Critical Care

CORRESPONDENCE

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Improving frailty assessment: the task is not finished

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Dear Editor,

We would like to express our sincere gratitude for the thoughtful comments made by Cheung et al. in their response to our letter [1]. We evaluated the distribution and prognostic relevance of previously proposed surrogate parameters for frailty, Clinical Frailty Scale (CFS) [2–4] and the FRAIL checklist [5], in our database and found that in the univariate analysis, both were associated with 90-day mortality. However, after multivariable adjustment for age, gender, SOFA score, and the presence of therapy goal limitations, only the CFS, but not the FRAIL checklist, was still associated with mortality. We concluded that the CFS has added value compared to the FRAIL checklist. Cheung et al. pointed out that the rate of patients with CFS > 4 was higher than those with FRAIL > 0. We agree with Cheung et al.'s assessment that the items of the FRAIL checklist are less concrete than the pictograms of the CFS, and this could be a reason for this discrepancy. Furthermore, Cheung et al. correctly noted that the FRAIL checklist was primarily designed to evaluate patients concerning a modern form of therapy goal limitations, specifically time-limited trials (TLTs). Based on these considerations, Cheung et al. suggested 1) modifying FRAIL and automatically rating the "F" component as "positive" in patients with CFS > 4 in the data analysis which represents post-processing of the data obtained and 2) comparing the rates of TLTs in patients with CFS > 4 and FRAIL > 0. We 1) modified FRAIL according to the proposal, reclassifying 11 patients. These modified-FRAIL > 0 patients again showed excess mortality in the univariate analysis (HR 1.52 95% CI 1.07–2.16; $p = 0.02$). After adjusting for age, gender, SOFA score, and the decision to withdraw/withhold treatment, the modified-FRAIL > 0 was no longer associated with 90-day mortality (aHR 1.15 95% CI 0.80–1.62; $p = 0.45$), confirming previous data and in contrast to a robust multivariable association of CFS > 4 (aHR 1.80 95% CI 1.29–2.53; $p = 0.001$) with mortality. We cannot directly compare the frequency of TLTs since these data were not collected. Of note, the decision to withdraw/withhold treatment in patients with CFS > 4, FRAIL > 0, and modified-FRAIL > 0 was exactly 36% in all three groups.

We summarise that both the CFS and FRAIL are associated with the frequency of withholding treatment, but only the CFS is independently associated with mortality. However, we recognise that the FRAIL checklist attempts to integrate pre-existing conditions and hospitalisations

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with functional impairment and believe that it is possible that such an approach could further improve frailty assessment.

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All authors revised the manuscript and approved the final version and were involved in designing the study as well as in data collection, analysis and manuscript drafting. All authors read and approved the final manuscript.

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Availability of data and materials
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Declarations

Ethics approval and consent to participate
Ethics approval for the observational studies was granted by Board at the University Hospital Duesseldorf as described earlier in this journal [3]. That included permission to access data. Then, each participating country had a national coordinator responsible for national or regional ethical and regulatory study approval. Informed consent was obtained if not waived by the local ethical approval. The research was carried out in accordance with the principles of the Declaration of Helsinki.

Consent for publication
Not applicable.

Competing interests
None.

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References

1. Wernly B, Flaatten H, Leaver S, Guidet B, Jung C, COVIP investigators. The clinical frailty scale, but not the FRAIL checklist is associated with mortality in old critically ill patients with COVID-19. Crit Care. 2023;27:101.
2. Jung C, Guidet B, Flaatten H, VIP study group. Frailty in intensive care medicine must be measured, interpreted and taken into account! Intensive Care Med. 2022;1–4.
3. Jung C, Flaatten H, Fjølner J, Bruno RR, Wernly B, Artigas A, et al. The impact of frailty on survival in elderly intensive care patients with COVID-19: the COVIP study. Crit Care. 2021;25:149.
4. Flaatten H, Guidet B, Andersen FH, Artigas A, Cecconi M, Boumendil A, et al. Reliability of the clinical frailty scale in very elderly ICU patients: a prospective European study. Ann Intensive Care. 2021;11:22.
5. Cheung EH-L, Cheung JC-H, Yip Y-Y. Raising awareness for time-limited trial discussion upon ICU triage and admission. Intensive Care Med. 2022;48:240–1.

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