Evidence Based Practice in the ICU

“Everything Old is New Again”

-All That Jazz

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Learning Objectives

• Understand the Relevance of Early Mobilization in the Modern ICU
• Identify Several Common Clinical Syndromes Associated with Critical Illness
• Understand the Evidence Base for Early Mobilization in the ICU
• Recognize the Positive Effects of Early Mobilization
• Understand the Multi-disciplinary Approach to Early Mobilization
Outline

- History of Early Mobility in ICU
- Renewed Interest in Early Mobility
- Common Clinical Syndromes in the ICU
- Complications Secondary to Critical Illness
- Evidence Base for Early Mobilization in the ICU
- Early Mobility Program at NYPH
The History of Early Mobility in the ICU

• Articles From the 1940s

• The Abuse of Rest in Bed in Orthopedic Surgery
  – Orthopedist Hugh O. Thomas: “Rest must be ‘enforced, uninterrupted and prolonged.’” *JAMA.* 1944;125:1083-1084

• 1942: Early Rising After Operation
  – “…it is possible that great savings in complications, let alone costs, would arise following the general adoption of the early-rising technic.” *NEJM* 1942;14:576-577
The History of Early Mobility in the ICU

• 1944: The Evil Sequelae of Complete Bed Rest
  – Described “the inevitable residue of tragic cases in which bed rest is the chief agent of disaster” JAMA. 1944;125:1083-1084

• 1975 Early Ambulation of Pts Requiring Ventilatory Assistance
  – It is our impression that by early ambulation, weaning has been facilitated and hastened, and the problems of prolonged bed and chair rest minimized. Chest, 68: 4, October 1975
Renewed Interest in Early Mobilization—Why Now?

- 1998 Suspended Life or Extending Death? Dr. Thomas Petty (Comparing today with 1964)
  - “I am troubled when I make rounds in critical care units today...What I see these days are paralyzed, sedated patients lying without motion, appearing to be dead, except for the monitors that tell me otherwise”. Chest 1998;114;360-361

- The notion of “taking over for the patient”
  - “Over the years as sicker and sicker patients presented to ICUs, the notion of taking over for the patient became the norm. This philosophy of complete control and “normalization” of physiologic derangements...became commonplace...it has been presumed necessary to have a passive docile patient. The end result has been a state of deep anesthesia and paralysis in the ICU setting, typical of that seen in an OR”. –Schweickert, W. et al Chest 2011;140:6 1612-1616
Renewed Interest in Early Mobilization—Why Now?

• “Culture of Immobility”
  – Patients may have limited exposure to PT/OT in ICUs. In study by Morris, et al, just 6% of survivors of critical illness (in the control group) received physical therapy during ICU stay.


  – Utilization of critical care has grown over the past 2 decades, despite a reduction in acute care beds
  – Intensive care is expected to expand further in the next 2 decades as the “baby boomer” population ages
  – Improvements in intensive care unit mortality is creating a growing number of ICU survivors
Common Clinical Syndromes in the ICU

• SIRS (Systemic Inflammatory Response Syndrome)
• Sepsis
• ARDS Acute Respiratory Distress Syndrome
• VAP Ventilator Associated Pneumonia
Common Secondary Effects of Critical Illness

- Prolonged Immobility and Physiological Consequences of Bed Rest
- ICU-Acquired Weakness
- Delirium
- Psychological and Cognitive Impairments
- Can PT address these issues?
Evidence Base for Early Mobilization


• Early Mobilization was found to be Safe, Feasible and Beneficial

• 2007. Early Activity is Feasible and Safe in Respiratory Patients
Evidence Base for Early Mobilization

• 2008. Early Intensive Care Unit Mobility Therapy in the Treatment of Acute Respiratory Failure

• 2009. Early Physical and Occupational Therapy in Mechanically Ventilated Critically Ill Patients: A Randomized Control Study.
Evidence Base for Early Mobilization

• 2010. Early Physical Medicine and Rehabilitation for Patients with Acute Respiratory Failure: A Quality Improvement Project.

• 2011. Receiving Early Mobility During an Intensive Care Unit Admission Is a Predictor of Improved Outcomes in Acute Respiratory Failure.
Positive Effects of Early Mobility

• Mobilization and exercise are the primary PT treatment interventions to optimize oxygen transport.
• Mobilization and exercise are the PT’s “drug”.
• Physiological Effects of Mobilization and Exercise

Early Mobilization at NYPH

• History of Early Mobilization at NYPH
  – Ventilator Management Team

• New Project 2012
  – Evidence Based
  – Paradigm Shift to Increase Priority of ICU patients shifting focus from mainly patients who are DC ready

• Barriers to Implementation
  – Culture Change
  – Staffing
  – Mobility limited by ICU medical equipment

• Project Description
  – Multi-disciplinary team.
  – PT, OT, Rehab Aides, RN, RT, MD/PA
  – Algorithm for mobilization
Early Mobilization at NYPH

• Equipment
  – Hoyer, EZ Way Smart Stand, platforms, Wenzelite walkers, reclining wheel chairs, cycle ergometers, Moveo, standing frame, portable ventilator.

• Guidelines for Therapy

• Project Performance
  – Measuring progress
Future Research Ideas

• Are there specific groups of patient who will benefit more from early mobility? Schweickert, W, Kress, J. Implementing Early Mobilization Interventions in Mechanically Ventilated Patients in the ICU. Chest 2011;140:1612-1617

• Future research may be needed on patient subgroups including geriatrics, pediatrics and those with chronic critical illness or pre-existing chronic disease. Needham, et al. Improving Long Term Outcomes After Discharge from ICU: Report from a Stakeholders’ Conference. Crit Care Med 2012;40(2):1-8

• Research on patients in other types of ICUs
Future Research Ideas


• Functional Outcome Measures for ICU

• What are the best approaches for providing post ICU care?

• What are the long term effects of early ICU rehabilitation? Lipshutz et al Early Mobilization in Critically Ill Patients. ICU Director 2012;3(1)17-20.
  – Effect on mortality
  – Effect on health care utilization and cost
Summary

• History of Early Mobility in ICU
• Renewed Interest in Early Mobility
• Common Clinical Syndromes in the ICU
• Complications Secondary to Critical Illness
• Evidence Base for Early Mobilization in the ICU
• Early Mobility Program at NYPH
  – *Today we have marvelous ventilators, powerful antibiotics, pressors, antiarrhythmics, anticoagulants, antidepressants...None of these advances, however, can begin to replace the caring physician, nurse and therapist at the bedside to bring a patient from the threshold of death, back to the living.*

  Petty T. Suspended Life or Extending Death? *Chest* 1998;114;360-361
Resources

- www.mobilization-network.com
- Continuing Education Christiane Perme PT, CCS, Dan Malone PhD, MPT, CCS, Ellen Hillegass PT, EdD, CCS
- APTA Learning Center
  - Promoting Early Mobility and Rehabilitation in the Intensive Care Unit. Jennifer Zanni PT, MSPT and Dale Needham MD, PhD. May 2010.
- www.hopkinsmedicine.org/OACIS.org
- PT in ICU list serve PTinICU@yahoogroups.com
- Society of Critical Care Medicine. www.sccm.org
  - Early Mobilization and PICS Webcasts