EDITORIAL

Utility of Clinical Frailty Scale in Intensive Care Unit

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Frailty is a clinical syndrome in the geriatric cohort of patients and is often associated with long-term dependency, poor outcomes and increased mortality. Frailty is a clinically recognizable state of increased vulnerability resulting from an aging-associated decline in reserve and function across multiple physiologic systems such that the ability to cope with every day or acute stressors is compromised.¹ Frailty is often associated with sarcopenia, cognitive impairment and dementia, these symptoms are common with old age, but it is important to consider frailty as a separate syndrome. Hallmarks of frailty include slow walking speed, poor grip strength, unintended weight loss, low activity and exhaustion. Frailty is an independent risk factor for short-term mortality, and is also associated with prolonged intensive unit care (ICU) stays and poor quality of life, and dependency post-hospital discharge.² A prospective cohort study demonstrated that frailty is not a static concept and can either increase or decrease on the clinical frailty score (CFS) post-ICU discharge, and rehabilitation plays a significant role in this phenomenon.³

Elderly patients are frequently affected by comorbid illness and can influence healthcare outcomes. There are many methods to assess the impact of comorbid illness and the associated mortality with intercurrent illness. The Charlson comorbidity Index (CCI) is the most extensively studied for predicting mortality and includes 19 comorbid conditions. A combined score of age and comorbidities predicts 10-year mortality a higher score is associated with decreased survival. A retrospective study showed that comorbidities assessed with CCI were associated with poor outcomes in ICU patients, with increased in-hospital mortality.⁴ Another retrospective chart review study was in good agreement with predicted mortality at 30 days and up to 1 year using the CCI in ICU patients.⁵ As compared to frailty scores, comorbidity scores are cumbersome and are not suitable in emergency situations.

Functional autonomy scales are also used in geriatrics to plan rehabilitation following major surgeries in this age-group. Performance scales (PS) are most commonly used among the various scales, especially in patients with cancer. These scores are less precise and are not suitable to evaluate older adults.

The concept of physiological reserve is very important in understanding frailty in ICU patients, it refers to the body's ability to react to a stressor and recover. In a cross-sectional study, it was demonstrated that the cumulative abnormal physiological functions were associated with frailty, which was independent of age and comorbidities.⁶

There are various scoring systems to measure frailty, and the gold standard is comprehensive geriatric assessment (CGA), but this needs a cooperative patient and is not possible to use at ICU admission. The other methods to assess frailty are frailty index

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(FI), Frailty phenotype and CFS. Clinical frailty score is the most commonly used scoring system, and it became a main tool for triage during the COVID-19 pandemic, with modifications (CFS version 2.0).⁷ Clinical frailty score is a well-validated 9-point scoring system designed to holistically assess frailty based on physical activity, cognition, functional status and chronic illness burden. Scores of 1–3 are considered non-frail, 4 to be pre-frail, 5–8 as frail and 9 as terminally ill.

The utility of the frailty score to predict outcomes in ICU has gained popularity recently, especially after the use of CFS in allocating resources during the COVID-19 pandemic. Two prospective studies demonstrated the prevalence of frailty in the ICU to be around 32.8 and 38.6%.^{8,9} The CFS has performed as an independent predictor of mortality, in a recent systematic review, it was demonstrated that frail patients above the age of 65 years are at risk of mortality in hospital, at 1, 3, 6, and 12 months, and at the end of follow-up at 6.7 years.¹⁰ Similar results were demonstrated in a meta-analysis that being frail is an independent risk factor for short-term poor outcomes, and the authors also suggested measuring the full spectrum of CFS rather than grouping into categories as fit (CFS 1-3), vulnerable (CFS 4) and frail (CFS 5-8) for better ICU outcome measurement.¹¹ Another prospective study measured Frailty in patients undergoing elective surgery and showed that frail patients are at an increased risk of postoperative complications and increased length of stay and discharge to an assisted living centre.12

With the above-mentioned studies, it is evident that Frailty is an independent risk factor for poor outcomes following admission to the ICU setting, in the present study, the authors included patients above the age of 50 years, contrary to other studies that included patients above the age of 65 years.¹³ The authors also have demonstrated that frailty (CFS greater than 6) is associated with persistent organ failure and increased in-hospital mortality.

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The respective area under the receiver operative curve (AUC ROC) is 0.75 and 0.73. They demonstrated that an increase in one point on CFS is associated with poor outcomes in terms of persistent organ failure and increased mortality. One of the intriguing points from the study is that the comparative ROC analysis with acute physiology and chronic health evaluation II (APACHE-2) at 48 hours, sequential organ failure assessment (SOFA), CCI and CFS at the time of admission for predicting in-hospital mortality, and the CFS performed best with AUC ROC of 0.73 when compared with other scores AUC ROC of 0.68, 0.64, 0.60 respectively. A similar comparison of ROC for prediction of net negative outcome as described in the study as death or persistent organ dysfunction also suggests that CFS outperforms the other scores with ROC of 0.75 as compared to 0.69, 0.68, 0.64 respectively.

It is evident from the present study as compared with a previous study from India that the prevalence of frail patients in ICU is on the increasing trend and the need of the hour is to prognosticate these patients and offer the patients and family members the care plan and discussion which may include palliative care and end of life care plan for the frail group of patients. Further large-scale studies are required in the area of frailty and critical care to delve into the intricacies of this vulnerable group to improve the outcome and patient and physician-related experience.

TAKE-HOME POINTS

- Frailty is a complex syndrome, and the approach to managing these patients should be multidimensional.
- CFS is a visual scale, reliable and easy-to-perform scoring system that is validated to be used in ICU patients on admission to ICU.
- Experts recommend using the tool consistently to familiarize the ICU with the same tool and to perform reviews over time.
- It is important to note the reference to frailty is 2 weeks before the admission into ICU.
- As with other scoring systems in ICU, CFS score has to be considered together with all the parameters to facilitate decisions about the care plan for the patients, including end-of-life care plan discussion.
- It is very important for ICU physicians to understand frailty and differentiate it from aging and comorbidities and their impact on patient outcomes.

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REFERENCES

- 1. Xue QL. The frailty syndrome: Definition and natural history. Clin Geriatr Med 2011;27(1):1–15. DOI: 10.1016/j.cger.2010.08.009.
- Jung C, Guidet B, Flaatten H. Frailty in intensive care medicine must be measured, interpreted and taken into account!. Intensive Care Med2023;49(1):87–90. DOI: 10.1007/s00134-022-06887-8.
- Geense W, Zegers M, Dieperink P, Vermeulen H, van der Hoeven J, van den Boogaard M. Changes in frailty among ICU survivors and associated factors: Results of a one-year prospective cohort study using the Dutch Clinical Frailty Scale. J Crit Care 2020;55:184–193. DOI: 10.1016/j.jcrc.2019.10.016.
- 4. Zampieri FG, Colombari F. The impact of performance status and comorbidities on the short-term prognosis of very elderly patients admitted to the ICU. BMC Anesthesiol 2014;22:14:59. DOI: 10.1186/1471-2253-14-59.
- 5. Stavem K, Hoel H, Skjaker SA, Haagensen R. Charlson comorbidity index derived from chart review or administrative data: Agreement and prediction of mortality in intensive care patients. Clin Epidemiol 2017;9:311–320. DOI: 10.2147/CLEP.S133624.
- Fried LP, Xue QL, Cappola AR, Ferrucci L, Chaves P, Varadhan R, et al. Nonlinear multisystem physiological dysregulation associated with frailty in older women: Implications for etiology and treatment. J Gerontol A Biol Sci Med Sci 2009;64(10):1049–1057. DOI: 10.1093/ gerona/glp076.
- Rockwood K, Theou O. Using the clinical frailty scale in allocating scarce health care resources. Can Geriatr J 2020;23(3):210–215. DOI: 10.5770/cgj.23.463.
- Bagshaw SM, Stelfox HT, McDermid RC, Rolfson DB, Tsuyuki RT, Baig N, et al. Association between frailty and short- and long-term outcomes among critically ill patients: A multicentre prospective cohort study. CMAJ 2014;186(2):E95–E102. DOI: 10.1503/cmaj.130639.
- Kalaiselvan MS, Yadav A, Kaur R, Menon A, Wasnik S. Prevalence of frailty in ICU and its impact on patients' outcomes. Indian J Crit Care Med 2023;27(5):335–341. DOI: 10.5005/jp-journals-10071-24456.
- Falk Erhag H, Guðnadóttir G, Alfredsson J, Cederholm T, Ekerstad N, Religa D, et al. The association between the clinical frailty scale and adverse health outcomes in older adults in acute clinical settings-A systematic review of the literature. Clin Interv Aging 2023;18:249–261. DOI: 10.2147/CIA.S388160.
- Bruno RR, Wernly B, Bagshaw SM, van den Boogaard M, Darvall JN, De Geer L, et al. The clinical frailty scale for mortality prediction of old acutely admitted intensive care patients: A meta-analysis of individual patient-level data. Ann Intensive Care 2023;13(1):37. DOI: 10.1186/s13613-023-01132-x.
- Makary MA, Segev DL, Pronovost PJ, Syin D, Bandeen-Roche K, Patel P, et al. Frailty as a predictor of surgical outcomes in older patients. J Am Coll Surg 2010210(6):901–908. DOI: 10.1016/j.jamcollsurg.2010.01.028.
- 13. Saxena S, Gupta P, Panwar P, Jain A, Jain SS, Jain R, et al. Impact of the clinical frailty score on outcomes of critically ill patients in a tertiary care ICU. Indian J Crit Care Med 2025;29(4):320–326.

