

## **Frailty in the ICU – what are we doing with all this information?**

Akshay Shah<sup>1</sup>, Owen Gustafson<sup>2,3</sup>, Claire Swarbrick<sup>4</sup>, Elizabeth King<sup>2,3</sup>, Kunal Shah<sup>5</sup>

1. Nuffield Department of Clinical Neurosciences, University of Oxford, Oxford, UK
2. Centre for Movement, Occupational and Rehabilitation Sciences, Faculty of Health and Life Sciences, Oxford Brookes University, Oxford UK
3. Oxford Allied Health Professions Research & Innovation Unit, Oxford University Hospitals NHS Foundation Trust, OX3 9DU, Oxford, UK
4. Department of Anaesthesia, Royal Devon and Exeter Hospital, Exeter, UK
5. Acute General Medicine, Oxford University Hospitals NHS Foundation Trust, Oxford, UK

### **Corresponding author:**

Dr Akshay Shah, akshay.shah@linacre.ox.ac.uk

**Total word count:** 499

**References:** 6

We read with interest the recent study by Darvall et al. evaluating the impact of frailty on critical illness.<sup>1</sup> We would like to raise a few points in relation to this study.

Firstly, Darvall et al. used the Clinical Frailty Scale (CFS) – the most widely used frailty measure in ICU studies. This information was collected by clinical data collectors, but no further information is provided on their specific clinical backgrounds. This is an important consideration regarding the psychometric properties of the CFS. Assessors from a similar professional background have a high inter-rater agreement when assessing frailty<sup>2</sup> but there may be subtle differences across different professionals. One study demonstrated that physician assessors rate frailty significantly higher than assessors from nursing and physiotherapy backgrounds.<sup>3</sup>

Secondly, the CFS is validated for use in people aged 65 years or older. A recent review found that the CFS did not demonstrate any predictive validity for mortality in people <60 years.<sup>4</sup> Darvall et al. included all patients aged >16 years in their study. The median age in the CFS 1-2 group was lower when compared with the other CFS groups, but this is not new as the authors highlight in their paper. An analysis of prediction, stratified by age group, could be informative for determining whether the ability of CFS to predict persistent critical illness is consistent between younger and older age groups (or not).

Thirdly, we would argue that frailty appears to predict the overall chance of dying from day 1, rather than an increased risk of developing persistent critical illness as the increasing graph gradients of the stratified CFS groups appear to be roughly the same (Figure 2 of the manuscript). It is the patients in the high CFS categories that start at a higher baseline risk, which is expected, as they are older and more likely to be admitted with high APACHEIII scores, sepsis and non-elective surgery as demonstrated in Table 1.

Fourthly, we acknowledge the authors' limitation of not being able to assess frailty status on triage to ICU and this remains an active area of research. It is entirely plausible that patients with high frailty scores may not get admitted to ICU or have treatment limitations in ICU. Future studies should also aim to account for pre-admission socioeconomic status given the well-established association between low socioeconomic status and frailty.<sup>5</sup>

Lastly, what do we do with the information from the increasing amount of frailty research in critically ill patients? This information will only bring value if it: (i) advances our knowledge; (ii) improves the quality of information provided to patients and their carers as they make treatment choices (e.g. on limitations of care), or; (iii) changes how we deliver care. The latter may be addressed by designing effective interventions to improve patient-centered outcomes in frail, critically ill patients. There is evidence from randomized trials that a Comprehensive Geriatric Assessment may reduce mortality, length of stay and hospital costs in frail patients with hip fracture,<sup>6</sup> but there are no comparable data in critical illness.

## Conflicts of interest

The authors declare that they have no competing interests.

1. Darvall JN, Bellomo R, Bailey M, Young PJ, Rockwood K, Pilcher D (2022) Impact of frailty on persistent critical illness: a population-based cohort study. *Intensive Care Med* 48: 343-51
2. Flaaten H, Guidet B, Andersen HF, et al (2021) Reliability of the Clinical Frailty Scale in very elderly ICU patients: a prospective European study. *Annals of Intensive Care* 11: 22
3. Pugh RJ, Battle CE, Thorpe C, et al (2019) Reliability of frailty assessment in the critically ill: a multicentre prospective observational study. *Anaesthesia* 74: 758-64
4. Spiers GF, Kunonga TP, Hall A, et al (2021) Measuring frailty in younger populations: a rapid review of evidence. *BMJ Open* 11: e047051
5. Hoogendijk EO, Heymans MW, Deeg DJH, Huisman M (2018) Socioeconomic Inequalities in Frailty among Older Adults: Results from a 10-Year Longitudinal Study in the Netherlands. *Gerontology* 64: 157-64
6. Eamer G, Taheri A, Chen SS, Daviduck Q, Chambers T, Shi X, et al (2018) Comprehensive geriatric assessment for older people admitted to a surgical service. *Cochrane Database Syst Rev* 1: CD012485.