A Prospective Study of Hand Grip Strength and Outcomes in a Cardiovascular Intensive Care Unit

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BACKGROUND

- Handgrip strength (HGS) is a marker of frailty that is associated with major adverse cardiovascular outcomes.
- The relationship between HGS and outcomes in a cardiovascular intensive care unit (CVICU) setting has not been previously studied.

METHODS

- Between December 2018 and May 2019 HGS was measured on patients admitted to CVICU.
- Patients over the age of 18 and able to perform HGS were included.
- A Lafayette (Lafayette, IN) handgrip dynamometer was used to measure HGS in both dominant and non-dominant hands.
- The primary outcome of interest was readmission to the CVICU.
- Secondary outcomes were hospital length of stay (LOS) and 30-day hospital readmission and in-hospital mortality.
- Mean values were compared using the student t-test and Pearson's r was used to test bivariate correlation.
- The performance of the Charlson co-morbidity index and Oxford Acute Severity of Illness Score (OASIS) was also tested.

Lower Hand Grip Strength is associated with hospital **length of stay** among non-procedural patients.

Hand Grip Strength is **not associated with** either **CVICU or 30-day readmission and mortality.**

RESULTS

- 341 patients underwent HGS assessment.
- The mean age was 69 years, 37.7% were female and 47.2% were African American.
- The mean HGS was 26 kg (± 11 kg), mean albumin was 2.9 mg/dl, mean CCU LOS was 3.8 days and mean hospital LOS was 10.5 days.
- The reason for admission to CVICU was heart failure (33%), acute coronary syndrome (31%) and elective scheduled procedure (30%; commonly TAVR or EP procedure).
- HGS was significantly inversely correlated with hospital LOS ($r = -0.222$; $P = 0.001$).
- The mean LOS was 3 days longer among the lowest quartile (HGS <18 kg; $P = 0.049$). HGS was not associated with either CVICU or 30-day readmission and mortality.
- Following an elective procedure, the OASIS score ($r = 0.426$, $p < 0.001$) and albumin ($r = -0.380$, $p < 0.001$) were better predictors of LOS than HGS.

CONCLUSION

- Hand grip strength provides a simple point of care assessment in the CVICU for determination of patient frailty.
- Lower values are independently associated with hospital length of stay among non-procedural patients.

DISCLOSURE INFORMATION

NONE