

Identifying Frailty in Pre-Transplant Kidney Candidates

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BACKGROUND

Frailty is defined as the inability to maintain homeostasis (1); the condition is often age-related, and caused by a decline in physical, cognitive, physiological, and immune reserves. Frailty in the transplant population is associated with increased post-operative morbidity and mortality; increased hospital length of stay; increased readmissions; prolongs the duration of delayed graft function; increased risk of immunosuppressant intolerance; and decreased health-related quality of life (2) In a 2018 survey, only 23.9% of healthcare professionals active in the field of kidney transplant performed a standardized frailty assessment as part of the evaluation (1) An estimate of 17% of kidney transplant recipients are frail before transplantation. (2)

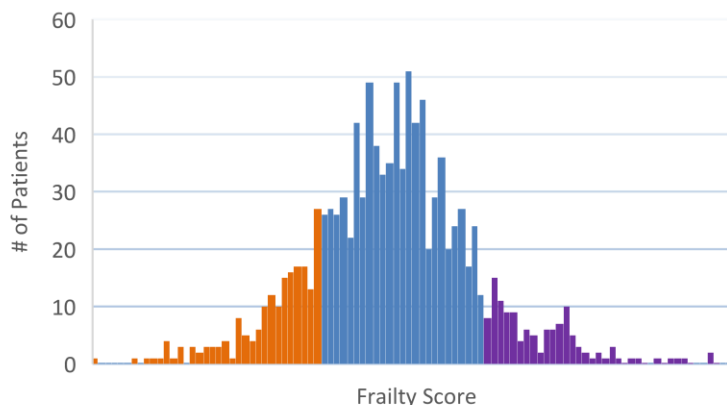
PURPOSE

By performing standardized frailty assessments during transplant evaluation, we can identify frail patients and refer them to pre-habilitation services (physical therapy and/or nutrition goals), prior to proceeding with transplant.

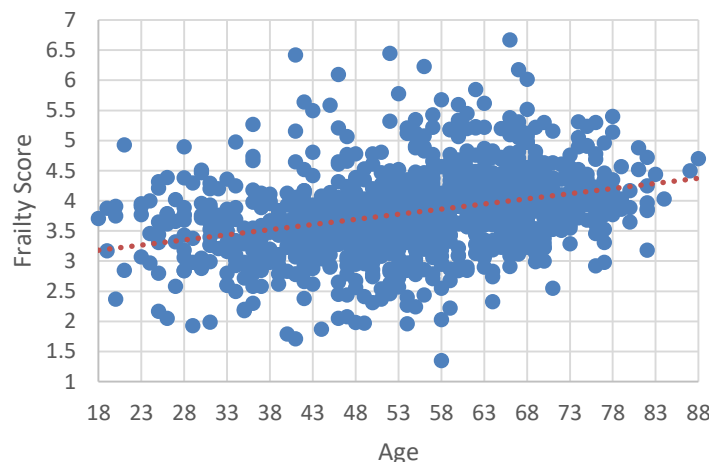
METHODS

Liver Frailty Index by University California San Francisco is a verified performance-based objective tool directed towards the various facets of frailty – malnutrition, muscle wasting, and neuro motor coordination; and is scored on a continuous scale making it suitable for measuring the longitudinal changes in frailty over time (3). Grip strength is scored as the average of 3 trials in the patients dominant hand using a dynamometer, measured in kilograms. Timed chair stands are measured as the number of seconds it takes the patient to do 5 chair stands with the patient's arms folded across the chest. Balance testing is measured as the number of seconds the patient can balance in 3 positions (feet placed side-to-side, semi-tandem, and tandem) for a maximum of 10 seconds each. The cutoffs for frailty are as follows: "robust" (<3.2), "pre-frail" ($3.2-<4.5$), and "frail" (>4.5)

Frailty Score of Pre-Transplant Patients 3/19/24-6/27/25



Co-Relation of Age and Frailty Score



RESULTS

During the time span of 3/19/24 to 6/27/25 1,103 frailty assessments during the pre-transplant phase were conducted. 16% (175 patients) were classified as robust, 71% (783 patients) were pre-frail, and 13% (144 patients) were frail. Then, the co-relation between age and frailty incidence was analyzed: patients aged 50-60 years had a frailty incidence of 12.5%; increasing to 19% for ages 60-70. Incidence then starts to decrease, reaching 14.6% for patients aged 70-80 years. Compared to the benchmark of a 13% frailty incidence, patients aged 60-70 years had a significantly higher risk of frailty, higher still than their counterparts aged 70-80 years. With a correlation r value of 0.34, we can conclude there is weak relationship between age and frailty.

CONCLUSIONS

While frailty is often assumed to proportionally increase with age, we can see that is not the case with our kidney transplant population. Administering frailty assessments to patients of all ages has demonstrated those under 70 years are also at risk for frailty, and at higher rate than those over this age. This supports our transplant center's move towards eliminating the age cutoff requirement and instead viewing each patient as a unique individual. Identifying and improving the physiological reserve of frail patients, regardless of age, supports good transplant outcomes, as well as provides valuable information for transplant physicians to aid in determining appropriate immunosuppression regimens, dispositions and continuum of care.

REFERENCES

