Characteristics of Traumatically-Injured Patients in the ICU That Distinguish Between Those Who Receive an Order for Physical Therapy and Those Who Do Not: A Retrospective Study

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Purpose/Hypothesis: Patients admitted to the intensive care unit (ICU) are at risk for complications secondary to prolonged immobility. These complications result in longer hospital stays, higher healthcare costs, and significant declines in function. Physical therapy (PT) provided in the ICU can be a safe and beneficial means for improving functional status at discharge. This study analyzes the provision and timing of PT orders for patients admitted to the Grady Memorial Hospital ICU. We specifically investigated the patient characteristics that distinguish between patients who receive an order for PT and those who do not.

Number of Subjects: This study analyzed the medical records for all motor vehicle accident (MVA) victims admitted to the ICU at Grady Memorial Hospital between January 2011 and September 2013. The 1677 patients were involved in an automobile accident, motorcycle/ATV crash, or bicycle/pedestrian vs. automobile accident and were identified from the hospital's trauma registry.

Materials/Methods: Data for this analysis were obtained from the trauma registry and electronic medical records. Patients were divided into two groups, i.e., those receiving PT orders and those who did not. The patient groups were contrasted on ratio and nominal variable characteristics using t-tests and Chi-square tests, respectively. To determine the set of characteristics that was most predictive of whether a patient received an order or not, logistic regression analysis was used.

Results: Seventy-three percent of the 1677 patients received a PT order before discharge or death, but only 38% received an order while in the ICU. Patients receiving PT orders were 3 years older on average (p=0.01) while women received more orders than men (p=0.03). Patients receiving PT orders were more often involved in pedestrian versus automobile accidents (p=0.02), and scored on average 6 points higher on the Injury Severity Scale (ISS) (p<0.001). Patients with PT orders generally had higher Glasgow Coma Scale (GCS) ratings (p<0.001). Both ICU and total length of stays were longer for patients with PT orders (p<0.001), who spent, on

average, 6 more days in the hospital. The set of factors determined by logistic regression to be most predictive of a patient receiving a PT order include female gender, a high ISS score, a high GCS score, and involvement in a pedestrian versus automobile accident.

Conclusions: Patients sustaining a more severe injury following a MVA, but with good neurological status, were more likely to receive a PT order. It is unclear why gender and the type of accident were significant predictors. It is not because they were related to the injury severity because the ISS score was also included in the prediction model.

Clinical Relevance: It is important to identify the factors predictive of whether or not traumatically-injured patients receive an order for PT. This knowledge could be useful in educating physicians who write the orders for PT. Patients who might not normally receive a PT order might benefit.