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Rationing care by frailty during the COVID-19 pandemic

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Abstract

The coronavirus (COVID-19) pandemic is disproportionately affecting older people and those with underlying comorbidities. Guidelines are needed to help clinicians make decisions regarding appropriate use of limited NHS critical care resources. In response to the pandemic, the National Institute for Health and Care Excellence published guidance that employs the Clinical Frailty Scale (CFS) in a decision-making flowchart to assist clinicians in assessing older individuals' suitability for critical care. This commentary raises some important limitations to this use of the CFS and cautions against the potential for unintended impacts.

The COVID-19 pandemic has allowed the widespread implementation of the CFS with limited training or expert oversight. The CFS is primarily being used to assess older individuals' risk of adverse outcome in critical care, and to ration access to care on this basis. While some form of resource allocation strategy is necessary for emergencies, the implementation of this guideline in the absence of significant pressure on resources may reduce the likelihood of older people with frailty, who wish to be considered for critical care, being appropriately considered, and has the potential to reinforce the socio-economic gradient in health.

Our incomplete understanding of this novel disease means that there is a need for research investigating the short-term predictive abilities of the CFS on critical care outcomes in COVID-19. Additionally, a review of the impact of stratifying older people by CFS score, as

a rationing strategy is necessary in order to assess its acceptability to older people as well its potential for disparate impacts.

Key points

- The Clinical Frailty Scale (CFS) is being used to assess older COVID-19 patients' risk of adverse outcome in critical care.
- Using frailty primarily to quantify risk and ration access to care could reinforce the socio-economic gradient in health.
- Research is needed to investigate how helpful the CFS is for predicting critical care outcomes in COVID-19.
- Geriatric input early in the hospital admission of older people with COVID-19 could ensure better holistic assessments.

Key words: Frailty, COVID-19, Clinical frailty scale, Critical care, Decision-making

Since the emergence of the novel coronavirus in Wuhan China in December 2019, it has become apparent that older people are at an increased risk of death from COVID-19 [1]. Underlying medical conditions that are more prevalent with increasing age, such as hypertension and cardiovascular disease also increase the risk of death from the virus [2]. It is understandable that frailty, which increases with ageing, and is closely related to multimorbidity, has been employed in clinical decision-making during this pandemic.

In this context, frailty provides a means of estimating an individual's physiological ageing and reserve to withstand and survive acute "stressor events", such as a viral infection. However, the concept of frailty has long been used by geriatric medicine as an important means of promoting older people's holistic care through the comprehensive geriatric assessment (CGA) [3]. There is robust evidence that this individualised care, delivered by an expert multidisciplinary team improves outcomes for older people admitted to hospital with acute medical problems, significantly improving the likelihood of survival, and reducing the need for institutionalisation [4].

Frailty's original conceptualisation was John Brocklehurst's dynamic "balance beam"; where the older person was acknowledged to have capacities for resilience that were balanced over time to a greater or lesser degree, against their deficits [3]. Over recent years the emphasis has been increasingly on quantifying and comparing individuals' "deficits" [3]. "Deficits" are defined by Rockwood et al. as health-related signs, symptoms, disabilities or diagnoses, that according to the author's frailty index, can be counted to estimate an individual's frailty level [5]. Frailty by this measure has been applied widely throughout primary care in the UK using routinely collected patient data. Another example of the more technical approach to frailty assessment is the popular Clinical Frailty Scale (CFS), validated against the Canadian Study of Health and Ageing frailty index [5]. This pictorial scale with corresponding vignettes allows an individual to be categorised on a scale between "fit" and "very severely frail", producing a quick means of estimating an individual's risk of death or institutionalisation [5]. When devised in 2005, the authors cautioned that the judgment-based CFS might be better utilised by clinicians with experience in the care of older people, and concluded that its application for clinical practice remained unclear [5].

Is frailty, by CFS a helpful predictor of adverse outcomes in COVID-19?

Emerging research shows that frailty could be helpful in predicting short-term adverse outcomes in patients admitted with COVID-19 [6]. Adjusted odds ratios for 7-day mortality increased in a graded manner, by CFS group, in observational data from across the UK and one Italian site [6]. There is also a building evidence base showing that frailty in critical care, (frequently measured by CFS), is associated with increased mortality and higher likelihood of discharge to an institution [7, 8]. The National Institute for Health and Care Excellence (NICE) in its recent rapid guideline produced a decision aid that recommends using the CFS for adults aged over 65 as part of a "holistic assessment" to assist in clinical decision-making about the appropriateness of offering critical care to older people presenting with COVID-19 [9]. This guideline has helpfully promoted timely discussions regarding resuscitation status and escalation of care, recommending that individualised care not be compromised, and that the wishes of patients and family members are considered. However, the aims of the guideline as stated are "to make the best use of NHS resources"; in this instance, critical care capacity. Thus frailty scoring is being recommended as a basis for rationing access to potentially life-saving resources.

However, pre-COVID-19 it is clear that older people with frailty were frequently offered critical care, a recent meta-analysis finding that the prevalence of pre-admission frailty

among the critical care population was 30% [7]. Assuming that these were appropriate critical care admissions, one would expect that older people with frailty would benefit from similar admission rates to critical care during the COVID-19 pandemic. In a retrospective study of over 15,000 adults aged >80 years who were admitted to critical care in New Zealand and Australia, 39.7% were frail by CFS [8]. Older adults with frailty had poorer outcomes compared with the non-frail, yet their outcomes were surprisingly good; 88% survived to hospital discharge, 55% were discharged to their own homes, and a further 24% were discharged to a rehabilitation facility [8, 10]. With the caveat that these outcomes were recorded in a well-resourced health system, and are not data relating to COVID-19 outcomes, the important message is that frailty, while indeed associated with poorer outcomes, by no means indicates futility. In the UK, it is likely that fears of an overwhelming critical care demand influenced this frailty-based rationing, even where resources were available. Now that the initial UK peak of COVID-19 infections has passed, it may be a helpful time to review our practice.

One recommendation would be that physicians with expertise in older people's medicine should be involved early in discussions that inform the direction of care, to ensure that the NICE guidance is implemented prudently, using a holistic approach and the principles of shared decision-making, as supported by the Royal College of Physicians [9, 11].

Should frailty be used to guide resource allocation in this context?

Regardless of whether or not frailty is useful to predict adverse outcomes in COVID-19, the more challenging and important question may be *whether* frailty should be used for this purpose.

Frailty is distributed along socio-economic gradients [12]. Individual wealth and neighbourhood deprivation were both independently associated with frailty in a nationally representative population-based English study [13], suggesting the importance of environmental factors and broader social determinants in shaping health in old age. It is likely that the impacts of COVID-19 are also unequally distributed, with the Office for National Statistics reporting that age-standardised mortality rates from COVID-19 (between the 1st of March and 17th of April 2020) were more than two times higher in areas of high socio-economic deprivation, compared to the least deprived areas of England [14]. There is also growing evidence that older adults of minority ethnic and racial backgrounds are disproportionately affected by COVID-19. It is likely that racial and ethnic differences in the

social determinants of health contribute to these health disparities [15, 16]. There is potential that decision-making based on grading by CFS could exacerbate the way that frailty is structured according to cumulative lifetime disadvantages (e.g. due to poverty), and social identities (e.g. race, gender, sexuality). This was recognised by the recent American Geriatric Society (AGS) position statement on resource allocation strategies during the COVID-19 pandemic, which recommends that stakeholders consider the inequitable distribution of social health determinants in decision-making [15].

There are important ethical considerations when using frailty indices as tools for rationing care. As a resource allocation strategy, frailty is evidently better than chronological age, as a construct that helps identify the heterogeneity of physiological ageing. Yet, due to the CFS being validated for adults aged over the arbitrary cut-off of 65 years, the guideline still risks obliquely promoting a differential treatment of older people; with “individualised” assessments of frailty for younger adults, and CFS-based decision-making for older adults [9]. We must guard against the idea that scoring an older patient by CFS precludes taking into account their wishes and concerns as individuals, hence geriatrics skill and expertise is critical for the appropriate implementation of the guideline.

The AGS and Canadian Geriatrics Society have both recommend against the unethical and unlawful allocation of resources on the basis of age alone, but crucially, the AGS also caution against the use of ancillary criterion such as “long-term predicted life expectancy” [15]. It is also advised that decision makers should focus on potential short-term outcomes, so as not to disadvantage older people. Interestingly, while the CFS *can* provide an indication of likely short-term outcomes, such as in-hospital survival [6, 8], it was originally validated against mortality at 5 years [5], thus it can also be viewed as an indicator of medium-term life expectancy. Rationing care based on estimated physiological reserve, is undoubtedly intimately linked with chronological ageing, and the ethical implications of this have yet to be fully grappled with.

Conclusion

Frailty provides a means of stratifying and quantifying the gradual reduction in physiological reserve that occurs as the body ages. The main benefit of applying frailty indices, such as the CFS, to assist in decision-making during the COVID-19 pandemic is that, used with care, it may contribute to shared decision-making based on the likelihood of short-term survival, and is more informative and less discriminatory than chronological age alone. While it is evident

that a decision-aid may be beneficial to guide non-specialists during emergencies of resource-shortages, the implementation of this guideline, particularly in the absence of a significant pressure on resources could disadvantage older people with frailty who wish to be considered for critical care. One major limitation of the CFS, as applied in the current NICE guideline, is that it has the potential to reinforce established patterns of inequality.

While full CGA is neither practical nor warranted for all, the increased involvement of geriatricians early in older people's hospital admission is likely to improve the quality of care for older people admitted with COVID-19, allowing important social determinants of health to be fully considered. While we have discussed issues relating to assessment and decision-making for older people who reach hospital, this commentary has not addressed the significant impact of COVID-19 in care homes, and challenges relating to decision-making in the community.

Our incomplete understanding of this novel disease means that there is urgent need for more research investigating the short-term predictive abilities of the CFS in COVID-19, particularly with regards to critical care interventions. Additionally, a review of the impact of stratifying older people by CFS score as a rationing strategy is necessary in order to assess its acceptability to older people as well its potential to sustain or worsen unequal health outcomes. With the initial UK peak of infections behind us, geriatric medicine should take this opportunity to re-commit to fostering an approach to clinical decision-making based on frailty assessment that balances risk with resilience for older individuals of every CFS score.

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