CORRESPONDENCE

Frailty assessment in very old intensive care patients: the Hospital Frailty Risk Score answers another question

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Dear Editor,

We read with great interest the recently published letter by Redfern et al. [1] commenting on our article on frailty in *Intensive Care Medicine* [2]. Redfern et al. performed a retrospective analysis in 31,812 patients (aged 75 years and older) and showed that the Hospital Frailty Risk Score (HFRS) reflects well the probability of unplanned intensive care unit (ICU) admission. Briefly, the HFRS estimates a patient's frailty on the basis of electronically available data on chronic ICD-10 diagnoses assigned to the patient [3].

In contrast, the Clinical Frailty Scale (CFS) used in Guidet et al. [2] is based on a different concept. The WHO defines frailty as a clinically identifiable condition in which the ability of older people to cope with everyday and acute stressors is reduced [4]. The main reason for this reduced physiological functional reserve depends not only on age and diagnoses, but also on genetics, epigenetics, and environmental—even social—factors. These different factors lead, via cumulative molecular and cellular damage, to the reduced physiological reserve that can affect all organ systems. Therefore, the assessment of frailty should incorporate this multidimensional concept of “intrinsic capacity”.

Nowadays, two key aspects characterize triage in daily intensive care medicine. First, decision-making in this setting is often time-critical. Second, in these times of limited ICU capacities, this decision-making can decide

the survival or death of a patient and must therefore be based on the best available knowledge.

With regard to the first aspect, the CFS can be administered very quickly and by health care providers of different professional backgrounds without loss of reliability. The CFS showed very good interrater agreement and very little missing information, suggesting that this tool is reliable and easy to use [2].

In contrast, the HFRS relies on patient records, which are prone to be incomplete or possibly incorrect. ICD codes cannot reflect disease severity; they are normally used for reimbursement purposes.

The result of the assessment should help to predict the patient's clinical course. Redfern et al. confirmed previously published studies showing that the HFRS does not predict mortality in critically ill patients [5]. On the contrary, the CFS has been shown to estimate intra-hospital survival [2]. Of course, the information provided by the HFRS on the likelihood of ICU readmission is of some importance. Still, its ability to provide this information is not surprising given that counting ICD codes correlates with the overall grade of morbidity, which can be considered a sub-dimension of frailty. Thus, compared with the CFS, the HFRS captures a different—smaller—dimension of frailty.

Triage decisions in intensive care medicine must be quick and reliable. Ideally, we assess our patients in multiple dimensions. Frailty research is still in its infancy, but the CFS seems to be a rapid and multidimensional tool. The HFRS, on the other hand, is less accurate and prone to errors as it answers another question.

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Compliance with ethical standards

Conflicts of interest

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References

1. Redfern OC, Harford M, Gerry S, Prytherch D, Watkinson PJ (2020) Frailty and unplanned admissions to the intensive care unit: a retrospective cohort study in the UK. *Intensive Care Med*. <https://doi.org/10.1007/s00134-020-06020-7>
2. Guidet B, de Lange DW, Boumendil A, Leaver S, Watson X, Boulanger C, Szczekliak W, Artigas A, Morandi A, Andersen F, Zafeiridis T, Jung C, Moreno R, Walther S, Oeyen S, Schefold JC, Cecconi M, Marsh B, Joannidis M, Nal-apko Y, Elhadi M, Fjolner J, Flaatten H, Group VIPs (2020) The contribution of frailty, cognition, activity of daily life and comorbidities on outcome in acutely admitted patients over 80 years in European ICUs: the VIP2 study. *Intensive Care Med* 46:57–69
3. Gilbert T, Neuburger J, Kraindler J, Keeble E, Smith P, Ariti C, Arora S, Street A, Parker S, Roberts HC, Bardsley M, Conroy S (2018) Development and validation of a hospital frailty risk score focusing on older people in acute care settings using electronic hospital records: an observational study. *Lancet* 391:1775–1782
4. Clegg A, Young J, Iliffe S, Rikkert MO, Rockwood K (2013) Frailty in elderly people. *Lancet* 381:752–762
5. Bruno RR, Wernly B, Flaatten H, Scholzel F, Kelm M, Jung C (2019) The hospital frailty risk score is of limited value in intensive care unit patients. *Crit Care* 23:239