NIHR | Policy Research Unit Older People and Frailty

Covid-19

The use of the Clinical Frailty Scale in intensive and critical care settings

Briefing Paper

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Problem

As cases of COVID-19 increase daily, clinicians require decision making tools to assess which patient might benefit most from ventilation in intensive and critical care. New guidance published by the National Institute for Health and Care Excellence (27th March 2020) advises clinicians to use the Clinical Frailty Scale (CFS) as part of a holistic assessment to guide decisions around referral to critical care for those aged over 65, but not those under 65 years. At present, there is little evidence about whether the CFS is valid for identifying frailty in younger populations.

Approach

We drew upon existing and recent searches that were undertaken for a rapid review of evidence about identifying frailty in younger populations (March 2020). We searched within these records to identify any relevant literature about the use of the CFS in intensive and critical care settings, or as a tool to aid decision making for critical care, for those aged under 65 years.

Findings

We identified no evidence within these existing searches about the use of the CFS as a decision-making tool for referral to critical care for under 65 populations. However, nine studies and one systematic review were identified that explored the use, reliability and validity of the CFS in intensive care and critical care settings.[1-10] Of these, eight (7 primary studies, one systematic review) used samples that included those aged under 65 years.[1-3,5,7-10] Table 1 summarises the details of these studies and systematic review.

Systematic review

A systematic review by Pugh and colleagues (2019) synthesised evidence about the feasibility and reliability of frailty assessment measures in critical care, for populations aged over 16 years.[8] This review found that the CFS was most widely used among clinicians in critical care, but that there was limited evidence about its reliability in this setting. There was no indication of whether reliability varied according to the age of the sample.

Primary studies

Across the sevens studies that included participants aged less than 65 years, the prevalence of frailty within the sample, using the CFS, ranged between 13% and 35.8%. The CFS predicted ICU/hospital or post-discharge death in 4/7 studies,[1,3,5,9] but not in two other studies.[2,10] The study by Tipping and colleagues (2019) found that the Frailty Phenotype identified frailty in more patients than the CFS.[10]

Limitations

The evidence summarised here is not based on comprehensive searches specifically about the use of the CFS in intensive and critical care settings. The Pugh (2019) review is likely to offer the most up to date overview of evidence about the use and reliability of the CFS in critical care. Although we report an overview of evidence about the CFS's association with, and prediction of, mortality outcomes, we have not reported effect size nor commented on whether such effect sizes are of clinical value.

Conclusions

Based on studies identified from an existing search on a related topic, there was limited evidence identified about the use of the CFS in intensive and critical care settings. A recent systematic review indicates there is limited reliability for the use of the CFS in intensive care settings, although it is not clear if and how this varies according to patient age. A dedicated rapid review with focused searches may highlight other evidence not contained within the existing set of searches that we drew upon for this summary.

Table 1. Summary of studies

Study	Setting	Population	Aim of study/review	Summary of findings
Fernando 2019 https://dx.doi.org/10.1007/s00134-019-05795-8	Intensive Care Unit	>18+ years using mechanical ventilation **N=8,110**	To examine association between frailty (using CFS) and outcomes for ICU patients using mechanical ventilation	Using the CFS, 31.2% were frail. Frailty was associated with increased odds of death, extubation failure, death following extubation failure, tracheostomy, and death following tracheostomy.
Fisher 2015 https://www.ncbi.nlm.nih.gov/pubmed/25943611	Intensive Care Unit	Mean age: 60 (SD: 17.4) **N=205**	To investigate the validity of the CFS in intensive care	Using the CFS, 13% of patients were classed as frail. CFS score was not associated with ICU or hospital mortality, but was associated with increased (log) hospital length-of-stay.
Hope 2017 https://dx.doi.org/10.1513/AnnalsATS.201607-538OC	Intensive Care Unit	18+ years **N=95**	To assess validity of the CFS in intensive care	The CFS identified 35.8% as frail. A frailty phenotype assessment performed similarly to the CFS in predicting mortality. A higher CFS score was associated with increased odds of post-discharge death.
Kovacs 2017 https://dx.doi.org/10.4097/kjae.2017.70.2.157	Pre and post cardiac surgery	65+ years **N=25**	To compare prognostic value of two frailty scales (Clinical Frailty Scale and Edmonton Frailty Scale) in cardiac surgery	Both scales had low predictability for post surgery complications. Both scales showed good predictability for length of mechanical ventilation post surgery.
Montgomery 2019 https://dx.doi.org/10.1007/s12630-019-01414-8	Intensive Care Units	Mean age 58 (SD: 17) **N=15,238**	To describe prevalence and outcomes of frailty in ICU	Assessed using the CFS, 28% of patients were classed as frail. Frail patients received less mechanical ventilation and vasoactive therapy, but more non-invasive ventilation. Frail patients had a higher risk of hospital mortality and longer ICU stays.
Muessig 2018 DOI: 10.1186/s12877-018-0847-7	Intensive Care Units	80+ years **N=308**	To investigate whether the CFS can be used for risk stratification in those admitted to ICUs.	Half of the sample were classed as frail using the CFS. Increased CFS score independently predicted ICU 30 day mortality.
Pugh 2019 https://dx.doi.org/10.1111/anae.14596	Critical care	60-80 years **N=101**	To assess the inter-rater reliability of the CFS in critical care patients	Using the CFS, 35% were classed as frail. There was a good level of agreement between assessors using the CFS.
Shears 2018 https://dx.doi.org/10.1016/j.jcrc.2018.02.004	Intensive Care Unit	18+ years **N=150**	To describe pre-ICU frailty using the CFS	Using the CFS, 32% of those aged <65 years were classed as frail. Higher CFS score was weakly associated with increased odds of ICU and hospital mortality.
Tipping 2019 DOI: 10.1093/ptj/pzz057	Intensive Care Unit	>50 years **N=100**	To compare two frailty instruments (Frailty Phenotype and CFS) in their validity and clinical applicability in a critically ill population	FP identified frailty in more patients (22%) than the CFS (13%), and predicted ICU and hospital mortality. The CFS predicted hospital mortality.
Systematic Review:				
Pugh 2018 https://dx.doi.org/10.1186/s13054-018-1953-9	Critical care	16+ years **Number of included studies: 11**	Systematic review: to evaluate evidence for the feasibility and reliability of frailty assessment in critical care	The CFS was the most widely used frailty tool by critical care staff but there was limited evidence about its reliability in this setting.

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Please contact the NIHR Older People and Frailty PRU for assistance.

Email: pru-manager@manchester.ac.uk

Telephone: 0161 306 7862

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MANCHESTER 1824
The University of Manchester

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