Measuring Physical Function of ICU Patients

The Acute Care Index of Function (ACIF) — developed for neurological patients — can be used to measure physical function in ICU patients, according to a study published in the journal *Heart & Lung*. ACIF scores also strongly predict the likelihood of discharge home compared to another facility.

Early mobilisation of ICU patients results in shorter duration of ventilation, better functional outcomes and reduced delirium. Through effective collaboration of nursing, medical and physiotherapy staff, ICU patients are now achieving higher levels of physical function in the acute phase of their illness, including mobilisation whilst still ventilator-dependent.

Although early physical rehabilitation in ICU is of great importance, much of the rehabilitation continues beyond ICU discharge. As clinicians strive to minimise the physical, social and financial burdens of ICU survivorship, there is a need for measurement tools which can reliably and accurately describe physical function across the patient journey.

The current study aimed to establish the inter-rater reliability of the ACIF in a heterogeneous sample of ICU patients, and in the absence of a gold-standard by which to test validity, to describe the relationship between the ACIF and the ICU Mobility Scale (IMS). Bernie Bissett, PhD, Discipline of Physiotherapy, University of Canberra in Australia, and co-authors analysed data from a tertiary ICU with a mixed surgical/medical population, including trauma patients. Data including duration of ventilation, duration of ICU stay, length of hospital stay, and hospital discharge destination for each patient were obtained from hospital databases by research nurses not directly involved in the project.

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A total of 100 patient assessments were included in the study, from 42 unique patients (11 female). Of the 42 patients, 15 were discharged directly home from hospital, 9 died in hospital, and the remainder were discharged to other hospitals for further rehabilitation prior to discharge home. Inter-rater reliability of total ACIF scores was very strong (ICC = 0.94). An ACIF score of <0.40 on ICU discharge predicted hospital discharge to a destination other than home (ie, another hospital, residential care home or death) with a sensitivity of 0.78 (specificity of 0.47).

The results confirm that the excellent inter-rater reliability of the ACIF is not limited to neurological patients but also extends to ICU patients, according to the research team. The ACIF score (ICC = 0.94) also is closely correlated with the IMS (ICC = 0.8).

"Both clinicians and researchers need measurement tools that are readily available, efficient and easy to use, inexpensive and clinimetrically sound. Ideally, a single tool could be used to measure a patient's physical function from ICU admission right through to hospital discharge. This study provides some evidence that the ACIF should be considered in this discussion, in view of its excellent reliability and apparent construct validity in ICU patients, as well as its efficiency and affordability," the authors note.

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