<table>
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<tr>
<th>Time</th>
<th>Presenter</th>
<th>Author(s)</th>
<th>Title</th>
<th>Institution</th>
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<td>7:30AM - 8:30AM</td>
<td>Caitlin Costanzo, PT, DPT, NCS, CSRS</td>
<td>Caitlin Costanzo PT, DPT, NCS, CSRS, Aubrey Schmidt MS OTR/L, CSRS, Chelsea Shade OTD, OTR/L, CNS, CBIS</td>
<td>Sensory Stimulation Protocol for the Complex Acute CVA Patient: A Case Report</td>
<td>Lehigh Valley Health Network, Allentown, USA</td>
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<td>Bailey Petersen, DPT, PhD</td>
<td>Petersen BA, Heinsberg LW, Conley YP, Fink EL, Treble-Barna A.</td>
<td>Epigenetic associations of ABCCB and Nrf with outcomes in pediatric cardiac arrest</td>
<td>University of Pittsburgh, Pittsburgh, USA</td>
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<td>Karina Knutsen, RN, CCN, MSN</td>
<td>Karina Knutsen, CCN, MSN Rita Solbakken, CCN, PhD Britt Normann, PT, PhD</td>
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<td>Susan E Whitworth, MOT, OTR/L, CSR Krista Garrison, MSOT, OTR/L</td>
<td>Enhancing Sleep Hygiene in the MICU: Developing and implementing an Interdisciplinary Protocol for Improved Patient Outcomes</td>
<td>Good Shepherd Penn Partners at Pennsylvania Hospital, Philadelphia, USA</td>
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<td>Vanessa Lima, PhD</td>
<td>Calo Henrique V. da Costa, PT; Marcelo V. M. Ferreira, PT; Andrey W. de Souza, PT PhD; Paulo José A. L. de Oliveira, PT; Vanessa C. B. F. de Lima, PT PhD</td>
<td>Functional reconciliation rate in ICU patients: a retrospective multicenter study</td>
<td>United Health Group, Sao Paulo, Brazil</td>
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<td>Nicole Illesca, BA</td>
<td>Nicole Illesca, BA, Bhavana Seth, MD, MHS, Tejaswi Kalva, MBBS, Michelle N. Lakin PhD, MA, Samnath Bose, MD, MPH, Mustafa Mir-Kasimov, MD, Carla M. Sevin, MD, James C. Jackson, PhD, Samuel Brown, MD, MS, Dale M. Needham, FCFA, MD, PhD, Victor D. Dinglas, MPH</td>
<td>Core Outcome Set for Phone-Based Research Follow-up – Feedback from Acute Respiratory Failure Survivors in APICS-01 Study</td>
<td>Johns Hopkins University, Baltimore, USA</td>
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***Vote for your Favorite Poster Presentation from Friday, November 10, 2023 – AM Session here***
Sensory Stimulation Protocol for the Complex Acute CVA Patient: A Case Report

Calliin Costanzo, PT, DPT, NCS, CSRS, Aubrey Schmidt, MS OTR/L, CSRS, Chelsea Shade, OTD, OTR/L, CNS, CBIS
Lehigh Valley Health Network, Allentown, PA

Background/Purpose

Oftentimes, medically complex patients in the acute hospital setting are cancelled by rehab services or discontinued based on prognosis, due to perceived lack of ability to participate and interventions to utilize. This case report describes interventions and functional gains achieved by a patient in a vegetative state after initial intervention was discontinued based on the patient's prognosis. Therapy was reintroduced in hopes to show any functional gain and assist with discharge planning. Upon re-initiation, the patient was 2 months post-CVA with decrebrate posturing and little to no response to external stimuli.

Case Report

The patient was a 45-year-old Spanish speaking female admitted with right posterior communicating artery aneurysm. She had a failed clipping, suffering aneurysmal rupture with significant blood loss (Hunt Hess score 5) and severe cerebral edema, requiring ventriculostomy and hemiconnectomy. She was hospitalized for 5 months. The patient’s progress was measured using the JFK Coma Recovery Scale (JCRS).

Sequence of Sensory Stimulation:

1. Visual
   - 4 inches in front of each eye
   - Time frame: 2 seconds at a time, Every 5 seconds
   - Total time: 1 minute duration each eye

2. Auditory
   - 4 inches from each ear
   - Time frame: 1 clap, Every 5 seconds
   - Total time: 1 minute duration each ear

3. Tactile
   - Dorsum of each hand
   - Time frame: 1 second each time, Every 3 seconds
   - Total time: 1 minute duration each hand

Hospital Course

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/30</td>
<td>Admit date</td>
</tr>
<tr>
<td>2/15-3/8</td>
<td>PT saw twx/wk no improvement in condition</td>
</tr>
<tr>
<td>3/10</td>
<td>Multi sensory stimulation protocol initiated: x2 daily for 3 weeks with JPR scored 2 x/wk, JFK 3/23</td>
</tr>
<tr>
<td>3/28</td>
<td>JFK 3/23, reflexive responses, Foley/OAB, lift space w/t</td>
</tr>
<tr>
<td>4/16</td>
<td>Transferred to MICU 3/23 respiratory distress/hyperaguging</td>
</tr>
<tr>
<td>4/17-4/18</td>
<td>JFK 3/23 visually fixating devoting minimally conscious state minus FCU</td>
</tr>
<tr>
<td>4/24</td>
<td>Disposition changed from LTC to BRU</td>
</tr>
<tr>
<td>4/26</td>
<td>SLP right ventricular puncture shot</td>
</tr>
<tr>
<td>5/1</td>
<td>Consult to orthopedics to assist with spine arthrodesis – decided to Intervene</td>
</tr>
<tr>
<td>5/3</td>
<td>Treated semi partial occlusion tapping</td>
</tr>
<tr>
<td>5/4</td>
<td>PT following x2/3 x2, 10 seconds at a time, 5 fields of view</td>
</tr>
<tr>
<td>5/10</td>
<td>Initiated tilt table: able to achieve 40 degrees upright tolerance</td>
</tr>
<tr>
<td>5/19</td>
<td>SLP, moderate-severe receptive, severe expressive aphasia, following commands 70% of time, communication via head node improved</td>
</tr>
</tbody>
</table>

Final Visit

5/22

Discharged to SNF 5/26

Due to rehabilitation advocating for BRU

Discussion

Evidence shows that sensory stimulation can be beneficial when administered multiple times per day, with some articles reporting up to five times per day. Multidisciplinary staffing for the importance of sensory stimulation protocols could aid in regular administration of these protocols for patients in a vegetative state and/or an ICU setting. Therapy services are often undervalued in ICU settings due to lack of provider understanding of services to be rendered, as well as lack of therapist understanding of interventions to utilize. Thus, sensory stimulation utilization can be of significant value for patients, providers and therapy colleagues. Multidisciplinary understanding and implementation earlier in our patient’s recovery can improve outcomes and prevent further complications.

REFERENCES:

INTRODUCTION

- Pediatric cardiac arrest has devastating consequences.
- Mortality rates range from 50-90%, depending on the location of the arrest.
- Survivors experience brain injury with highly variable neurological outcomes.
- Identifying children at the highest risk for poor outcomes is a significant challenge.

- DNA methylation (DNAm), an epigenetic regulator of gene expression, serves as a biomarker for long-term outcomes in pediatric brain injury; however, research in this population remains limited.
- Several genes play pivotal roles in neurological recovery, with two of particular interest in this study:
  - ABCG2 produces surfactant protein B (S1B1) protein, a marker positively associated with cerebral edema in adult traumatic brain injury.
  - NELL1, responsible for neurofilament light (NFL) protein production, a marker of white matter damage in adults with traumatic brain injury and in children with cardiac arrest.

OBJECTIVE

- To explore associations between DNA methylation (DNAm) of ABCG2 and NELL1 with outcomes in children with pediatric cardiac arrest.

METHODS

- Exploratory analysis in a subset of children from Personizing Outcomes after Cardiac Arrest (POCAH) cohort.
- Children ages 48-174 days admitted to the ICU were recruited from 14 Erie hospitals (N=163).
- DNAm data were generated as previously described and analyzed as M-values.
- 7 CpG sites on ABCG2 and 3 CpG sites on NELL1.
- Primary Outcome: Unfavorable outcome (VABS-3; 2005-2009).
- In the survivors with complete DNAm and 1-year outcomes, we completed a secondary analysis to determine associations with:
  - Adaptive or non-adaptive behavior (VABS-4).
  - Continuous heart-related quality of life (HRQOL; Pediatric Quality of Life Inventory).
  - Dichotomous functional outcome (Pediatric Glasgow Outcome Score Extended (GOS-E) Scale; >2 unfavorable).

- Multiple linear regression (continuous) or logistic regression (dichotomized) models were performed:
  - Adjusting for age and cardiac arrest location (in-hospital vs. out of hospital arrest).

PARTICIPANT DEMOGRAPHICS

- Only children with complete DNAm data and outcomes at 1 year were included (n=122).
- Of these children, 51 survived and were included in secondary analyses.

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>IN-HOSPITAL (n=32)</th>
<th>OUT OF HOSPITAL (n=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years</td>
<td>0.67 (0.11, 2.97)</td>
<td>0.13 (0.04, 1.47)</td>
</tr>
<tr>
<td>Sex</td>
<td>25/12</td>
<td>13/7</td>
</tr>
<tr>
<td>Duration of CPR in minutes</td>
<td>5.8 (2.0, 9.5)</td>
<td>4.9 (2.8, 21.5)</td>
</tr>
<tr>
<td>Survived at one year (n)</td>
<td>31</td>
<td>20</td>
</tr>
</tbody>
</table>

DISTRIBUTIONS OF TIME TO ACUTE BIOSAMPLE COLLECTION

- Time to blood sample (hrs) from 12 to 72.

DISCUSSION

- Higher ABCG2 DNAm was associated with better long-term outcomes:
  - Pretermly indicates decreased S1B1 protein.
  - Consistent with the role of S1B1 protein as a biomarker of cerebral edema in adults.

- No significant findings with NELL1 DNAm.

- For many models, age and location of cardiac arrest were significantly associated with outcomes (p<0.05).

- Survival rates were high for the group (51 of 52 children with complete outcomes survived at 1 year post-arrest).

- No representation of other pediatric cardiac arrest samples.

- Small sample size.

ABCG2 Site 2 DNAm may be a prospective epigenetic biomarker of recovery from pediatric cardiac arrest.
The diverse invitations to participate in early rehabilitation: a qualitative study of nurse-patient interactions in the intensive care unit.

BACKGROUND

• Early rehabilitation reduces the occurrence of ICUAW and delirium, improving functional mobility and decreasing the length of high-cost ICU stays
• The role of critical care nurses allows for integrating evidence-based rehabilitation into routine care
• Real-life nurse-patient interactions have not been studied with a focus on professional actions and how they impact patient participation in early rehabilitation.

OBJECTIVE

To gain insight into the interaction between nurses and patients in early rehabilitation, and the role of patient participation in this context.

METHODS

Design: qualitative, utilizing observations and video recordings combined with postobservation interviews
Setting: Two general Norwegian ICUs
Participants: Eight nurse/patient dyads
Analysis: Video analysis combined with systematic text condensation, informed by interaction theory

FINDINGS

CONCLUSION

• Interactions that combine verbal and bodily invitations appear crucial for patient participation in early rehabilitation in the intensive care unit, emphasizing the importance of integrated tailored bodily communication
• The nurses’ lack of insight into and attention to the patient’s bodily potential for active movement combined with a paternalistic approach to the patient’s situation may hinder patients’ active participation
Enhancing Sleep Hygiene in the MICU: Developing and Implementing an Interdisciplinary Protocol for Improved Patient Outcomes

Susan E. Whitworth, MOT, OTR/L, CSRS
Krista M. Garrison, MSOT, OTR/L

BACKGROUND

- In the medical intensive care unit (MICU), critically ill patients frequently encounter poor sleep quality due to a combination of various factors and barriers that hinder their ability to attain restorative sleep (Kamdar et al., 2013). Occupational therapists are trained and well versed in promoting rest and sleep practices/quality.
- Inadequate sleep in the ICU not only poses challenges to patients’ comfort but also increases the risk of developing delirium and adversely affects their recovery outcomes.
- Currently, the MICU at Pennsylvania Hospital (PAH) lacks any established sleep hygiene protocols, despite the evident necessity for such measures.

METHODS

- To gain insight into the interdisciplinary team’s knowledge of and current practices on sleep hygiene, a 10-question survey consisting of quantitative and qualitative data was distributed.
- Over a 1-month period (May 2023), a survey was distributed to MICU staff via email, attending rounds, and signage placed in staff lounges.

RESULTS

- Results highlighted:
  - 34 members of the interdisciplinary team completed the survey.
  - When asked the significance of the role sleep plays in promoting patient recovery, on a scale of 1-5, (5 being most important and 1 being least important) results indicated 4.71 for significance.
  - The most common sleep disruptions were due to medical interventions (59%).
  - A majority of respondents observed a relationship between poor sleep quality and likelihood of experiencing delirium (63%).
  - Top 3 most impactful barriers: noise, frequent monitoring, and pain/discomfort.
  - There is a lack of formal education on sleep practices (72%).
  - Respondents believe a formalized protocol would be valuable (97%).

DISCUSSION/CONCLUSION

- In conclusion, the survey results reveal the need for implementing an interdisciplinary sleep hygiene protocol to enhance patient outcomes in the MICU, considering the common sleep disruptions, the association with poor sleep quality and delirium, and the lack of formal education on sleep practices.
- The findings of this study highlight the potential impact of environmental supports, cognitive intervention strategies, and the creation of practice guidelines for sleep practices in the MICU, all of which have the potential to enhance patient overall occupational participation in sleep.

CLINICAL RELEVANCE

- The next steps involve comprehensive literature review, interdisciplinary protocol design, and pilot implementation to address poor sleep quality’s impact on the MICU.
- A tailored sleep hygiene protocol will be developed informed by the survey, and qualitative insights. The interdisciplinary team will be educated on protocol and a pilot phase with be started with patient and staff feedback. Patient outcomes will be rigorously assessed post-implementation, tracking improvements in delirium rates, recovery times, and well-being.
- Continuous evaluation and knowledge dissemination will ensure sustained enhancements in sleep quality and patient outcomes within the MICU setting.

REFERENCES

Functional reconciliation rate in ICU patients: a retrospective multicenter study

Caio Henrique V. da Costa¹, PT; Marcelo V. M. Ferreira², PT; Andrey W. de Sousa³, PT PhD; Paulo José A. L. de Oliveira⁴, PT; Vanessa C. B. F. de Lima⁵, PT PhD.

1 Physical Therapy Dept, Hospital Samaritano Paulista, SP, Brazil. 2 Physical Therapy Dept, Hospital Samaritano Botafogo, RJ, Brazil. 3 Physical Therapy Dept, Hospital Samaritano Higienópolis, SP, Brazil. 4 Physical Therapy Dept, Hospital Santa Joana Recife, PE, Brazil. 5 Care Practices Dept., Americas, United Health Group Brazil

BACKGROUND
Structured mobility programs are associated with better outcomes such as shorter mechanical ventilation time and shorter intensive care unit lenght of stay (ICU-LOS). Hospital-Acquired Disability (HAD) is linked to the functional trajectory of the patient after discharge.

OBJECTIVES
The aim of this study was to verify the Functional Reconciliation Rate for mobility of patients who were admitted to our ICUs.

METHODOLOGY AND RESULTS

CONCLUSIONS
The functional reconciliation rate appears to be an important indicator that will allow us to monitor the results of our mobility program and its impact on the patient’s return to society, considering their level of mobility and consequent autonomy.

REFERENCES

CONTACT INFORMATION
Vanessa C. B. F. de Lima – vanessa.lima@ughbrasil.com.br – Care Practices Manager, Americas, United Health Group Brazil
Core Outcome Set for Phone-Based Research Follow-up – Feedback from Acute Respiratory Failure Survivors in APICS-01 Study

Nicole Illesca, BA1, Bhavna Seth, MD, MHS1, Tejaswi Kalva, MBBS2, Michelle N. Eakin PhD, MA1, Somnath Bose, MD, MPH1, Mustafa Mir-Kasimov, MD4, Carla M. Sevin, MD5, James C. Jackson, PsyD6, Samuel Brown, MD, MSc1, Dale M. Needham, FCPA, MD, PhD1, Victor D. Dinglas, MPH1

1 Johns Hopkins University, Baltimore, MD, USA; 2 Willis Knighton Health System, Shreveport, LA, USA; 3 Beth Israel Deaconess Medical Center, Boston, MA, USA; 4 Salt Lake City Veterans Administration and University of Utah, Salt Lake City, UT, USA; 5 Vanderbilt University Medical Center, Nashville, TN, USA; 6 Intermountain Medical Center, Salt Lake City, UT, USA

Background

- Acute respiratory failure (ARF) survivors often face new or worsened physical, mental, and/or cognitive impairments, called “post-intensive care syndrome.”
- Prior studies evaluated different post-ARF patient outcomes, using different measures, preventing data comparisons across studies.
- A core outcome set (COS) is a minimum set of recommended outcomes/measures.
- APICS-01 (Addressing Post-Intensive Care Syndrome) Study assessed unmet healthcare needs of ARF survivors after hospital discharge, utilizing the ARF COS and COS feedback survey at 3-months follow-up.

Objective

- Evaluate ARF survivors’ feedback on post-ARF COS to establish a reliable COS appropriate for data comparison across future studies

Methods

- Minimum COS for post-ARF research included assessment of:
  - Quality of life (EQ-5D)
  - Pain (EQ-5D pain item)
  - Mental health (Hospital Anxiety and Depression Scale and Impact of Event Scale-Revised)
  - Cognition (Montreal Cognitive Assessment–Blind (MoCA-Blind) (recommended but not required)
- COS feedback survey focused on 3 questions, allowing free text comments after each question:
  - Perceived COS importance
  - Emotions evoked during COS
  - Perceived COS length

Results

Of 154 participants who completed the COS at 3 months (138 also completed MoCA-Blind), 140 (91%) provided feedback.

<table>
<thead>
<tr>
<th>Patient Characteristic</th>
<th>Value (N = 140)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, yr, median (IQR)</td>
<td>55 (43-66)</td>
</tr>
<tr>
<td>Male, n (%)</td>
<td>76 (54)</td>
</tr>
<tr>
<td>White race, n (%)</td>
<td>96 (69)</td>
</tr>
<tr>
<td>BMI, kg/m², median (IQR)</td>
<td>30 (25-37)</td>
</tr>
<tr>
<td>APACHE II score, median (IQR)</td>
<td>20 (15-26)</td>
</tr>
<tr>
<td>Acute respiratory distress syndrome, n (%)</td>
<td>17 (12)</td>
</tr>
<tr>
<td>ICU/Hospital length of stay, d, median (IQR)</td>
<td>6 (4-10) / 14 (9-21)</td>
</tr>
</tbody>
</table>

Emotions evoked during COS

- Most common emotions were positive
  - optimism (59%)
  - happiness (58%)
- Negative emotions less frequent
  - boredom (22%)
  - frustration (17%)
  - discouragement (9%)

Perceived COS Length

- 59% said COS was “just the right” duration
- 32% said “a little long”

Perceived COS Importance

- 82% agreed that COS was important, 2% did not agree and 16% were unsure
- 4 major themes

Conclusion

- A majority of ARF survivors perceived the COS to be important, take an appropriate amount of time, and evoke few negative emotions; many reported positive emotions.
- Future studies evaluating ARF survivorship should use this recommended COS.

**INTRODUCTION**

Delirium is one of the most relevant health concerns in the 21st century. Long-term cognitive impairment in patients admitted to an intensive care unit (ICU) is highly frequent, along with psychological and physical disorders as the components of the post-intensive care syndrome (PICS). Delirium, characterized as an acute change in attention and cognition, usually has high incidence in the ICU and is associated with higher mortality, long-lasting performance in invasive mechanical ventilation, longer ICU and hospital stays, and long-term cognitive impairment. In Uruguay, a cohort prospective study showed that the prevalence of delirium in patients with mechanical ventilation is 80%.

**OBJECTIVES**

- **To evaluate the incidence of the cognitive and psychological sequelae that is part of the PICS.**
- **To study the relationship between the development of delirium during ICU stay and the development of cognitive and psychological disorders that are part of the PICS.**

**METHODS**

A prospective cohort study, through an offer one-year follow-up of patients who were hospitalized in the Partner Hospital ICU between March 1st, 2017 and May 30th, 2017. Different variables were evaluated.

- **Demographic and clinical information:**
  - Age
  - Gender
  - Length of stay
  - Mortality
  - Mechanical ventilation

- **Neuropsychological tests:**
  - Mini-Mental State Examination (MMSE)
  - Montreal Cognitive Assessment (MoCA)

**DISCUSSION**

Until now, there are no published studies about the relationship between PICS and ICU delirium in Uruguay.

In our research, the mortality of the patients evaluated after one year of ICU discharge, exhibited at least one PICS symptom.

Cognitive impairment was associated with delirium both in the scales done by phone or in person, through two Pillatier scales and the Mini-Mental scale.

Depression was found in the lethargy of the patients, with delirium or not.

Anxiety was detected in 38% of the patients who had delirium and in 67% of those who did not. No relation was found between anxiety and delirium.

**CONCLUSIONS**

Cognitive impairment was associated with ICU delirium and with a longer duration of the latter.

Even though BD1 dependence was higher in delirious patients, there were no significant differences between both groups, neither for anxiety nor for post ICU depression.

The most important risk factor on which we can contribute to avoid cognitive dysfunction after discharge is the presence of delirium during ICU stay.

Early identification, monitoring, and the application of the set of multicomponent measures, have to be utilized in a standardized manner with the aim of reducing delirium onset, shortening its duration as one of the known tools created to prevent long-term cognitive impairment in the patients who are survivors of a critical disease.

**BIBLIOGRAPHY**