Editorial

Should we resuscitate the frail?

What is frailty?

Frailty has the potential to become one of the world's most serious health issues with an incidence of approximately 43 new cases per 1000 person-years.[1] There is no global Gold Standard or universal definition, but the key feature of frailty is an increased vulnerability to external stressors such as acute illness. Frailty is linked to aging but progresses at different rates in different people. It is caused by a complex concurrent aetiology likely including malnutrition, sarcopenia, and inflammation resulting in symptoms such as self-reported exhaustion and slow walking speed.[2] Frailty can be assessed with several more or less complicated scales.[3]

Should frailty, instead of age or comorbidities, impact clinical decision-making?

A recent study found an association between patients assessed as frail and a very low (1.8%) survival to hospital discharge after an in-hospital cardiac arrest (IHCA).[4] Within Wharton et al.'s study[4] frailty was assessed with the Clinical Frailty Scale (CFS),[2] a well validated and clinically user-friendly scale assessing functional aspects of the patient's everyday life such as the need for help with house work and climbing stairs. The article is novel since most previous articles focus on, frailty-related but not synonymous factors, such as age or comorbidities. More and more research on both prehospital and in-hospital cardiac arrest reveal that increasing age is associated with decreased survival, but age alone should not exclude patients from resuscitation since some subgroups in octogenarians and non-agenarians have survival ratios over 40%.[5–7] Further, neurological outcomes are similar in elderly and younger patients even though cardiac arrest in the elderly includes disadvantageous prerequisites such as more comorbidities, less often ECG-monitored and less often shockable initial rhythm.[5,7] Regarding comorbidities, increasing numbers are associated with decreasing survival but common tools such as the Charlson Comorbidity Index[8] score diagnosis only dichotomously, while the severity of disease burden might matter as well. Further, it seems that awareness of comorbidities impacts the choice of intervention resulting in associated to higher survival after a cardiac arrest. For example, a diagnosis of cancer has been found to be associated with less likelihood of receiving Percutaneous Coronary Intervention as well as Targeted Temperature Management.[9] Therefore, since discussions about limitation of therapy and futility

after cardiac arrest are controversial in elderly and comorbid patients the use of a frailty scale considering everyday life might be more clinically appealing than just counting comorbidities or years.

Should we screen for frailty?

Interestingly, within the cohort in Wharton et al.'s study one third of the patients was assessed as at least moderately frail, i.e. people needing help with all outdoor activities as well as having problems with indoor stairs and needing minor assistance with dressing. Among the frail third, return of spontaneous circulation (ROSC) was achieved in every third patient but only one survived to discharge and the median time from ROSC to death was 1 day, i.e. quite early after a cardiac arrest[10] and before neuroprognostication should have occurred.[11] Causes of deaths are not presented but in the context of in-hospital deaths, one must bear in mind that most patients suffering cardiac arrest in hospital do not undergo CPR due to pre-existing orders of Do-Not-Attempt-Resuscitation (DNAR). Today, little is known of how common DNAR orders are, but factors associated with patients having DNARs closely align to factors common in frail patients, i.e. older age, malignancy, and higher Charlson Comorbidity Index scores.[12] The portion of frail patients and early deaths in Wharton et al.'s study likely reflect current clinical practice and a good such characterised by active continuous decision-making. Still, these features raise questions for future clinical practice as well as for research, i.e. should we apply DNAR orders earlier on and should studies on IHCA report changes in pre- and post-arrest functional status rather than only post arrest status? In this context a globally accepted method for assessing and identifying people at risk for adverse outcomes would be helpful, and routinely screening for frailty among hospitalised patients might therefore be appealing.[3]

Are earlier DNAR orders a realistic option?

Clinicians issue DNAR orders when it is the expressed wish of the patient not to receive CPR, or when CPR is considered medically futile; that is when the chances of good quality survival are minimal. However, it is difficult for medical personnel to accurately predict outcome after cardiac arrest[13] and evidence based tools for decision-making around DNAR are sparse. Our research group have therefore just launched an online calculator ruling-in patients with very low likelihood of surviving an IHCA,[14] unfortunately we missed to include

frailty in the Prediction of outcome for In-hospital cardiac arrest (PIHCA) score since frailty assessment is not part of regular clinical practice today. Further, its calculator need to pass external validation but might be an objective tool for clinicians to use as a means for when to initiate an ethical discussion with the patient.

Does frailty fluctuate during acute illness?

An important aspect of decision-making around IHCA is that the patient is already admitted to the hospital for a reason, i.e. elective or acute care. At current, it is unknown how reliable our assessment of frailty as a predictor for outcome is during different phases of an acute stressor such as elective surgery or acute illness. It is well-known that IHCAs are not sudden and avoidable, can be predicted at least in subgroups[15,16] and have preceding deranged vital signs affecting outcome.[17] There are no studies assessing how these preceding warning signs such as deranged vital signs impacts our assessment of frailty, i.e. clinicians having a severely ill patient in front of them might have a hard time picturing the patient in her home environment without the acute illness. However, implementation of a national standard for deteriorating patients has been associated with a reduction in the rates of IHCA with the greatest benefit seen in the patients likely to be at risk of being frail i.e. elderly, female and surgical patients.[1,18] Therefore, if our current practice is part of the causal pathway of IHCA, it might be our responsibility to first of all practice better but until then we might have to deal with the consequences of current practice.

So, should we resuscitate the frail?

Clinicians can generally recognise frailty when they see it in their patients, but the absence of clear definitions and diagnostic criteria limits their certainty in classification of frailty status.[19] However, even if reliable diagnostic tools existed it is unlikely that a single scale or calculator can replace the clinician's assessment of the complete picture of the patient, weighing the ethical principles of autonomy, beneficence, non-maleficence and justice. Yet, clinicians could need a little help from scientific objective tools such as scales in order to initiate and better facilitate ethical discussions with patients and relatives. Routinely implementing frailty scales that increase clinician's knowledge and awareness of risk of adverse outcomes might be a simple straight-forward option. Frail or not, one of a hospital's highest priorities regarding IHCA should be to prevent IHCA through evidence-supported and patient-centred DNAR orders and getting deranged vital signs in range.

Conflict of interest statement

None.

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