ICU
MANAGEMENT & PRACTICE

Frailty associated with post-ICU disability, death

Among older persons, frailty status prior to intensive care unit (ICU) admission was strongly associated with the subsequent course of post-ICU disability, incident nursing home admission, and death from ICU admission through six months of follow-up, according to new research published online in the journal CHEST. Researchers say pre-ICU frailty status may provide important prognostic information about outcomes after a critical illness.

Frailty, a multidimensional syndrome that confers increased vulnerability to adverse outcomes, is increasingly common with advancing age. The most widely used frailty measure in the literature is the Fried index, which requires an assessment of five criteria: unintentional weight loss, slow gait speed, low physical activity, muscle weakness, and exhaustion. However, because of the inherent difficulty of evaluating frailty retrospectively in the setting of critical illness, less is known about the role of pre-ICU frailty in post-ICU outcomes.

For this new analysis, researchers used data from a unique longitudinal study of elderly patients that includes repeated assessments of frailty and functional status for more than 15 years. The aim was to test the hypothesis that pre-ICU frailty status is significantly associated with three outcomes: post-ICU disability over six months of follow-up, incident nursing home admission, and death from admission through six months of follow-up.

The parent cohort included 754 adults aged ≥ 70 years, who were evaluated monthly for disability in 13 functional activities and every 18 months for frailty (1998-2014). Frailty was assessed using the Fried index, where frailty, prefrailty, and nonfrailty were defined, respectively, as at least three, one or two, and zero criteria (of five). The analytic sample included 391 ICU admissions.

The mean age of study participants was 84.0 years. Frailty and prefrailty were present prior to 213 (54.5%) and 140 (35.8%) of the 391 admissions, respectively. Relative to nonfrailty, frailty was associated with 41% greater disability over the six months following a critical illness (adjusted risk ratio, 1.41; 95% CI, 1.12-1.78); prefrailty conferred 28% greater disability (adjusted risk ratio, 1.28; 95% CI, 1.01-1.63). Frailty (odds ratio, 3.52; 95% CI, 1.23-10.08), but not prefrailty (odds ratio, 2.01; 95% CI, 0.77-5.24), was associated with increased nursing home admission.

Notably, each one-point increase in frailty count (range, 0-5) was associated with double the likelihood of death (hazard ratio, 2.00; 95% CI, 1.33-3.00) through six months of follow-up.

"The current study demonstrates that functional outcomes after a critical illness differ by pre-ICU frailty status, and builds on our prior work, which demonstrated the importance of other pre-ICU factors, such as sensory impairments, in functional outcomes after critical illness," writes Lauren E. Ferrante MD, MHS, Section of Pulmonary, Critical Care, and Sleep Medicine, Department of Internal Medicine, Yale School of Medicine, New Haven, CT, with co-authors.

The findings may help to inform the design of future studies evaluating restorative interventions, such as early mobilisation programmes, that are designed to improve post-ICU functional outcomes among ICU survivors. Trials attempting to improve long-term outcomes after a critical illness have yielded mixed results, prompting discussion about the need to identify subgroups of the ICU population who are at risk for poor outcomes and yet still capable of benefiting from the intervention being tested.

"In future clinical trials of restorative interventions, one might consider stratifying patients by pre-ICU vulnerability factors such as frailty status, rather than by ICU factors, as has been done previously," say Dr. Ferrante and co-authors. "This strategy may help to identify which patients are most likely to benefit from restorative interventions. Researchers could also investigate whether the level and intensity of the restorative programme should be tailored based on pre-ICU vulnerability factors."

Source: CHEST
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