Physical Therapy in the ICU among Patients Receiving Prolonged Mechanical Ventilation

Background: Health-related quality of life, especially physical function, is markedly impaired among survivors of prolonged mechanical ventilation (PMV). Recent studies have suggested that physical activity during the ICU stay is safe and feasible, and may lead to improved functional outcomes. However, little is known about utilization of physical therapy (PT) in the ICU setting.

Objective: We sought to determine the proportion of PMV patients receiving PT consultation and evaluation during the ICU stay, and to describe the type of PT performed.

Design: Retrospective chart review of patients who received ≥14 days of mechanical ventilation for acute respiratory failure at an academic county hospital in King County, WA during the year 2005.

Results: There were 176 patients who received PMV in 2005. The primary service was Trauma/Surgery for 80 (46%), Medicine for 62 (35%), and Neurology/Neurosurgery for 34 (19%); mean age was 49 years (SD=18) and most patients were men (65%). Most patients were ambulatory (74%) and independent (68%) before hospital admission. Median ICU stay was 25 days [IQR 20-33].

PT was consulted by day 14 of mechanical ventilation for 77 patients (44%). PT worked with 107 patients before ICU discharge (61%), ranging from 57-61% of Trauma/Surgery and Medicine patients to 73% of Neurology/Neurosurgery patients. Of the patients who received PT in the ICU, passive range of motion was the highest intensity of therapy achieved in 55 patients (51%); only 15 patients achieved sitting at the edge of bed (14%) and none stood or ambulated while in the ICU. Patients who did not progress beyond passive range of motion in the ICU were more sedated (median Ramsay score 4.5, IQR 3-6) than those who achieved a higher intensity of therapy (median Ramsay score 3.5, IQR 3-5), p=0.01.

Thirty-one (18%) patients died before hospital discharge. Most surviving patients were non-ambulatory and required additional institutional care post-hospitalization; only 26 were discharged directly to home (18%).

Conclusions: Our results demonstrate that patients requiring PMV often develop profound functional impairment, yet exposure to physical therapy during critical illness is often late and of low intensity. Potentially reversible factors, such as level of sedation, may be important barriers to the provision of adequate PT to these patients. Further studies are needed to identify and address barriers to early initiation of higher intensity PT in the ICU, and to demonstrate improvement of short and long-term patient outcomes.