The Impact of Improving Nutrition Status, Pre-habilitation, Optimization of Cardiac Hemodynamics Including use of Temporary Mechanical Support When Indicated on the Reduction of Frailty in Patients Evaluated for Advanced Heart Failure Therapies

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Background: Advanced frailty and age are associated with increased mortality, adverse surgical and transplant outcomes. Aside from bridge-to-transplant ventricular assist device (VAD) implant, minimal literature exists regarding reversing frailty. The aim of this study was to assess interventions used by Lutheran Heart Transplant (HTx) and VAD Program on reducing frailty and the impact on short-term operative outcomes.

Methods: A retrospective chart review of 29 patients evaluated in the Lutheran HTx and VAD program was performed. Data collected included biomarker and demographic data for June 2020 to present. The study population was analyzed and then stratified by their modified Fried Frailty Phenotype (mFFP) score. Independent analysis was performed for HTx and VAD cohorts. Fisher's exact and t-tests were used to analyze categorical and continuous variables, respectively (alpha = 0.05).

Results: 18 out of 29 patients (62%) were classified as frail at initial assessment. Significant improvements were observed in bilirubin (p=0.017), creatinine (p=0.001), eGFR (p=0.001), lactic acid (p=0.002), and prealbumin (p=0.002) for the total study population. Frail patients experienced longer intubation (3 vs 4 days) and hospitalization (20 vs 23 days) times post-HTx. Due to limited sample size, we were unable to analyze the VAD cohort by mFFP score.

Conclusions: Significant improvements were seen in kidney function and nutrition status as indicated by creatinine, eGFR, and prealbumin data. However, the available data was insufficient to examine the interventions impact on frailty as described by the Fried Frailty Phenotype. Similar to other studies, frailty was associated with increased intubation and hospitalization duration post-HTx.