Feasibility And Safety Of Early Mobility Of The Neurocritical Care Patient With An External Ventricular Device

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Purpose/Hypothesis: Mobility for a patient with an external ventricular device (EVD) in this large university health system’s ICU was previously strict bed rest. Bedrest was identified as a possible detriment to length of stay, progression of functional mobility, patient satisfaction, and prevention of ICU acquired weakness. A multidisciplinary group of neurocritical care (NCC) and neurosurgery physicians, advanced practice practitioners, physical and occupational therapists (PT/OT), and nursing staff collaborated to change this standard of practice. The purpose of this project was to explore the feasibility and safety of early mobilization of NCC patients with an EVD and report the outcomes.

Number of Subjects: For a 9 month period, all patients who had an EVD and physical (PT) and/or occupational (OT) therapy consults were included. Patient diagnoses included subarachnoid hemorrhage (24), brain tumor (9), traumatic brain injury (3), intracranial/intraventricular hemorrhage (4), and cystic lesions (3). A total of 43 patients were included with a mean age of 55±15.9 years (25 males, 18 females).

Materials/Methods: This project was initiated in a 22-bed Neuro ICU. A mobility algorithm was created that was followed during every therapy session. Daily communication occurred between PT/OT and NCC teams to verify patient stability prior to mobilization. Three additional therapists were successfully trained using the newly established algorithm. Documentation standards were used by therapy and nursing to record outcomes.

Results: A total of 133 therapy sessions (111 successful sessions) were completed over 43 patients. Twenty-two sessions could not be completed due to medical stability or availability. Seven of the sessions were aborted due to elevated intracranial pressure (2), dizziness (2),
increased lethargy (1), pain (1), and drain malfunction (1). These patients were safely returned to bed and no further adverse events occurred. Therapy interventions included: bed mobility, sitting/standing balance, transfers, short distance ambulation, therapeutic exercise, and performance of activities of daily living.

**Conclusions**: Through multidisciplinary effort to change the standard of practice at this institution for patients with an EVD, it has been shown that early mobilization in this population is both safe and feasible. Patients successfully completed a variety of therapeutic activities based on their individual ability. There were no instances of EVD dislodgement or sustained medical change secondary to mobility. Future research should assess effects of early mobilization on ICU and hospital length of stay in the EVD population.

**Clinical Relevance**: Patients in critical condition are at a high risk for ICU acquired weakness which has been shown to have implications on recovery months after hospital discharge. Acute care therapists are challenged with preventing these detriments to bedrest. The implementation of this early mobility program for patients with an EVD in the critical care setting, who previously were on bedrest, has been shown to be safe and feasible.