Falls Risk in Patients Diagnosed With Critical Illness Myopathy

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Purpose/Hypothesis: Intensive care unit (ICU) acquired illnesses are becoming more prevalent in the hospital setting. Critical illness myopathy (CIM) is a muscular pathology acquired in the ICU.[1] The financial burden of falls and fall related injuries continues to be an area of concern in CIM. The aim of this study is to assess fall risk using spatio-temporal gait parameters and the modified gait efficacy scale (mGES) in patients diagnosed with CIM prior to discharge from inpatient rehabilitation. We hypothesize that both the spatio-temporal gait parameters and the mGES scores collected from CIM patients prior to discharge will be consistent with scores recorded in individuals with a history of falls.

Number of Subjects: This study is an ongoing study with a cross-sectional study design. Participants are being recruited from the inpatient rehabilitation unit at William-Beaumont Hospital at Royal Oak MI. A total of 30 patients diagnosed with CIM will be recruited to participate in this study. To date 7 patients have been recruited (M=4, F=3, Age=69.3+/6.4 years).

Materials/Methods: All subjects have had a single assessment of 4 gait parameters: gait speed, step length, stance time, and swing time, and the mGES were also administered during this single visit. A follow-up phone call will be made 3 months post discharge in order to administer the mGES for a second time, and record any falls experienced within the past 3 months. All gait parameters were recorded using the wireless gait assessment tool (Wi-GAT)[2] while the subjects walked 3 times over a 10-meter walkway using a self-selected walking speed.

Results: All subjects recorded slower walking speeds compared to age matched normative data. Subjects 1,3,5,6,7 who were in their 60’s had an average walking speed of 0.5+0.17 m/s while previously published normative walking speeds for 60 year old healthy adults were shown to be 1.36 m/s for men and 1.30m/s for women. All subjects also had a longer stance time, shorter swing time and shorter step lengths. The mGES scores recorded were as
follows; S1=86, S2= 49, S3= 53, S4=68,S5=37, S6 =34 and S7=49.

**Conclusions:** All subjects had substantially reduced walking speeds in comparison to the normative walking speeds reported previously for their age groups in healthy aging adults. Slower walking speeds are associated with an increased risk of falls.[3] Although Subject 1 had a slower walking speed, she recorded a mGES score that was slightly greater to the mean scores reported in community dwelling older adults (79.25+19.25),[4] whereas all other subjects had mGES scores well below the normative values, indicating a low level of walking confidence during everyday activities, which has also been associated with increased risk of falls.

**Clinical Relevance:** This is the first study to our knowledge that has reported both the Spatio-temporal gait parameters and walking confidence in patients diagnosed with CIM. If this trend indicative of a greater risk of falls in patients diagnosed with CIM is observed in more patients, this may necessitate the need for a longer in-patient rehabilitation focused on preventing falls.