age and APACHE II were independent variables associated with the development of delirium in both groups.
- The history of alcohol consumption was an independent risk factor only for patients with 50 years old and older.
- The multiple logistic regression model using hospital mortality as the dependent outcome variable showed that MV days and LOS were independent predictors for hospital mortality in both groups.

CONCLUSIONS

The incidence of delirium and hospital mortality was higher in patients older than 65 years.

The risk factors for the development of delirium were the same for both groups.

Alcohol consumption was a risk factor only for those patients with 50 years old and older.

MV and LOS were independent risk factors for hospital mortality.

REFERENCES

Background and Aim

The growing population of children with pediatric chronic critical illness (PCCI) comprise a disproportionate amount of ICU utilization. Clinicians and parents report that the frequent treatment alterations typical for ICU care may be interrupting the slow recoveries typical for children with PCCI and prolonging ICU stays. Our aim is to determine whether there is an optimal number of ICU treatment titrations per week associated with the lowest quartile of patient decompensations and shortest ICU length of stay for children with PCCI.

Methods

A retrospective chart review of children with PCCI
Eligibility: patients 0-18 years who were
1) admitted to the NICU for >30 days and corrected to ≥34 weeks gestational age OR admitted to the PICU/CICU >21 days; AND
2) dependent on ≥1 technology to sustain vital functions
150 pediatric patients admitted between 2016 – 2020 were randomly selected with participants divided equally between ICU's. Daily changes to respiratory, nutrition, and sedation management were tracked.

Children with PCCI may benefit from slower paced care.

Weans and Setbacks

95% CI 0.77 - 0.87; P <0.0001; R 0.83

Weans and ICU LOS

95% CI 0.79 - 0.89; P <0.0001; R 0.85

Demographic Data

Conclusions

This retrospective chart review of patients with PCCI demonstrates a correlation between pace of ICU weans and patient stability and ICU LOS. This data suggests that rapid ICU titrations for CCI patients may increase their resource utilization. The next step is a prospective study of “Slow & Steady” ICU weans for children with PCCI, examining the causative nature between weans and setbacks.
Changes in body composition in the year following critical illness

Matthew Thackeray a,b, Mark A Kotowicz a,b,d, Julie A Pasco a,b,c,d, Mohammadreza Mohebbi a,e, Neil Orford a,b,f

Introduction
Intensive care unit (ICU) patients undergo acute skeletal muscle wasting due to immobility and critical illness associated systemic inflammation [1]. Survivors of ICU are reported as having persistent physical impairment and disability in the years following discharge [2,3]. A current hypothesis for the mechanism of post-ICU reductions in physical function is the lack of recovery of muscle atrophy sustained during critical illness. There is a need to measure changes in body composition in ICU survivors and determine its contribution to functional impairment. Previous research has examined muscle mass from 6-12 months following ICU but data from ICU discharge is lacking.

Aims
- Measure changes in spine and hip dual x-ray absorptiometry estimated lean and fat mass in ICU patients between discharge and one-year follow-up and compare to population controls
- Examine the association between health-related quality of life (HRQoL) measures and estimated body composition variables

Methods
Participants were taken from a prospective observational study performed at University Hospital Geelong, a tertiary level ICU in South-eastern Australia [1]. Previously developed equations were used to estimate whole-body lean mass, whole-body fat mass, and appendicular lean mass from dual x-ray absorptiometry of the spine and hip at ICU discharge and 1-year follow-up. Controls were taken from The Geelong Osteoporosis Study (GOS) [9], an ongoing population-based study. GOS participants with available spine and hip DXA data from two visits were included and group matched for age, sex, and height in a ratio of up to 1:10. Annualised changes in total and percentage whole-body lean mass, whole-body fat mass, and appendicular lean mass were measured and compared to controls via multiple linear regression with adjustment for age, sex, and height. One-year values of body composition were also compared to controls. Pearson’s correlation was used to determine the relationship between HRQoL measured via EuroQol-5D-3L and EuroQol Visual analog scale (VAS) and body composition variables.

Results
Sixty-four ICU patients were assessed at ICU discharge and one-year follow up (median time to scan 409 days [IQR 378.5, 445.0]). Baseline data is presented in Table 1. Unadjusted between group differences in the primary outcome are presented in Table 2. ICU patients gained a greater amount of lean and fat mass in the year following ICU than controls. In a multiple regression analysis, ICU admission remained a significant predictor of change in lean and fat mass, with medium to large squared effect sizes observed. At one-year, ICU patients had lower lean mass (-0.96kg, p=0.047) and greater fat mass (+6.79kg, p=0.013) than controls, and a greater proportion in the sarcopenic range (17.5% vs 3.8%, p=0.002). Fat mass but not lean mass was associated with EQ-5D-3L Index scores (β=0.29, p=0.03) and EQ VAS (β=0.30, p=0.03).

Table 2: Comparison of mean body composition changes between ICU cases and controls. All p values < 0.01

<table>
<thead>
<tr>
<th>Variable</th>
<th>ICU (n=64)</th>
<th>Controls (n=40)</th>
<th>Difference (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole-body lean mass</td>
<td>0.75 (±0.21)</td>
<td>0.17 (±0.72)</td>
<td>0.58 (0.37 to 0.79)</td>
</tr>
<tr>
<td>Percentage change (%)</td>
<td>1.97 (±1.73)</td>
<td>-0.28 (±1.89)</td>
<td>3.14 (1.78 to 4.51)</td>
</tr>
<tr>
<td>Whole-body fat mass</td>
<td>2.79 (±0.53)</td>
<td>0.29 (1.28)</td>
<td>2.50 (1.94 to 3.05)</td>
</tr>
<tr>
<td>Percentage change (%)</td>
<td>10.90 (±8.89)</td>
<td>1.87 (6.29)</td>
<td>9.03 (5.81 to 11.26)</td>
</tr>
<tr>
<td>Appendicular lean mass</td>
<td>0.34 (±0.17)</td>
<td>-0.11 (0.35)</td>
<td>0.45 (0.32 to 0.58)</td>
</tr>
<tr>
<td>Percentage change (%)</td>
<td>2.07 (±0.89)</td>
<td>-0.44 (2.12)</td>
<td>2.52 (1.73 to 3.28)</td>
</tr>
</tbody>
</table>

Figure 1: Scatterplots for a) whole-body lean mass corrected for height (WBLM/Ht²) and b) whole-body fat mass corrected for height (WBFM/Ht²) and EuroQol VAS

Conclusion
In this prospective observational study ICU patients gained greater amounts of estimated lean and fat mass in the year following critical illness than matched controls. However, at one-year ICU survivors had lower lean mass and greater fat mass than controls. At this time point increased fat mass was also associated with poorer HRQoL.

Acknowledgements
The authors would like to acknowledge the participants in the study and the participants of GOS who were used as controls.

Author affiliations
a. Deakin University, IMPACT (Institute of Mental and Physical Health and Clinical Translation), Geelong, Australia
b. Barwon Health, Geelong, Australia
c. Department of Medicine-Western Health, The University of Melbourne, St Albans, Australia
d. Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, Australia
e. Deakin University, Faculty of Health, Biostatistics Unit, Geelong, Australia
f. Australian and New Zealand Intensive Care Research Centre (ANZIC-RC) Department of Epidemiology and Preventive Medicine (DEPM), Monash University, Melbourne, Australia

References
Nursing and early rehabilitation in long-term patients in intensive care units: a qualitative study

Karina Knutsen, Hege Selle Haugdahl, Britt Normann

BACKGROUND:
Early rehabilitation in intensive care units (ICUs) is requested, and it reduces the likelihood for developing intensive care units acquired weakness. Knowledge regarding how intensive care nurses perform the actual patients' exercises and mobility schedules, how they handle the patient during mobilization, and what they consider important regarding timing, safety, structures and competencies are lacking.

PURPOSE:
The study aims to identify essential intensive care nurses' competencies in optimizing patients' participation in early rehabilitation to develop a new integrated nursing intervention to promote recovery of body functions and structures, activities and participation for these patients.

OVERALL RESEARCH QUESTION:
What are essential professional clinical nursing competencies, enablers and barriers to optimize long-term ICU patients' participation in early rehabilitation?

DIVIDED INTO THREE WORK PACKAGES:

A
How do ICU nurses use their competencies, particularly their handling- and interactional skills, to optimize patients' participation in early rehabilitation during their long-term stays in ICUs?

Method:
- Non-participating observations of clinical practice (n=12-18)
- Videorecording of relevant situations
- Field notes

B
What are ICU nurses' reflections regarding enablers and barriers to optimize patient's participation in early rehabilitation during long-term stays in the ICU?

Method:
- In-depth interviews with ICU nurses based on interview guide and observations (n=12-18)

C
How is participation in early mobilization and rehabilitation during long term stays in ICUs experienced from the patients' perspective?

Method:
- In-depth interviews with patients after discharge from the ICU (n=12-18)

Contact: karina.knutsen@nord.no

www.nord.no
Introduction
The COVID-19 pandemic challenged healthcare in many ways. Continuous stress, limited resources, and overworked staff created a perfect environment for compassion fatigue and emotional burnout. Clinicians facing empathy fatigue may experience a lack of motivation and decreased ability to provide effective, meaningful patient interactions. The ability to provide needed social support for patients is also a lower priority than emergent medical care. Thus, clinicians may focus less on these relationships, especially in the Intensive Care Unit (ICU). Patients diagnosed with COVID-19 are quarantined in rooms throughout their hospitalization. They rely primarily on social support from the patient-clinician relationship as they have access to limited family support. Given clinicians inability to provide consistent social interactions due to isolation procedures as well as burnout, patients may suffer mentally and emotionally. Decreased perceived social support can negatively impact the patient experience and health outcomes. Past research has shown that patient’s perceived social support during an ICU stay is related to improved treatment effectiveness and improved health related quality of life following discharge. The perception of that support as readily available leads to improved physical and mental health outcomes. During a time when patients’ families were unable to provide daily social interaction and support due to isolation and visitor restrictions, the clinician-patient relationship became even more important. Using two specific patient cases, this study focuses on the benefits of maintaining therapeutic relationships throughout an entire ICU stay, even during a pandemic, to maximize functional outcomes and improve patients’ well-being.

Methods
Mixed methods approach was utilized by combining objective data from a retrospective chart review and qualitative data from lived experiences by two critical care therapists. Specific outcomes were assessed for overarching themes.

Discussion
Patients diagnosed with COVID-19 were isolated in rooms with limited impersonal interactions with clinicians and families. Isolation led to increased stress, as shown with increased respiratory rate, increased heart rate, and poor oxygen saturation for intubated and sedated patients. For patients without sedation, poor mental and emotional well-being was shown through depressed mood, refusal of medical treatment, and self-isolating behavior, impacting the patients’ overall medical and functional status. Clinicians’ own emotional burnout during the pandemic, as well as hospital isolation procedures, prevented standard social interaction between clinicians and patients. However, as the two following case studies showed, providing increased social support during different times of ICU admission improved overall patient outcomes. One patient with COVID-19 experienced significant anxiety while intubated in the ICU, limiting his ability to tolerate sedation. During a period of wakefulness, therapeutic touch and social interaction decreased respiratory rate, improved oxygen saturation, and decreased anxiety, allowing the patient to tolerate lying prone.

Conclusion
Clinicians’ ability to build trusting and empathetic relationships with patients can impact functional and medical outcomes. During the COVID-19 pandemic, clinicians may think that they might not be able to provide the same degree of compassionate care to their patients. However, it is important to uphold these values and relationships as part of the standard of care throughout the entire hospitalization, especially in the ICU. Future studies could include a large sample size with patient questionnaires focusing on their perceived social support levels both during and after ICU admission.

References
Functional status and physical variables in post-intensive care unit COVID-19 patients: characterization and prognostic factor

Debora S. Schujmann1; Claudia N. Peso1; Adriana Claudia Lunardi1; Jose Eduardo Pompeu1; Adriana Lourenço2; Sabrina Aguer2; Caroline M. Censo3; Mieko Claudia Miura4; Luzia N. T. Taniguchi2; Marisa M. Regenga2; Wellington P. Yamaguchi5; Christina M M de Brito2; Renato F. Righi6; Elaine C. de Campos1

1Department of Physical Therapy, Communication Sciences & Disorders and Occupational Therapy School of Medicine, University of Sao Paulo, Sao Paulo, Brazil
2Associação Clinica de São Bernardo do Campo e Hospital Andreta
3Hospital do Coração ABC
4Hospital ABC Sante

Introduction

• The coronavirus disease 2019 (COVID-19) increased demand for ICU.
• Many ICU therapeutics could be risks factors for functional losses.
• Although studies have identified decreased physical capacity after hospital discharge, the acute impact on physical function of ICU admission due to COVID-19 is still unclear.
• Recognized factors associated with poor physical function may help to identify strategies to improve the process of care, prevention and rehabilitation.

Objective

To analyses the impact on functional status and physical variables of patients with COVID-19 after ICU stay and the prognostic factors associated.

Participants

Inclusion Criteria:

• Adult patients with COVID-19
• Previously independent for activities of daily living

Exclusion Criterions:

• Death
• Functional decline due to other complications
• Cognitive impairment
• ICU length of stay (LOS) shorter than four days

Methods

It was a prospective multicenter cohort study performed from July 2020 to April 2021.

Results

Table 1. Correlation between independent and dependent factorial groups on physical variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Independent Factor</th>
<th>Dependent Factor</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (y)</td>
<td>0.41 (0.21)</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>0.63 (0.45)</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>STS - 90</td>
<td>0.43 (0.27)</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Barthel score</td>
<td>0.54 (0.30)</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>MP</td>
<td>0.39 (0.12)</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>MEP</td>
<td>0.43 (0.27)</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Step Test</td>
<td>0.46 (0.24)</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>MRC</td>
<td>0.63 (0.45)</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Hand grip test</td>
<td>0.37 (0.18)</td>
<td>0.001</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Correlation between physical evaluated and delta Barthel index.

<table>
<thead>
<tr>
<th>Variable</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.42 (0.30)</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>0.42 (0.30)</td>
</tr>
<tr>
<td>STS - 90</td>
<td>0.42 (0.30)</td>
</tr>
<tr>
<td>Barthel score</td>
<td>0.42 (0.30)</td>
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<tr>
<td>MP</td>
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</tr>
<tr>
<td>Hand grip test</td>
<td>0.37 (0.18)</td>
</tr>
</tbody>
</table>

Table 3. Analysis of predictive variables during ICU stay on functional status loss in previously independent patients.

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.03 (1.03 - 1.03)</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>1.00 (1.00 - 1.00)</td>
</tr>
<tr>
<td>STS - 90</td>
<td>1.00 (1.00 - 1.00)</td>
</tr>
<tr>
<td>Barthel score</td>
<td>0.24 (0.12 - 0.44)</td>
</tr>
</tbody>
</table>

Conclusions

The results showed that functional loss in patients with COVID-19 after admission to the ICU is associated with muscle strength, respiratory pressures and step test. Factors related to functional loss are age and ICU length stay. The only protective factor for functional loss is the patient walking in the ICU.

Acknowledgements

This work is funded by CNPQ, Brazil.

Approved by Comissão de Ética para Análises de Projetos de Pesquisa do Hospital das Clínicas de Faculdade de Medicina da Universidade de São Paulo, S4399520.6.1001.0068
Safety and Feasibility of Mobilizing Patients with Femoral Arterial and Hemodialysis Catheters in the Intensive Care Setting

Kelly Bennett PT, Alexandra Carbone DPT, Brian Foley DPT, Lauren Ferrante MD, MHS, Vikki Winke PT, MBA

Objective

To assess the safety and feasibility of mobilizing patients with femoral arterial and hemodialysis catheters in the ICU at Yale New Haven Health System (YNHHS).

Background

Historically, patients with femoral arterial and hemodialysis lines at YNHHS were excluded from progressive active mobilization in the ICU. The pilot was developed to remove this barrier to mobility in the ICU setting. Patients with femoral triple lumen catheters were previously approved for mobility at YNHHS and therefore were excluded from this pilot.

Planning and Development

- Identify Champions: Rehabilitation, Physician, Nursing
- Formulate Safety Checks: STEPS mobility screening tool, Femoral line algorithm, Line and limb check, Potential adverse events, Additional safety practices
- Education: Rehabilitation staff, Nursing staff and leadership, ICU physician teams, Hands on training with a rehabilitation champion
- Data Collection: Identify variables, Add variables to electronic medical record, Develop data set with IT

Potential Adverse Events

- Nonfunctioning catheter
- Removal of catheter
- Bleeding at catheter site
- Acute limb ischemia within 24 hours after mobilization
- Retroperitoneal hemorrhage
- Catheter line-associated bloodstream infections

Additional Safety Practices

- Chair follow when ambulating
- Nurse present for mobility
- Team educated on response to an adverse event
- Line must be sutured
- Mechanical lift pad placed in chair
- Therapists assist with return to bed transfer

Femoral Line Mobility Intervention

STEPS Mobility Screening Tool

1. This patient has a baseline condition that would limit benefit from out of bed?:
   - Comfort measures only or actively doing
   - Bedbound at baseline

2. This patient is too neurologically impaired to participate in mobility?:
   - RASS ≤ 2 or ≥ 3

3. This patient is not safe from a respiratory standpoint to participate in mobility?:
   - FIO2 on mechanical ventilation > 80%
   - PEEP on mechanical ventilation > 10

4. This patient is not safe from a hemodynamic standpoint to participate in mobility?:
   - Vasopressor up titrated within the past 24 hours, or more than 2 vasopressors
   - Active myocardial ischemia with EKG changes or rapidly rising troponins
   - Unstable arrhythmias
   - Ongoing, uncontrolled blood loss
   - Femoral Occlusion, Femoral Caths, Femoral Sheath in place

Femoral Line Mobility Algorithm

- Pre-mobility line and limb check
- Constant line assessment
- Progress mobility per PT/OT clinical judgement
- Post-mobility line and limb check

Pilot Adverse Events: 0

Table 1: Line and limb check

<table>
<thead>
<tr>
<th>Event</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line must be sutured</td>
<td>Mechanical lift pad placed in chair</td>
</tr>
<tr>
<td>Therapists assist with return to bed transfer</td>
<td></td>
</tr>
</tbody>
</table>

Discussion

Interdisciplinary team planning to develop safety protocols was critical to the development and implementation of this pilot in two ICUs in our hospital. Zero adverse events occurred with thirty mobility encounters over the course of the one-year pilot. Mobility encounters ranged from bed level exercise of involved extremity to ambulation. This data supports mobilization of patients with femoral arterial and hemodialysis lines as a safe and feasible practice in our institution. Future goals include obtaining administration approvals and implementing this practice change across the health system in order to remove this barrier to early mobility. In the future, data including length of stay, ICU days, and disposition will be collected to compare functional outcomes of patients with femoral arterial and hemodialysis lines pre and post practice change.

Citations


FEASIBILITY AND SAFETY OF FUNCTIONAL ELECTRICAL STIMULATION IN COVID-19 CRITICALLY ILL PATIENTS

Samantha Torres Grams, Weslã Neves da Silva Costa, Leandro Teixeira Saraiva, Mariane Tami Amano, Wellington Pereira Yamaguti
Hospital Sírio-Libanês, Brazil.

BACKGROUND
- Patients with severe COVID-19 develop early muscle wasting and decreased muscle strength during ICU stay. In a previous study, the loss of muscle mass reached a reduction of 30% in ten days of hospitalization, with expressive reduction of muscle strength of 22%.
- In other critical care patients, the role of early rehabilitation is well established. Among the available therapeutic resources, the electrical stimulation has been used as an adjunct strategy to preserve muscle strength with the potential benefit of preserving muscle mass. However, in severe COVID-19, these effects as well as the technique’s feasibility and safety, are still unknown.

OBJECTIVE
- The aim of this study was to investigate the feasibility and safety of a functional electrical stimulation protocol in COVID-19 critically ill patients with sepsis or septic shock to prevent muscle wasting and strength loss.

METHODS
- We studied 19 subjects who met the inclusion criteria as follows: (1) patients admitted to ICU diagnosed with COVID-19 with sepsis or septic shock; age > 18 years old; (2) BMI ≥ 15 kg/m²; (3) without diagnosis of neuromuscular diseases, diabetic polyneuropathy and cardiac pacemaker; (4) without skin lesions; infection of trauma in lower limbs; (5) able to walk independently or with the assistance of auxiliary devices prior to hospitalization; (6) immobilization period without walking off up to 7 days; (7) with no current use of neuromuscular blockers and without imminent risk of death within 48 hours.

RESULTS
- Seventy-eight percent of the patients in the experimental group, and 80% in the sham group completed at least 85% of the scheduled sessions, without differences between groups (p > 0.05).
- A total of 36 sessions were performed in the experimental group. Effective muscle contraction occurred in 96.2% of the sessions.
- There were no significant changes in temperature in the experimental group (p > 0.05). No patient presented asynchrony, arrhythmia, pain or burn. One patient had fatigue in a single session.

CONCLUSION
The functional electrical stimulation protocol seems to be feasible and safe in COVID-19 critically ill patients.

REFERENCES