

MOBILIZING PATIENTS ON MECHANICAL VENTILATION

BREAKING DOWN THE BARRIERS

ROHINI CHANDRASHEKAR PT, MS, CCS
HOUSTON, TX


Learning Objectives

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

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Physical Effects of ICUAW

- Profound weakness of respiratory muscles
- Profound weakness of skeletal muscles¹
- Profound loss of independent function
- Leads to: Profound decrease in quality of life in survivors^{2,3}



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PROLONGED EFFECTS

Outcomes observed	Outcomes desired
<p>Financial Burden</p> <ul style="list-style-type: none"> • Hospital Costs • Loss of Income <p>Functional Burden</p> <ul style="list-style-type: none"> • Dependence on people • Dependence on Assistive devices <p>Family and Societal Burden</p> <ul style="list-style-type: none"> • Depression • Fear • Cognitive deficits⁴ 	<ul style="list-style-type: none"> • Decreased ICU days • Early ambulation • Optimal level of function at discharge and post discharge • Optimal reintegration into society

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PROLONGED MECHANICAL VENTILATION


PATIENTS ARE ALIVE BUT ARE THEY LIVING?

COX CE ET AL. EXPECTATIONS AND OUTCOMES OF PROLONGED MECHANICAL VENTILATION. CRITICAL CARE MED 2009;37:1288-2893

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??



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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


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BIGGEST BARRIER : FEAR





OF
"DOING HARM"



Solution
Learn

- that it is safe and feasible ^{5,6}
- you can possibly do more harm if you don't

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LEARN ICU AND PATIENT CONNECTIONS

<p>EQUIPMENT</p> <ul style="list-style-type: none"> • Life support equipment • Monitoring equipment • Tubes and lines • Artificial airways • Oxygen Delivery systems • Reasons for tubes • Reasons for alarms • Parameters to be monitored 	<p>PERSONNEL</p> <ul style="list-style-type: none"> • Physicians • Nurses • Respiratory Therapists • PCA's / Techs • PT • OT <p>FAMILY</p>
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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

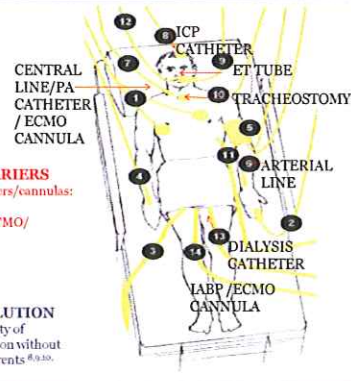
- True barriers
- "Maybe" Barriers
- False Barriers

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CRITICAL THINKING WITH THE CRITICALLY ILL

<p>TRUE BARRIERS</p> <p>PATIENT STATUS</p> <ul style="list-style-type: none"> • Stability: <ul style="list-style-type: none"> ◦ Hemodynamic ◦ Neurological ◦ Orthopedic • Mental status: <ul style="list-style-type: none"> ◦ Sedated ◦ Agitated • Level of cooperation: <ul style="list-style-type: none"> ◦ Agitated / Medicated ◦ Neuromuscular blockade 	<p>SOLUTIONS</p> <ul style="list-style-type: none"> • Discuss parameters which will allow mobilization • Assess daily • PROM • Passive sitting; Neuro/Stretcher chair • Bed mobility • Neuro Muscular Electrical Stimulation (NMES)? <ul style="list-style-type: none"> • Discuss interrupting sedation and coordinate schedules <ul style="list-style-type: none"> • Discuss options and possible withholding depending on patient's agitation level or other causes
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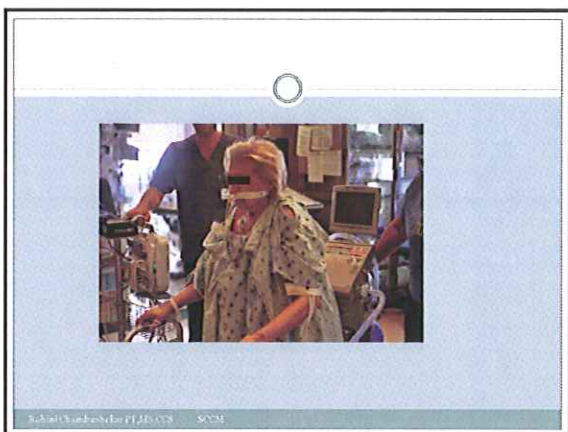


TRUE BARRIERS
Location of catheters/cannulas:

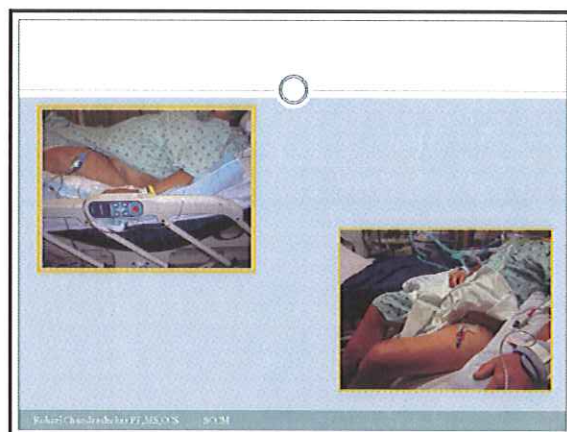
Femoral: IABP/ECMO/
Dialysis
PA catheter
Arterial Line

SOLUTION
? Possibility of mobilization without adverse events ^{8,9,10}.

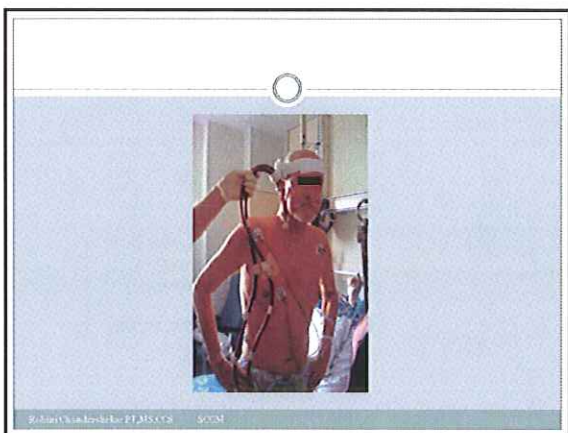
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CRITICAL THINKING WITH THE CRITICALLY ILL

TRUE BARRIERS	SOLUTIONS
<ul style="list-style-type: none"> • Procedures • Pain • Obesity • Acuity of illness: End of life issues • Consent: Living Will Family wishes 	<ul style="list-style-type: none"> • Assess the critical nature of procedure and discuss time frame of resuming mobilization if appropriate • Schedule time appropriately • Adaptive sliding equipment, chairs, extra personnel • Respect. Be Ethical • Respect. Be Ethical

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COMMUNICATION BARRIER

EDUCATION	EDUCATION
<p>• WHO?</p> <ul style="list-style-type: none"> • Patients • Family members • Physicians • Nurses • Respiratory therapists • Students • Other members of multidisciplinary team 	<p>WHAT?</p> <ul style="list-style-type: none"> • Benefits of mobilization • Therapy plans and goals • Exercise program • Skin protection • Fall precautions <p><small>Harris, CL, Shuhall, B. Physical therapy delivers quality improvement to promote early mobility in the ICU Post (Spring) Year Med Crit Care 2013;18(3):209-207</small></p>

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HUMAN RESOURCE BARRIER

“It takes a village”

Consistency and expertise of staff¹¹

Scheduling of personnel

Additional hands “Techs” and “Aides”

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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

○


<ul style="list-style-type: none"> • BED/SITTING • Muscle strength of respiratory muscles • Muscle strength of extremities • Trunk control 	<ul style="list-style-type: none"> • ? Tactile stimuli • ? IMT ¹² • Frequency • Increase repetitions • Challenge them and family 
<ul style="list-style-type: none"> • OUT OF BED/STANDING • Weight bearing status • Weight bearing ability • Weight shifting ability 	<ul style="list-style-type: none"> • Use lifting devices • Start early • Attempt frequently 
<ul style="list-style-type: none"> • FUNCTIONAL TRAINING 	<ul style="list-style-type: none"> • 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!

Fatima SM, Dennis DM et al. Exploring the capacity to ambulate period of prolonged mechanical ventilation Journal of Critical Care (2012)

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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

○

Burns et al. Early ambulation of patients requiring ventilatory assistance. Chest 1975; 68: 608
 “It is our impression that with early ambulation, weaning has been facilitated and hastened, and the problems of prolonged bed and chair rest minimized”

Foss G. A method for augmenting ventilation during ambulation. Phys Ther 1972;52:519.
 “The therapeutic value of this 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”

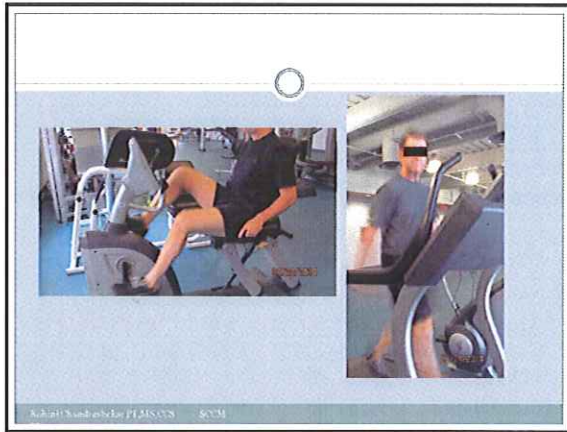
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REFERRAL THROUGH THE CONTINUUM BARRIER

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- Step down unit / ward ¹³
- Inpatient rehabilitation/LTACH
- SNF or Rehabilitation facility
- Home Health ¹⁴
- Outpatient rehabilitation ¹⁵

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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

