Helping Nurses Achieve the Objectives for Early Mobility

Guy Fragala Ph.D., PE, CSP, CSPHP, (guyfragala@comcast.net)

Senior Advisor for Ergonomics, Patient Safety Center of Inquiry, Tampa Florida

Introduction

Instituting a planned, structured ICU early mobility quality improvement project can result in improved outcomes and reduced costs for ICU patients across healthcare systems, (Engel 2013). A financial model was developed using data from existing studies and from the actual implementation of early mobilization in the MICU at Johns Hopkins Hospital. Data from this study of early mobilization in the ICU indicated a 22% reduction in stay with an average of 5.4 days before intervention and 3.9 days post intervention, (Lord et al 2013). Based on an analysis of data from prior publications and the early rehabilitation program in the Johns Hopkins Medical ICU, the report authors developed a conservative model for net financial savings and costs. This analysis demonstrated that most ICUs with between 200 and 2000 annual admissions would generate a net savings of up to 3.76 million dollars by reducing patient ICU length of stays (Lord et al 2013).

Short-Term Adverse Patient Outcomes From Immobility:

- Ventilator-associated pneumonia
- Hospital-acquired pneumonia
- Delayed weaning from mechanical ventilation due to weakness
- Pressure ulcers and other adverse skin conditions

Long-Term Complication From Immobility:

- Diminished quality of life after discharge
- Deterioration of bodily functions with continued immobility
- Due to the physical deconditioning from the patient's stay in the intensive care unit

Barriers to Early Mobilization: MICU clinicians reported knowledge of EM in the ICU. Staffing and clinician time were frequently identified cross-disciplinary barriers. Risk of self-injury and excess work stress were frequently reported RN and PT barriers (Jolley et al 2014).

Previous research has demonstrated the severity of the occupational risk to caregivers when performing tasks related to positioning patients in bed. Manual repositioning patients in bed puts caregivers at high risk for musculoskeletal injuries (Bartnik and Rice, 2013). During repositioning tasks, excessive forces are imposed on the caregiver's musculoskeletal structure due to the external load of the patient and the worker's form and position during the task.

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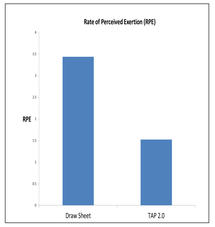
Methods and Results

The validated Borg Scale for Perceived Exertion was used to evaluate caregiver subjective physical exertion required to complete the task of turning and positioning a patient in bed. This instrument uses a 10-point scale ranging from 0=no exertion to 10=extremely hard exertion (Borg, 1982). Reliability and validity of the Borg scale have been previously published (Borg, 1982). Additionally, subjective ratings were deemed appropriate for this study for several reasons. First, prior research found no significant differences in findings using the Borg scale for perceived exertion and the more complicated, time consuming, and labor intensive biomechanical model methods (Owen, Garg & Jensen, 1992). Second, biomechanical models are rarely feasible in actual clinical settings where the primary objective of the setting is to provide care to patients (Owen & Fragala, 1999). Lastly, since a main objective of improving repositioning task safety is to protect caregivers from over-exertion, their personal perception of exertion may provide more useful data than objective assessments. The Borg Scale for Perceived Exertion instrument is frequently used by ergonomists and has been widely accepted in the ergonomics field (Dawes et al, 2005).

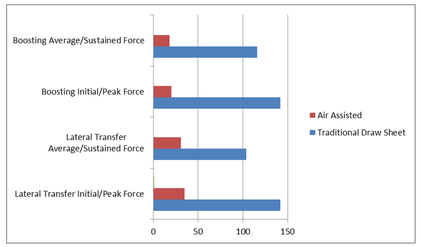
Caregivers reported significantly lower perceived physical exertion was required to perform the turning and positioning task when using the TAP System. Greater physical exertion to the caregiver equates to greater stress on the musculoskeletal structure and increased risk for injury (Owen, Garg &Jensen, 1992). This reduction in perceived physical exertion translates into less force exerted on the musculoskeletal structure and a lower risk of injury to the caregiver.



Additional Results

According to instructions in the Liberty Mutual Guidelines, designing tasks so that requirements will meets specified limits for greater than 75% of the female work population will offer the best protection from injuries. Studies have shown that two-thirds of low back claims from low percentage tasks (tasks capable of being performed by a small percentage of the population) can be prevented if the tasks are designed to accommodate 75% of the female work population

Considering laterally transferring a patient from a stretcher to an OR table the guidelines specify pulling limits both for initial force and for sustained pulling force. According to the guidelines the acceptable limit to pull a patient on a surface of approximately 35 inches high every 30 minutes during a work shift are 55 pounds for initial force and 32 pounds for sustained force over a pull of seven feet. Results of the study conducted indicate the pull forces required when the Air Assist Device are well below these recommended guidelines.



Conclusions

Facilitating early mobility will enhance progressive mobility. Additional solutions will be required to facilitate bed egress and ambulation to achieve the objectives of progressive mobility intended to result in better outcomes for the patient.

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