MOBILIZING PATIENTS ON MECHANICAL VENTILATION

LEARNING OBJECTIVES

- Discuss the impact of early mobilization on ARDS outcomes
- Identify barriers to early mobilization on the mechanically ventilated patient

PHYSICAL EFFECTS OF ICUAW

- Profound weakness of respiratory muscles
- Profound weakness of skeletal muscles
- Profound loss of independent function

Leads to: Profound decrease in quality of life in survivors

PROLONGED EFFECTS

<table>
<thead>
<tr>
<th>Outcomes observed</th>
<th>Outcomes desired</th>
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<td>Financial Burden</td>
<td>Decreased ICU days</td>
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<td>Hospital Costs</td>
<td>Early ambulation</td>
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<td>Loss of Income</td>
<td>Optimal level of function at discharge and post discharge</td>
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<td>Functional Burden</td>
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<td>Dependence on people</td>
<td>Depression</td>
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<td>Dependence on assistive devices</td>
<td>Fear</td>
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<td>Family and Skeletal Burden</td>
<td>Cognitive deficits</td>
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PROLONGED MECHANICAL VENTILATION

PATIENTS ARE ALIVE BUT ARE THEY LIVING?

CONCE ET AL. EXPECTATIONS AND OUTCOMES OF PROLONGED MECHANICAL VENTILATION. CRITICAL CARE MED. 2010; 38(8):482-493

SO IT SHOULD ALL START HERE BUT DOES IT?

- Ventilator dependent
- Sedated
- Neuromuscular blockade
- Hemodynamically unstable
- Has an arterial line
- Has a chest tube

SO WHAT??
**PERCEIVED BARRIERS TO MOBILIZATION**

"EXCUSES" - Patients on Mechanical Ventilation in the ICU are:

- Too sick for any kind of movement therapy
- Attached to too many lines and tubes: movement can be harmful
- Better off with silence and rest so that they can recover quickly
- Receive more than enough movement with nursing activities in bed
- Just too intimidating and ICU equipment and alarms are overwhelming
- Too Old

**BIGGEST BARRIER: FEAR**

- "DOING HARM"

Solution:
- Learn that it is safe and feasible
- You can possibly do more harm if you don’t

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**LEARN ICU AND PATIENT CONNEXIONS**

**EQUIPMENT**

- Life support equipment
- Monitoring equipment
- Tubes and lines
- Artificial airways
- Oxygen delivery systems
- Monitors for tubes
- Monitors for alarms
- Parameters to be monitored

**PERSONNEL**

- Physicians
- Nurses
- Respiratory Therapists
- PCA / Techs
- PT
- OT
- FAMILY

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**CRITICAL THINKING WITH THE CRITICALLY ILL**

**HOW EARLY IS EARLY? TO MOBILIZE OR NOT TO MOBILIZE?**

Always have the concern of "Doing Harm" and "Choose Wisely"

Identify
- True barriers
- "Maybe" Barriers
- False Barriers

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**CRITICAL THINKING WITH THE CRITICALLY ILL**

**TRUE BARRIERS**

- Stability
  - Hypotensive
  - Hypoxemic
  - Comatose

- Mental status
  - Sedated
  - Agitated

- Level of cooperation
  - Agitated
  - Neuromuscular blockade

- SOLUTIONS
  - Discuss parameters which will allow mobilization
  - From
    - Early recovery
    - Early extubation
    - Minimizing Electrolyte Stimulating (MELSS)
  - Discuss non-pharmacological conditions
    - Task force
  - Discuss non-invasive options
    - Aspiration

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**CENTRAL LINE/CATHETER / ECMO CANNULA**

TRUE BARRIERS

- Location of catheters/cannulas:
  - Central: IABP/ECMO
  - Dialysis
  - Arterial Line

SOLUTION

- Possibility of mobilization without adverse events
EXERCISE TYPE AND DOSAGE BARRIER

**EFFECTIVE INTERVENTIONS?**

"The patient was moved passively to the stretcher chair with the assist of 3. After 20 minutes we moved him back to the bed because he was sliding. He did not tolerate therapy."

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**EXERCISE TYPE AND DOSAGE BARRIER**

**BED/SITTING**
- Muscle strength of respiratory muscles
- Muscle strength of extremities
- Trunk control

**OUT OF BED/STANDING**
- Weight bearing status
- Weight bearing ability
- Weight shifting ability

**FUNCTIONAL TRAINING**
- OT as part of the team

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**EXERCISE TYPE AND DOSAGE BARRIER**

**IS IT NOT DIFFICULT TO WALK PATIENTS ON MECHANICAL VENTILATION??**

OF COURSE IT IS... DON'T LET THAT STOP YOU!

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**A Tactic to Cut I.C.U. Trauma: Get Patients Up**

- NY Times January 11, 2009
- Discusses a "New Approach to Cut trauma from ICU: "Get patients walking" "Tubes and All"

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**OLD IDEAS ------ GOLDEN IDEAS**


"It is our impression that early ambulation, training has been facilitated and hastened, and the problems of prolonged bed and chair rest minimized."


"The therapeutic value of early ambulation has been well documented in our Intensive Care Unit by improved sense of wellbeing and the increased general strength the patient develops from physical activity."

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**REFERRAL THROUGH THE CONTINUUM BARRIER**

- Step down unit / ward
- Inpatient rehabilitation/LTACII
- SNF or Rehabilitation facility
- Home Health
- Outpatient rehabilitation
LEARNING ASSESSMENT QUESTION

Which of the following have been identified as barriers to early mobilization?

A. Sedation practices
B. Vascular access in the femoral area
C. Procedures
D. All of the above

Let us not create barriers with the culture of immobility

Let us be creative and overcome them TOGETHER

THANK YOU