Early Mobilization in the ICU
ICU Acquired Weakness

- A syndrome of neuropathy and myopathy
- Routinely seen in critical care
  - Frequent complication often requiring extensive rehabilitation and prolonged hospitalization
- Likely made worse by systemic inflammation, steroids and immobility
- Limited studies on ICU mobility

Early Mobilization in the ICU
Bed Rest/Muscle Weakness

- Worse longer on ventilator
- Muscle wasting
- Decreases functional status
- Decrease in quality of life
- Research has shown that after only 5 days of bed rest, healthy patients developed insulin resistance and microvascular dysfunction
- In another prospective study of 109 patients with ARDS, almost 50% of the patients showed significant physical disability one year after hospital discharge, causing them to be unable to return to work due to persistent fatigue, weakness and poor functional status
Early Ambulation Protocol

- **Admission Criteria:** Three criteria for initiation of activity: neurologic functioning, respiratory status and circulatory status. The patient had to respond to verbal stimulation, have an oxygen requirement of less than 60%, Positive End Expiratory Pressure (PEEP) of less than 10 and could not have any orthostatic hypotension or vasopressors running intravenously.

- All patients were screened within 24 hrs of admission to ICU and treatment began if they met the inclusion criteria.

- The goal was to have each patient ambulate more than 100 feet prior to discharge from the ICU. The level of activity was done in a stepwise approach starting at sitting at the edge of the bed, then to transfer and sit in a chair, and finally ambulate with or without assistance using a walker and/or support from the staff.
Early Ambulation Protocol

- A multi-disciplinary team is used to perform the activity sessions with each patient. The team consists of a physical therapist, a respiratory therapist and a registered nurse assigned to the patient. Activity is progressively increased with each subsequent session which is performed twice daily, if possible. The patient’s activity goals are reevaluated every day to assess how the patient is tolerating the exercise.

- A 30 minute pre and post activity rest period with assist-control ventilation is employed as needed to support early activity. The percentage of oxygen is also increased by 20% before initiation of activity. Ventilator weaning is deferred in preference for activity.
Limitations

- **Staffing/Coordination of time:**
  - Physical therapist part time in ICU
  - One respiratory therapist dedicated to ICU/CCU of 19 beds
  - Nurse/patient ratio 1:2
Safety

• No adverse events in 8 months of practice on a limited number of patients
• No extubations
• No falls/injuries
• No removal of tubes or IV lines
• No increase in length of stay
• No increase in cost
Contact Information

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