




ORIGINAL RESEARCH

The Essential Frailty Toolset in Older Adults Undergoing Coronary Artery Bypass Surgery

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BACKGROUND: The Essential Frailty Toolset (EFT) was shown to be easy to use and predictive of adverse events in patients undergoing aortic valve replacement procedures. The objective of this study was to evaluate the EFT in patients undergoing coronary artery bypass grafting procedures.

METHODS AND RESULTS: The McGill Frailty Registry prospectively included patients ≥ 60 years of age undergoing urgent or elective isolated coronary artery bypass grafting between 2011 and 2018 at 2 hospitals. The preoperative EFT was scored 0 to 5 points as a function of timed chair rises, Mini-Mental Status Examination, serum albumin, and hemoglobin. The primary outcome was all-cause mortality assessed by Cox proportional hazards regression. The cohort consisted of 500 patients with a mean age of 71.4 ± 6.4 years, of which 27% presented with acute coronary syndromes requiring urgent surgery. The mean EFT was 1.3 ± 1.1 points, 132 (26%) were nonfrail, 298 (60%) were prefrail, and 70 (14%) were frail. Over a median follow-up of 4.0 years, 78 deaths were observed. In nonfrail, prefrail, and frail patients, survival at 1 year was 98%, 95%, and 91%, and at 5 years was 89%, 83%, and 63% ($P < 0.001$). After adjustment, each incremental EFT point was associated with a hazard ratio of 1.28 (95% CI, 1.05–1.56) and frail patients had a 3-fold increase in all-cause mortality.

CONCLUSIONS: The EFT is a pragmatic and highly prognostic tool to assess frailty and guide decisions for coronary artery bypass grafting in older adults. Furthermore, the EFT may be actionable through targeted interventions such as cardiac rehabilitation and nutritional optimization.

Key Words: coronary artery bypass surgery ■ frailty ■ mortality

Frailty is commonly described as a geriatric syndrome of reduced resiliency following pathologic or iatrogenic stressors,¹ with cardiac surgery being an archetypical model. Frailty is a major risk factor for postoperative morbidity and mortality following cardiac surgery.^{2–4} Practice guidelines in the field of valvular heart disease have embraced recommendations for routine preoperative evaluation of frailty in older patients,^{2,4,5} but the optimal approach to do so remains subject to debate. This lack of consensus has stifled

widescale implementation of frailty assessment in clinical practice.⁶

Earlier studies showed the value of 5-m gait speed to efficiently screen for frailty in older patients undergoing cardiac surgery.^{3,7} More recent studies and expert opinions subsequently highlighted the need for multidimensional tools to characterize frailty and achieve meaningful gains in incremental risk prediction.⁸ However, multidimensional tools typically entail lengthier testing procedures that are not practical in day-to-day workflows.

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CLINICAL PERSPECTIVE

What Is New?

- This study shows the prognostic value of the Essential Frailty Toolset in older adults with severe coronary artery disease undergoing coronary artery bypass grafting surgery.

What Are the Clinical Implications?

- The Essential Frailty Toolset can be efficiently assessed before coronary artery bypass grafting surgery to identify vulnerable patients who are at higher risk for adverse health events.

Nonstandard Abbreviations and Acronyms

EFT	essential frailty toolset
FRAILTY-AVR	Frailty in Aortic Valve Replacement Study
STS-PROM	Society of Thoracic Surgeons Predicted Risk of Mortality

The FRAILTY-AVR (Frailty in Aortic Valve Replacement) study sought to compare various frailty assessment tools in older patients undergoing aortic valve replacement and to develop a parsimonious multidimensional Essential Frailty Toolset (EFT) that could be easily performed at the point of care.^{6,9} Ultimately, the EFT was found to outperform more complex tools to predict 1-year mortality and disability in this patient population. A modified version of the EFT was similarly found to be predictive in patients undergoing interventions for peripheral arterial disease.¹⁰

The EFT has yet to be evaluated in patients undergoing coronary artery bypass grafting (CABG) surgery. These patients are often encountered in the hospital after a recent coronary event and therefore present unique challenges for feasibility and validity of frailty assessments. The aim of this study was to validate the EFT in older patients undergoing CABG and to investigate the prognostic implications of this tool in predicting long-term postoperative outcomes.

METHODS

Study Design and Population

This study was a preplanned analysis of the prospective McGill Frailty Registry at 2 university hospitals (Jewish General Hospital, Royal Victoria Hospital; Montreal, QC). The study base consisted of hospitalized patients ≥ 60 years of age undergoing isolated CABG urgently or

electively between October 2011 and December 2018 (convenience sample). Participants completed a questionnaire and physical performance battery before surgery; those requiring emergent surgery were excluded. Other exclusion criteria were unstable vital signs, concomitant heart valve surgery, severe neuropsychiatric impairment, and prohibitive language barrier. The primary end point was all-cause mortality. The study protocol was approved by the hospital research ethics committee, and participants signed an informed consent form before enrollment. The data that support the findings of this study may be available from the corresponding author upon reasonable request.

Frailty Assessment

Frailty was assessed using the EFT as previously described.⁹ The EFT is scored 0 to 5 points as a function of time to complete 5 sit-to-stands without using arms (1 point if ≥ 15 seconds, 2 points if unable to complete), Mini-Mental Status Examination score (1 point if < 24), hemoglobin (1 point if < 13.0 g/dL in men or < 12.0 g/dL in women), and serum albumin (1 point if < 3.5 g/dL). If serum albumin was not measured then this criteria was replaced by the Mini Nutritional Assessment Short-Form (1 point if < 8).¹¹ Participants were classified into 1 of 3 frailty status groups following the scheme used by Fried⁸: robust (EFT score of 0), prefrail (EFT score of 1-2), or frail (EFT score of 3-5).

Outcomes

The primary outcome was all-cause mortality following the index CABG procedure. Vital status was ascertained by a combination of hospital-level health records and death certificates, telephone follow-up with the patients or their next of kin, and linked provincial administrative databases. The secondary outcomes were postoperative hospital length of stay ≥ 14 days; discharge to a healthcare facility (location other than home); all-cause readmission at 30 days; operative mortality or major morbidity defined as reoperation, stroke, acute kidney injury, prolonged ventilation, deep sternal wound infection, or mortality at 30 days;¹² worsening disability defined as ≥ 2 new disabilities in basic or instrumental activities of daily living or death at 1 year.^{13,14}

Statistical Analysis

Discrete categorical variables were summarized as counts and percentages. Continuous variables were summarized as sample means and SDs and their normality was visually ascertained by histograms. Differences between baseline characteristics and unadjusted outcomes across frailty status groups were

examined using Cuzick's nonparametric test for trend. The Kaplan-Meier method was used to generate survival curves. A multivariable Cox proportional hazards model was used to generate hazard ratios (HRs) for all-cause mortality adjusting for individual covariates and also for the Society of Thoracic Surgeons Predicted Risk for Mortality (STS-PROM). The individual covariates, selected a priori based on a review of published risk models,^{15–19} were age, sex, body mass index, diabetes mellitus, cerebrovascular disease, chronic lung disease, glomerular filtration rate, left ventricular ejection fraction, pulmonary hypertension, prior cardiac surgery, recent myocardial infarction, urgent surgery, number of distal anastomoses, and frailty as measured by the EFT. The EFT was preserved as a continuous variable in the primary analysis and as a categorical variable in sensitivity analyses. Study data were managed using REDCap electronic data capture tools hosted at the Lady Davis Institute Centre for Clinical Epidemiology.²⁰ Statistical analyses were performed

using STATA version 16 (StataCorp, College Station, Texas).

RESULTS

Baseline Characteristics

A total of 500 patients undergoing isolated CABG were included in the study and followed for a median of 4.0 years (interquartile range 2.3–5.0 years). There were no patients lost to follow-up for vital status. Baseline characteristics are shown in Table 1. The mean age was 71.4 ± 6.4 years with 105 (21%) women. The mean EFT score was 1.3 ± 1.1 out of 5 with 132 (26%) categorized as robust 298 (60%) as prefrail and 70 (14%) as frail. Frail patients were more likely to have advanced age, female sex, diabetes mellitus, recent myocardial infarction, reduced left ventricular ejection fraction, pulmonary hypertension, cerebrovascular disease, kidney disease, and higher predicted risk of

Table 1. Baseline Characteristics by Preoperative Frailty Status

	Robust EFT 0 (N=132)	Prefrail EFT 1-2 (N=298)	Frail EFT 3-5 (N=70)	P Value
Age, y	70.3 ± 5.9	71.3 ± 6.3	73.5 ± 7.3	0.003
Female sex	17 (13%)	68 (23%)	20 (29%)	0.02
Body mass index, kg/m ²	28.1 ± 4.3	27.7 ± 5.1	27.6 ± 5.6	0.11
Diabetes mellitus	43 (33%)	128 (43%)	39 (56%)	0.006
Hypertension	91 (69%)	226 (76%)	58 (83%)	0.08
Dyslipidemia	95 (72%)	228 (77%)	56 (80%)	0.40
Recent MI	11 (8%)	45 (15%)	13 (19%)	0.03
Heart failure	21 (16%)	51 (17%)	17 (24%)	0.30
Left ventricular ejection fraction, %	54.6 ± 12.1	52.4 ± 13	48.4 ± 15.3	0.005
Pulmonary hypertension	6 (5%)	12 (4%)	14 (20%)	<0.001
Chronic lung disease	21 (16%)	34 (11%)	13 (19%)	0.19
Peripheral arterial disease	20 (15%)	40 (13%)	14 (20%)	0.37
Cerebrovascular disease	10 (8%)	34 (11%)	14 (20%)	0.01
Prior stroke	8 (6%)	18 (6%)	7 (10%)	0.47
Cancer	18 (14%)	36 (12%)	11 (16%)	0.70
GFR, mL/min/1.73 m ²	71.5 ± 13.3	68.1 ± 15.9	60.3 ± 19.6	<0.001
Chronic kidney disease	29 (22%)	86 (29%)	29 (41%)	0.01
Dialysis	0 (0%)	1 (0%)	5 (7%)	<0.001
Atrial fibrillation	14 (11%)	19 (6%)	10 (14%)	0.07
Prior cardiac surgery	5 (4%)	11 (4%)	1 (1%)	0.62
European System for Cardiac Operation Risk Evaluation II, %	2.4 ± 2.4	2.8 ± 2.7	4.5 ± 3.5	<0.001
Society of Thoracic Surgeons Predicted Risk of Mortality, %	1.1 ± 1.2	1.4 ± 1.1	2.9 ± 3.4	<0.001
Urgent surgery	37 (28%)	78 (26%)	23 (33%)	0.53
Distal anastomoses	3.6 ± 1.0	3.5 ± 1.0	3.5 ± 1.0	0.64
Cardiopulmonary bypass time, min	90.5 ± 32	91.1 ± 31.7	100.8 ± 34.9	0.06
Cross-clamp time, min	72.0 ± 27.5	71.6 ± 27.8	76.0 ± 25.8	0.29

EFT indicates Essential Frailty Toolset; GFR, glomerular filtration rate; and MI, myocardial infarction. Recent MI defined as within 7 days of surgery. Pulmonary hypertension defined as systolic pulmonary artery pressure >40 mm Hg. Chronic kidney disease defined as GFR <60 mL/min/1.73 m².

operative mortality. Procedural factors such as level of urgency, number of distal anastomoses, cardiopulmonary bypass and cross-clamp times did not vary across frailty groups.

Baseline frailty deficits and geriatric impairments are shown individually in Figure 1. Slow chair rise time (61%) was found to be the most prevalent deficit, followed by exhaustion, anemia, and slow gait speed, which were elicited in at least 35% of patients. Cognitive impairment, disability for basic activities of daily living, weight loss, and low serum albumin were found to be the least prevalent deficits, elicited in less than 10% of patients.

Postoperative Outcomes

The primary outcome of all-cause mortality occurred in 78 of 500 patients. One-year survival rate was 0.98 (95% CI, 0.94–0.996) in the robust group, 0.95 (95% CI, 0.92–0.97) in the prefrail group, and 0.91 (95% CI, 0.82–0.96) in the frail group. Five-year survival rate was 0.89 (95% CI, 0.79–0.95) in the robust group, 0.83 (95% CI, 0.76–0.87) in the prefrail group, and 0.63 (95% CI, 0.49–0.74) in the frail group. Kaplan-Meier survival curves are shown in Figure 2 (Log-rank $P < 0.0001$ for between-group comparison).

Secondary outcomes are shown in Table 2. Frail patients were more likely to experience

certain complications such as prolonged mechanical ventilation and stroke (although the absolute number of postoperative strokes was very low, $N=6$). Frail patients were 3 to 5 times more likely to require prolonged hospital lengths of stay, discharge to other healthcare facilities, and readmission within 30 days. At 1 year, frail patients were 5 times more likely to report worsening disability (or be deceased) whereas prefrail patients were 2 times more likely, as compared with their robust counterparts.

The multivariable Cox proportional hazards model is shown in Table 3. After adjusting for individual covariates, frailty as measured by the EFT was found to be associated with all-cause mortality (HR, 1.28 per EFT point; 95% CI, 1.05–1.56). When the treating hospital was entered in this model, the effect of the EFT was unchanged and there was no evidence of a hospital effect (HR, 0.99 for hospital A vs. B; 95% CI, 0.86–1.14) with similar frailty effects (HR, 1.3 at both hospitals). Frail patients with an EFT score of ≥ 3 experienced a 3-fold increase in all-cause mortality (HR, 3.20; 95% CI, 1.49–6.88) whereas prefrail patients with an EFT score of 1 to 2 experienced an intermediate increase in all-cause mortality (HR, 1.70; 95% CI, 0.86–3.36), as compared with their robust counterparts. When the EFT was added to

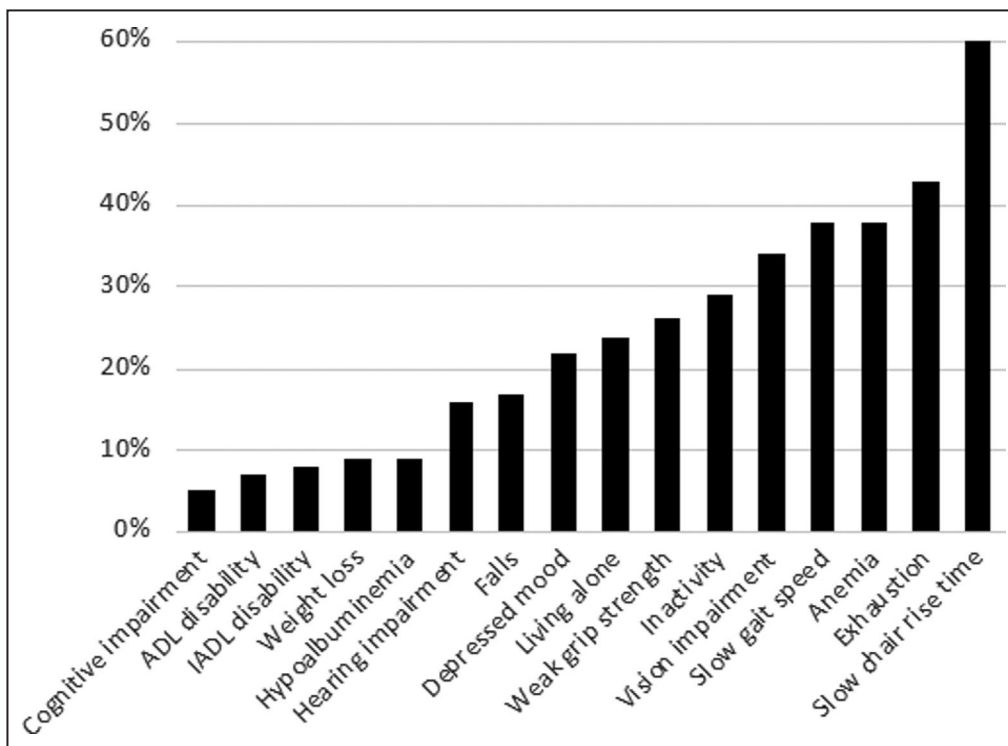


Figure 1. Prevalence of geriatric impairments and frailty deficits. Slow chair rise time (≥ 15 seconds for 5 sit-to-stands) and exhaustion were the most common deficits elicited whereas cognitive impairment ($\leq 23/30$ for the Mini-Mental Status Examination) and disability for basic activities of daily living were the least common. ADL indicates activities of daily living; and IADL, instrumental activities of daily living.

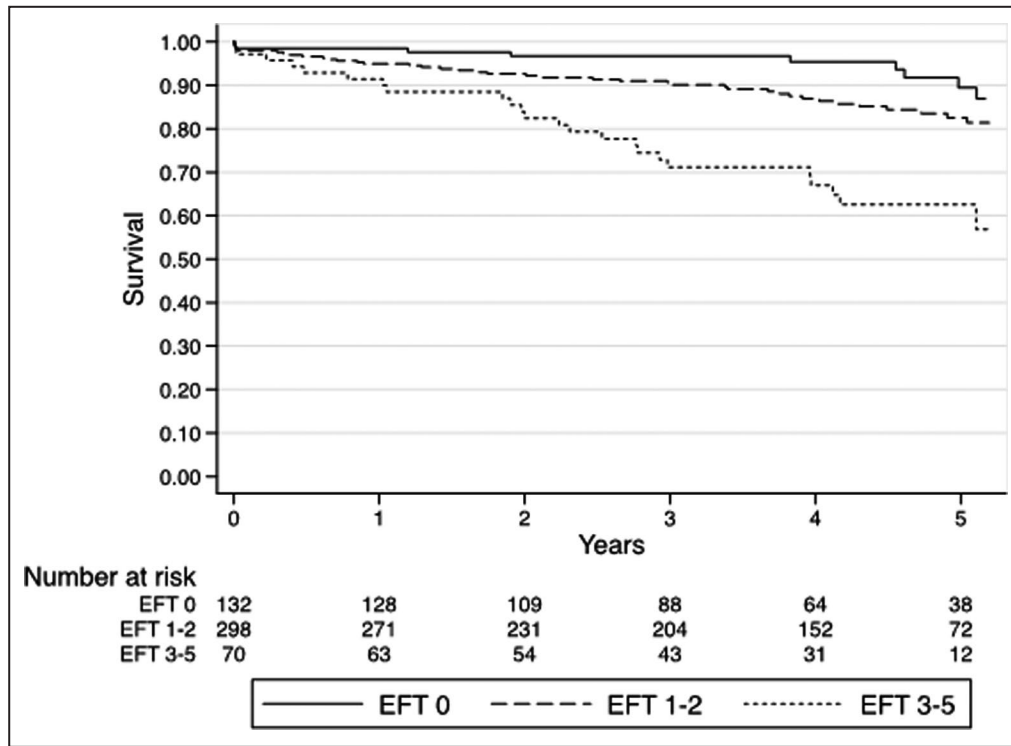


Figure 2. Kaplan-Meier survival curves by preoperative frailty status. Five-year survival rates were 89%, 83%, and 63% in the robust, prefrail, and frail groups, respectively (Log-rank $P < 0.0001$). EFT indicates Essential Frailty Toolset.

a simplified multivariable Cox proportional hazards model containing the STS-PROM, frail and prefrail patients experienced a consistent increase in all-cause mortality (HR, 3.51; 95% CI, 1.65–7.48 and HR, 1.73; 95% CI, 0.89–3.37) with an improvement in Harrell’s c-statistic from 0.66 with the STS-PROM

alone to 0.71 with the STS-PROM and the EFT. Lastly, when the EFT’s 4 components (chair rise performance, cognitive impairment, anemia, and hypoalbuminemia) were entered as individual variables, Harrell’s c-statistic was no better than that observed with the composite EFT score.

Table 2. Clinical Outcomes By Preoperative Frailty Status

	Robust EFT 0 (N=132)	Prefrail EFT 1-2 (N=298)	Frail EFT 3-5 (N=70)	PValue
1 Year				
Death at 1 y	2 (2%)	15 (5%)	8 (12%)	0.008
Worsened disability	7 (6%)	34 (13%)	17 (29%)	<0.001
30 Days / In-Hospital				
STS composite	20 (15%)	63 (21%)	16 (23%)	0.14
Death at 30 d	2 (2%)	7 (2%)	2 (3%)	0.79
Reoperation	6 (5%)	18 (6%)	3 (4%)	0.74
Stroke	0 (0%)	3 (1%)	3 (4%)	0.03
Acute kidney injury	4 (3%)	16 (5%)	5 (7%)	0.40
Prolonged ventilation	11 (8%)	41 (14%)	14 (20%)	0.02
Deep sternal infection	1 (1%)	2 (1%)	0 (0%)	0.55
Length of stay ≥ 14 days	14 (11%)	44 (15%)	30 (43%)	<0.001
Discharge to facility	12 (9%)	75 (26%)	32 (47%)	<0.001
Readmission	8 (6%)	12 (4%)	12 (18%)	<0.001

STS indicates Society of Thoracic Surgeons. STS composite defined as 30-day all-cause death, reoperation, stroke, acute kidney injury, prolonged ventilation, or deep sternal infection.

Table 3. Adjusted Cox Proportional Hazards Model for All-Cause Mortality

	Hazard Ratio (95% CI)
Age	1.02 (0.98, 1.06)
Female sex	1.07 (0.61, 1.88)
Body mass index, per kg/m ²	1.02 (0.97, 1.06)
Diabetes mellitus	1.48 (0.91, 2.40)
Cerebrovascular disease	0.91 (0.46, 1.77)
Chronic lung disease	1.66 (0.94, 2.92)
Glomerular filtration rate, per mL/min/1.73 m ²	0.99 (0.98, 1.01)
Left ventricular ejection fraction, per %	0.98 (0.96, 0.99)
Pulmonary hypertension	1.92 (1.00, 3.69)
Prior cardiac surgery	1.68 (0.59, 4.75)
Recent myocardial infarction	0.96 (0.47, 1.97)
Urgent surgery	0.86 (0.50, 1.49)
Grafts, per distal anastomosis	0.93 (0.74, 1.18)
Frailty, per EFT point	1.28 (1.05, 1.56)
Frailty, EFT ≥3 points	3.20 (1.49, 6.88)

EFT indicates Essential Frailty Toolset.

In another analysis, frailty as measured by the Fried scale did not reach statistical significance in its association with all-cause mortality when entered in its ordinal form (HR, 1.22 per Fried point; 95% CI, 0.995–1.50) or its dichotomous form (HR, 1.40; 95% CI, 0.81–2.44).

DISCUSSION

This prospective two-center study has demonstrated, for the first time, the predictive value of the EFT in isolated CABG. Our results can be summarized as follows. Testing for the EFT was efficiently feasible in the target population of hospitalized older adults with severe coronary artery disease. Objective evidence of frailty and prefrailty were present in 1/7 and 4/7 older patients, respectively. Frailty was associated with a 3-fold increase in long-term mortality and an even greater relative increase in adverse patient-centered outcomes such as prolonged length of stay, disposition not home, readmission, and disability. Prefrailty was associated with a smaller relative increase in adverse outcomes, although a larger absolute number of patients were affected.

The value proposition for assessing frailty in older patients who had cardiac surgery is based on the fundamental need for accurate estimation of operative risk to guide decision making and resource management.²¹ Most adverse postoperative events occur in older patients, yet traditional risk prediction models perform poorly in this demographic. For the prediction of 30-day mortality in isolated CABG, the Society of Thoracic Surgeons and European System for Cardiac

Operation Risk Evaluation I and II models achieved a substantially lower average c-statistic of 0.72 in patients ≥80 years of age as compared with 0.80 in patients <80 years of age.²² One of the foremost reasons is the heterogeneity of older patients' physical and cognitive reserves, not captured by these risk models. Studies have consistently demonstrated that addition of frailty measures to surgical risk models results in improved discrimination for short- and mid-term mortality as well as operative morbidity²³ and a net cost saving when factoring in the downstream complications that could be prevented.²⁴

Five-meter gait speed, a physical performance test and geriatric vital sign, was shown to be predictive of 30-day mortality and operative morbidity in a cohort including 9,005 patients who underwent CABG.⁷ The Clinical Frailty Scale, a semiquantitative clinician rating of the patient's overall health status and disability, was shown to be predictive of 30-day and 1-year mortality and operative morbidity in 6,156 patients who had CABG.²⁵ The Johns Hopkins Adjusted Clinical Groups Frailty Indicator, a proprietary algorithm of diagnostic codes from administrative data, was shown to be predictive of 30-day and 4-year mortality in 40,083 patients who had CABG.²⁶ Psoas muscle area, a biomarker of sarcopenia from clinical computed tomography scans, was shown to be predictive of 4-year mortality in 304 patients who had CABG²⁷ and also of prolonged post-operative length of stay.²⁸

The question is not *whether* to measure frailty but *how* to measure frailty given a plethora of assessment tools and a shortage of assessment time in clinical practice. The aforementioned tools have had limited uptake for various reasons. The gait speed test requires a trained observer and unobstructed hallway with start and finish floor markings, which may not be available, and it reflects only the physical component of frailty. The psoas muscle area biomarker requires an abdominal computed tomography scan, which may not be available in most cases (and would not be indicated for this sole purpose given its ionizing radiation). The Clinical Frailty Scale requires a thorough geriatric assessment to arrive at a valid score, which is time consuming, whereas studies have shown that "ballparked" Clinical Frailty Scale scores are unreliable and akin to subjective judgment. Administrative frailty scores require real-time electronic health data and proprietary algorithms, which may not be accessible and tend to be better suited for retrospective applications such as risk-adjusted outcome reporting in large populations. Moreover, because they are limited to clinically collected data, they contain inherently less "new" information and reflect mostly comorbidities. The EFT is more broadly applicable and less time consuming in our experience, and it is reflective of objective physical and nonphysical components of frailty.

In critical cases, such as cardiogenic shock or acute myocardial infarction, it may not be feasible for the patient to perform the chair rise or cognitive tests necessary to compute the EFT. Ideally, the EFT assessment could be integrated into outpatient clinic visits so that there is a documented metric of frailty corresponding to the patient's baseline health status. Alternatively, the EFT assessment could be deferred until after initial medical stabilization (our usual practice) or supplanted by another type of frailty assessment that does not require patient participation. In the emergency medicine and critical care settings, the Clinical Frailty Scale is commonly used to gauge frailty based on input from family members and caregivers, and the Electronic Frailty Index is increasingly used to gauge frailty based on data from the electronic health record.²⁹ Lastly, biomarkers continue to be elaborated to provide objective evidence of frailty and help predict adverse health outcomes.³⁰ As discussed previously, muscle area is one such imaging biomarker to gauge frailty and sarcopenia based on images from routine computed tomography scans, which are often requested for clinical indications in critically ill patients or those set to undergo a surgical procedure.

The EFT's clinical impact extends beyond predicting morbidity and mortality: it is actionable to identify specific components of frailty that may be improved by targeted interventions as endorsed by the Early Recovery After Surgery guidelines.³¹ Older patients with weakness benefit from early referral for postoperative cardiac rehabilitation to improve their strength, mobility, energy, cognition, mood, self-efficacy, and outcomes.^{32,33} They may also benefit from prehab, with a systematic review of 8 studies suggesting a reduction in operative morbidity and hospital length of stay.³⁴ Those with cognitive impairment stand to benefit from delirium risk reduction packages.^{35,36} Those with hypoalbuminemia may benefit from nutritional assessment and optimization. Those with anemia may benefit from further investigations and either iron or B12 replacement if deficient. Beyond treating the correctable components of frailty, the EFT may guide early involvement of social services and discharge planning for older adults awaiting CABG. Because frailty is associated with higher costs and resource use in cardiac surgery,^{37,38} a proactive multidisciplinary approach (rehabilitation, nutrition, cognitive training, discharge planning) may be an effective strategy for reducing downstream costs in addition to improving patient-centered outcomes.

Pathways to systematically measure the EFT in cardiac patients and to optimize the elicited deficits are currently being investigated, as in the TARGET-EFT (Multicomponent Acute Intervention in Frail Geriatric Patients With Cardiovascular Disease Using the

Essential Frailty Toolset) trial (NCT04291690). By prioritizing the treatment of frailty alongside the treatment of heart disease, this trial is seeking to ameliorate recovery of functional abilities and health-related quality of life. If this hypothesis is proved to be correct, then interventions to treat frailty before or after cardiac surgery may in the future become endorsed as a standard of best care for frail older patients.

This study must be considered in light of its limitations. First, this is a two-center study in a single geographical region (albeit multicultural), and external validation will be of interest to confirm the generalizability of our results. Second, because this is a convenience sample of nonconsecutive patients (with the main determinant of sampling being availability of research personnel), the measured prevalence of frailty should not be extrapolated at large. Third, 31 surviving patients declined or could not be reached to complete the disability questionnaire at 1 year, so the reported incidence of worsening disability is conservative and could have been as high as 19% if all of these patients had worsened disability. Fourth, the cognitive impairment domain was assessed by the Mini-Mental State Examination, which is somewhat time consuming to administer. Our group and others have previously shown that the Mini-Cog Test (consisting of 3-word recall and a clock draw) may be used as a brief and adequate substitute.^{9,39}

CONCLUSIONS

In older adults undergoing isolated CABG, frailty as measured by the EFT is prevalent and associated with prolonged postoperative length of stay, discharge to facilities, readmission, increased disability and long-term mortality. The physical components of frailty are especially prevalent and may be addressed by prehab or early referral for cardiac rehabilitation. Although not all encompassing, the EFT is a practical starting point to objectively and efficiently assess frailty before cardiac surgery. A smartphone-based app has been created to assist clinicians in administering the EFT (frailtytool.com). The information gained from the EFT may be used to (1) refine estimates of operative risk and accordingly individualize decision making, (2) sub-select complex patients for referral to multidisciplinary comprehensive geriatric assessments, and (3) initiate interventions to counteract frailty deficits and promote functional recovery.

ARTICLE INFORMATION

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Disclosures

None.

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