Reversal of Frailty after LVAD Associated with Significant Reduction in Markers of Inflammation

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Background

- Frailty is a state of decreased reserve and resistance to stressors. It is frequently observed in patients with advanced heart failure (HF) and is associated with worse outcomes[1]
- Most LVAD programs assess frailty using a subjective, “eye-ball” test
- However, objective frailty measures, like the Modified Fried Frailty Index (mFFI), have been validated in this population[2,3]
- Inflammation has been implicated in the development of both frailty and HF[4]

Study Aims

1. To compare a subjective provider assessment (SPA) or “eye ball test” against objective frailty testing using mFFI
2. To assess the level of agreement between 3 surgeons independently, subjectively assessing frailty (“*eye ball test*”)
3. To explore the relationship between frailty and inflammatory biomarkers
4. To assess changes in frailty and inflammatory biomarkers after LVAD

Methods

- Patient population **-** patients referred for evaluation for advanced therapies at Northwell Health
- Three cardiac surgeons *independently* assessed patients to be frail or not frail (SPA)
- Formal frailty testing was performed using mFFI by investigators blinded to the SPA
- Baseline blood testing was performed for inflammatory biomarkers
- Patients who underwent LVAD implantation were assessed after 3 and 6 months with mFFI testing and blood testing for biomarkers

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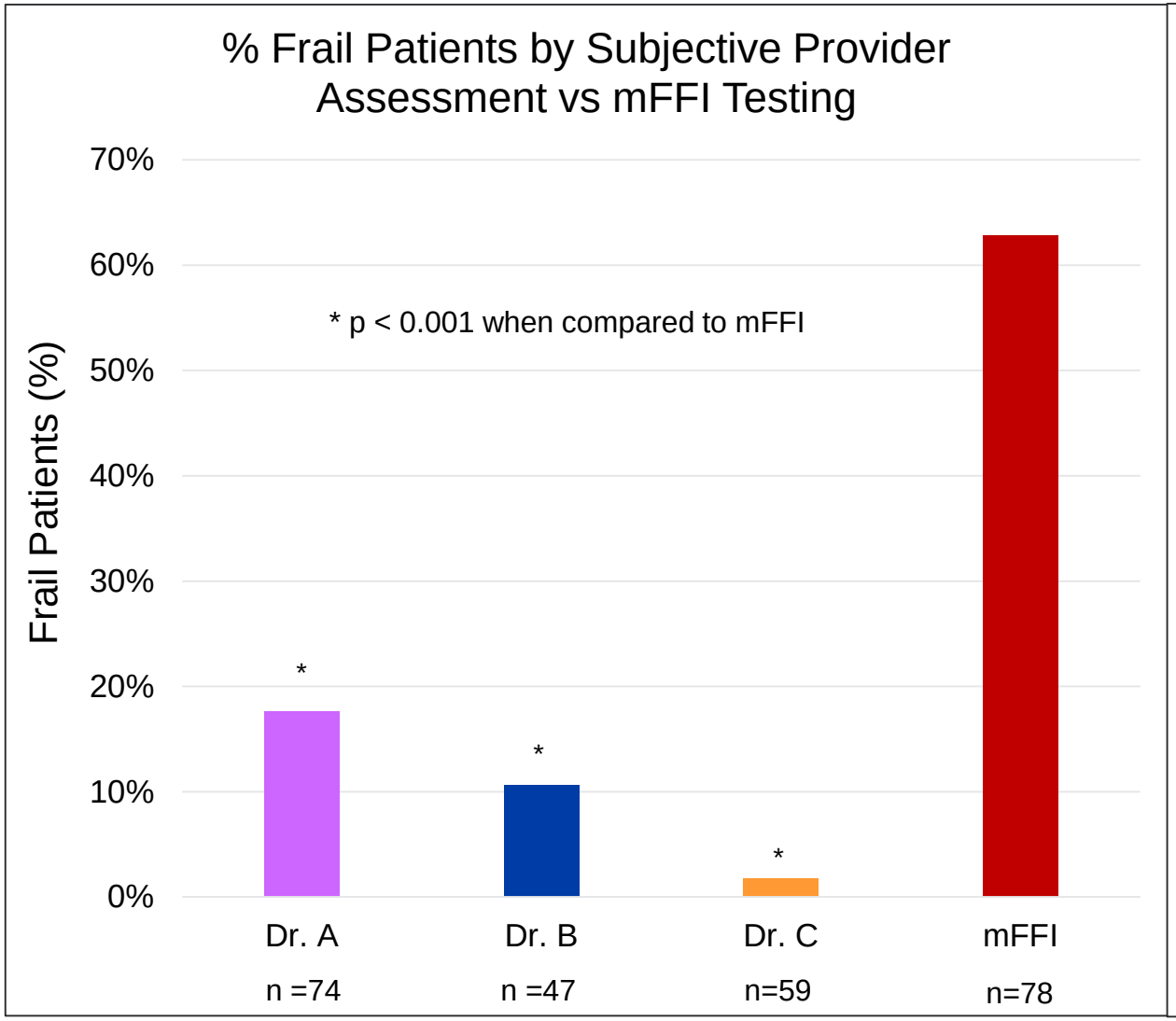
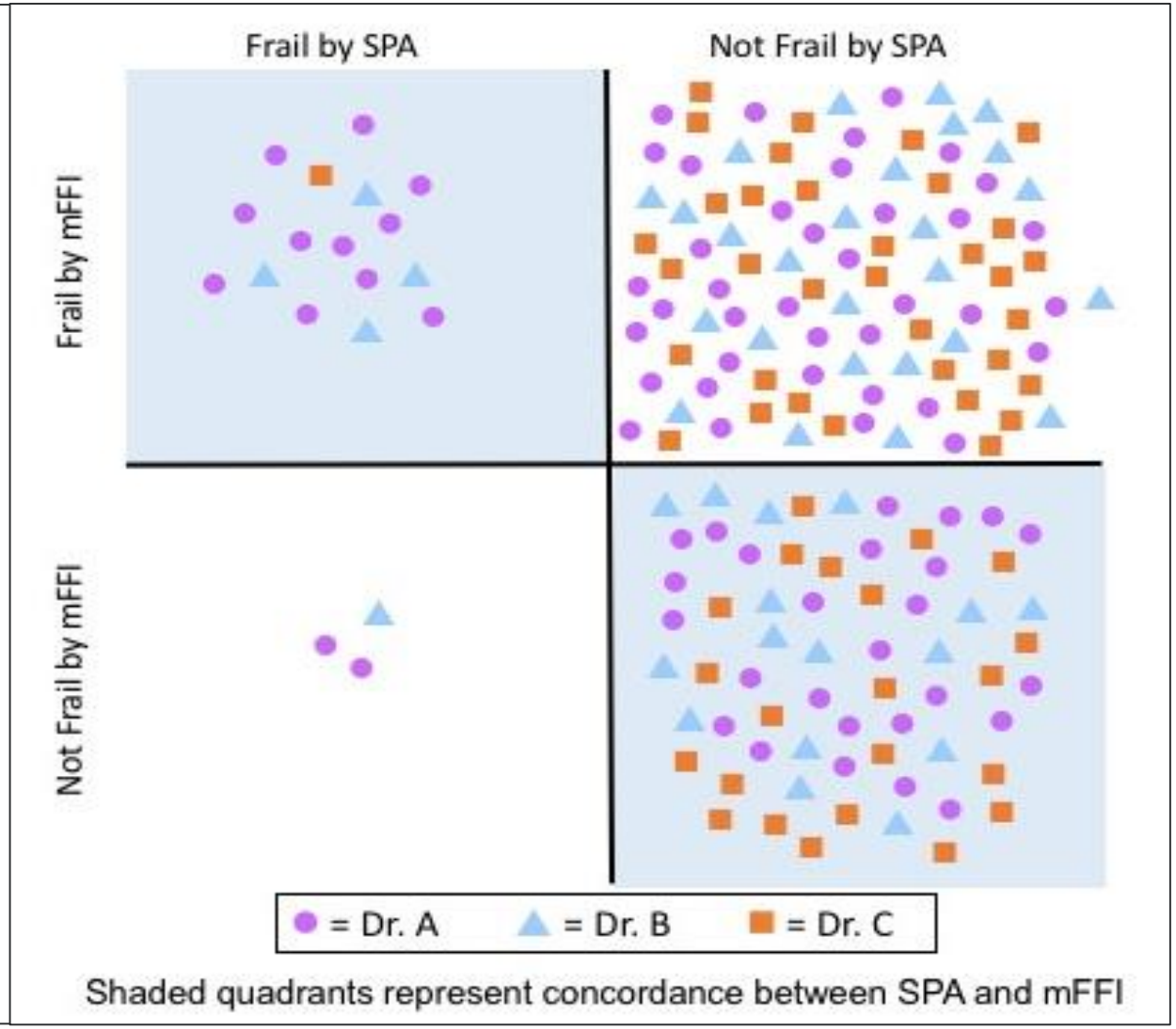
Frail ≥ 3, **Not Frail < 3**

MODIFIED FRIED FRAILTY INDEX (mFFI)[3]
1. Weight loss: A point is assigned for a patient’s weight loss of >10 pounds or a ≥ 5% loss of body weight in the past year.
2. Exhaustion: Patients were asked how often they agreed with the following statements over the past week: A point is assigned if ≥ 3-4 days. a) I felt that everything I did was an effort b) I could not get going
3. Physical Activity: A point is assigned if the patient reports being less physically active in the past year.
4. Walk Time: Patients performed a 15 ft timed walk. A point is assigned based upon thresholds adjusted for sex and height.
5. Grip Strength: A point is assigned based upon grip strength thresholds adjusted for sex and BMI.

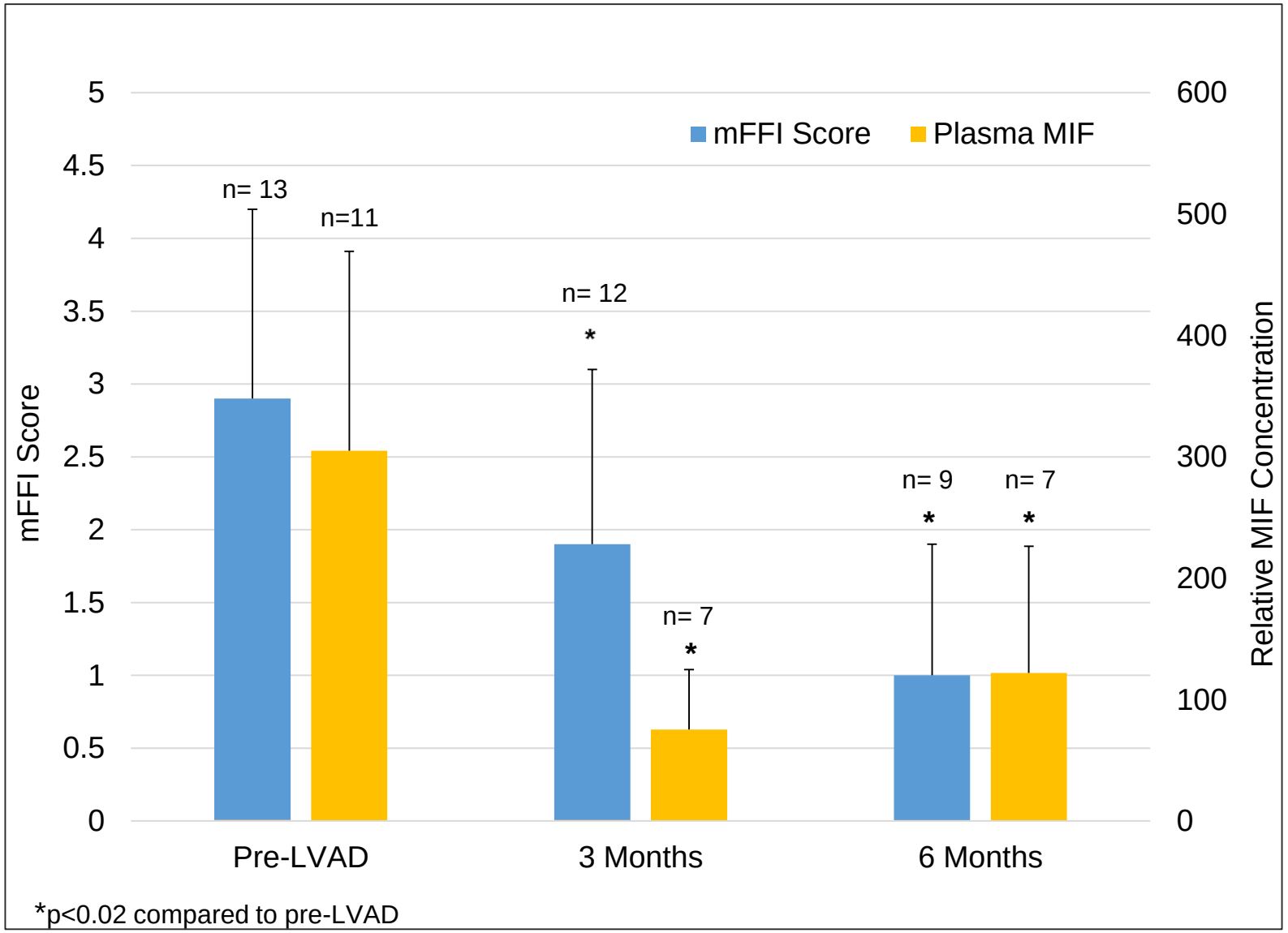
1. Circulation: Heart Failure. 2012;5(2):286-293, **2.** Journal of Cardiac Failure. 2016;22(10):840-844, **3.** The Journals of Gerontology Series A: Biological Sciences and Medical Sciences. 2001;56(3), **4.** Aging Cell. 2017;16(3):444-450

SPA vs. mFFI Assessment





Changes in mFFI Score and Plasma MIF After LVAD



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There is still MIF data missing due to COVID-19