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EDITORIAL COMMENT

How to assess risk and counsel patients before cardiac surgery: Beyond an age cut-off

Como avaliar o risco e aconselhar os doentes antes da cirurgia cardíaca: para além de um limite de idade

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Longer life expectancy and low birth rate in the western world has led to an inversion of the age pyramid. The proportion of elderly patients undergoing cardiac surgery is therefore growing.[1] In the United Kingdom, the population of patients aged 90 years and over is expected to grow, with life expectancy at this age predicted to be 4.0 years for males and 4.6 years for females.[2] In the European Union (EU), in 2016, there were 27.3 million people aged 80 and over (''elderly people'') – seven million more than ten years ago.[3] In the EU, average life expectancy at the age of 80 stood at 9.2 years in 2015. In Portugal it was just below nine years, while in Spain, life expectancy at 80 years of age was an astonishing 9.9 years.[4]

For individual decision making, age, has therefore become less important, compared to patient's co-morbidities and patient fitness. Age-based cut-offs for the selection of aortic stenosis treatment method, in the 2021 European Society of Cardiology's EACTS Valvular Heart Disease Guidelines, have been the subject of controversy, as trials were not based on age and life expectancy varies according to country. In fact, there is no compelling evidence indicating that older age should be an isolated criterion for the choice between transcatheter aortic valve replacement and surgical aortic valve replacement in otherwise low-risk patients.[5]

Co-morbidities have been used to predict a variety of outcomes such as early mortality but also functional status, quality of life, complications and readmissions. General prognostic tools, such as the Charlson co-morbidity index, assessing the impact on outcomes of associated conditions, were followed by cardiac surgery specific risk scores. The most frequently used is the EuroSCORE II, which incorporates comorbidities such as extra cardiac arteriopathy, renal dysfunction, chronic obstructive pulmonary disorder, neurological dysfunction, insulin dependent diabetes, but do not include frailty, for the measurement of mortality risk and as a benchmark for the assessment of the quality of cardiac surgical services. However, patients show different vulnerability to external factors, a condition referred to as the geriatric syndrome of frailty, which is not included in any of the currently used risk scores.

Frail patients are vulnerable, in the sense they are more susceptible to the complexity of a surgical process, are at greater risk of complications after surgery, and are less likely

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to recover function postoperatively. Despite the consensus that frailty adds important information to preoperative risk assessment, its measurement is challenging as demonstrated by the multiple instruments available. Several of these frailty assessment tools are impractical or time consuming.

The Edmonton Frail Scale is a user friendly instrument for frailty assessment and includes the clock test for cognitive impairment and the 'timed get up and go' for balance and mobility. The other domains are mood, functional independence, medication use, social support, nutrition, health attitudes, continence, burden of medical illness and quality of life.[3] As this assessment is heavily influenced by cultural and language specificities, there is a need for country specific validation.

In this issue of the Journal, Castro et al. assess the validity and reproducibility of the EFS Portuguese version.[6] The authors are to be congratulated as they remind us of the importance of frailty assessment, before clinical decision making, validating a recognized tool in Portuguese. Validity is defined by how well a measurement describes the phenomena of interest or whether two scales that measure or predict the same outcome are significantly correlated or result in concordant predictions. It was assessed by evaluating the agreement with the Katz scale and Mini Mental State Examination, Geriatric Depression Scale and Clinical Frailty Scale. The methods and results sections are difficult to grasp by non-specialist readers of the Journal; for example, the difference between concepts of construct validity and criterion validity. In this study, although it seems that the Portuguese version of the EFS correlates with other indices measuring frailty, we miss its predictive validity, i.e., the ability of EFS to predict clinical outcomes.

Traditionally, frailty was assessed by the ''eyeball test'', which might be of some value, but is subjective and has low inter-rater validity. Although there is no consensus on the ideal tool for frailty assessment, there are currently several instruments that are both simple to apply and well correlated with negative outcomes. For example, slow preoperative gait speed was shown to predict a two to three-fold increased risk after cardiac surgery, beyond traditional surgical risk scores.[7] Similarly, the Essential Frailty Toolset, using a four item scale, including lower-extremity weakness, cognitive impairment, anemia, and hypoalbuminemia, was a predictor of death and disability at one year after TAVR or SAVR.[8]

In Santa Cruz Hospital, our structured aortic stenosis heart team, has been using pragmatic, user friendly methods to assess frailty, including instrumental activities of daily living, gait speed, lower-extremity muscle weakness and simplified cognitive assessment derived from the Mini Mental State Examination.

It would be interesting to prospectively apply this EFS version to a Portuguese population, in terms of mortality, stratified by EuroSCORE II/STS score, prediction of morbidity, length of stay and late functional improvement, for example, in the interventional treatment of aortic stenosis, as frailty is probably an important factor to consider in this setting. This could provide evidence for risk assessment, planning pre-intervention preparation/rehabilitation and identification of futility.

Without question, the incorporation of frailty should be part of a patient's evaluation, enabling better informed discussion and shared decision making on interventional vs. palliative care. Also, to identify and correct reversible frailty-related pre-intervention patient's deficits.

Conflicts of interest

The authors have no conflicts of interest to declare.

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