



HIIT for HFrEF Patients

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PATIENT BACKGROUND

60 y/o AA male

H/O Heavy alcohol use, former smoker, & exposure to toxic chemicals from military career

Participated in CR previously in another state with poor adherence due to "it being boring"

Medical History

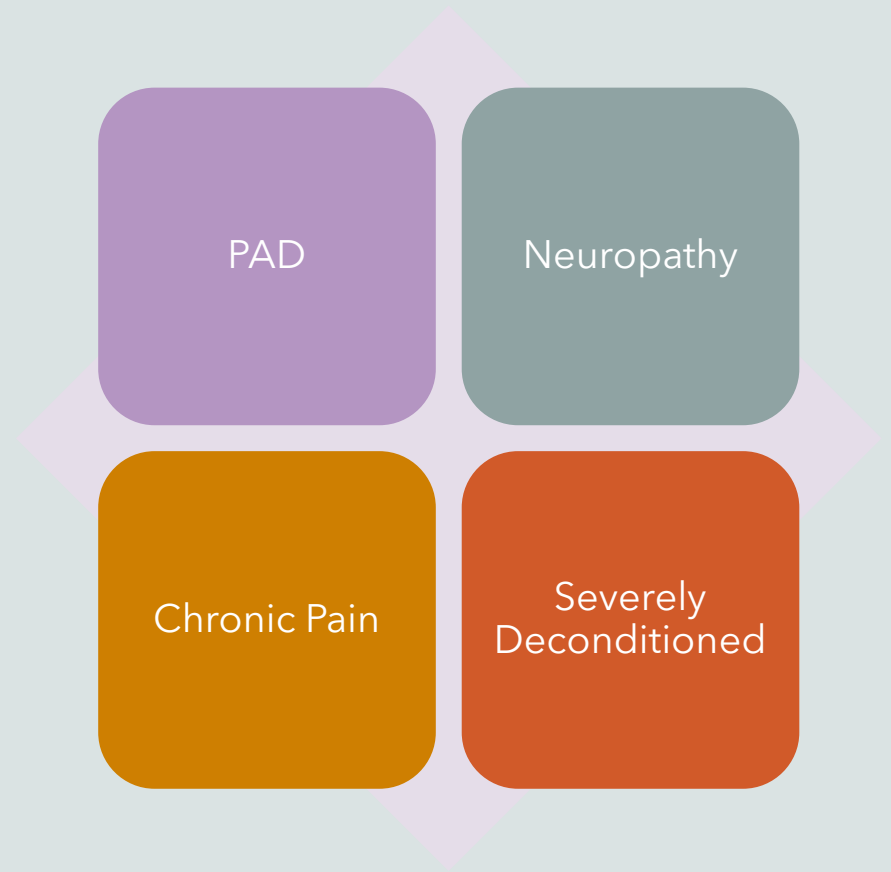
HFrEF, NICM, PAD,
Neuropathy, HTN,
COPD, OSA, GERD,
Chronic pain syndrome,
H/O Heavy alcohol use,
& Former smoker

H/O medication
adherence issues

4-year history of HF
with most recent
exacerbation resulting
in EF <10%.

Declined ICD
placement but is on
lifest

Special Considerations



Pathophysiology of HFrEF

Chronic HTN leads to increased afterload which puts more strain on the heart. Overtime, this will damage heart muscle and make it weaker leading to dilated cardiomyopathies and reducing the heart's ability eject blood efficiently.

Reliance on compensatory systems like SNS & RAAS which will continue to lead to further strain on the ventricles.

Ventricular Remodeling like dilation, eccentric hypertrophy, and thickening will occur altering the heart's shape and function, worsening EF.

Reduced cardiac output causes redistribution of blood flow to vital organs leading to peripheral vasoconstriction and ongoing congestive & systemic symptoms

GDMT becoming gold standard pharmacologic therapy in HFrEF patients.

HIIT especially HIIT with resistance training focused on the muscular endurance phase, can have similar benefits as GDMT!



Exercise Prescription

- **Aerobic Exercise Modalities: Recumbent Bike, Nustep, Hallway walking**
- Ex: Rec Bike lvls 4-12 (intervals 1min HIIT, 2 min recovery), 15-20 mins RPE 4-8/10.
- Ex: Nustep lvls 3-8 (intervals 2min HIIT, 2min recovery 15-20 mins RPE 4-8/10.
- **Resistance Training Modalities: Dumbbells, Bands, BW**
- Ex: Circuit training focused on muscular endurance, less load higher reps (15-20 reps) 3-5 sets, rest 30s. RPE 4-8/10
- HIIT muscular endurance circuits 3 sets, as many reps in 30s, then rest for 30s. RPE 4-8/10

Outcomes

Pre

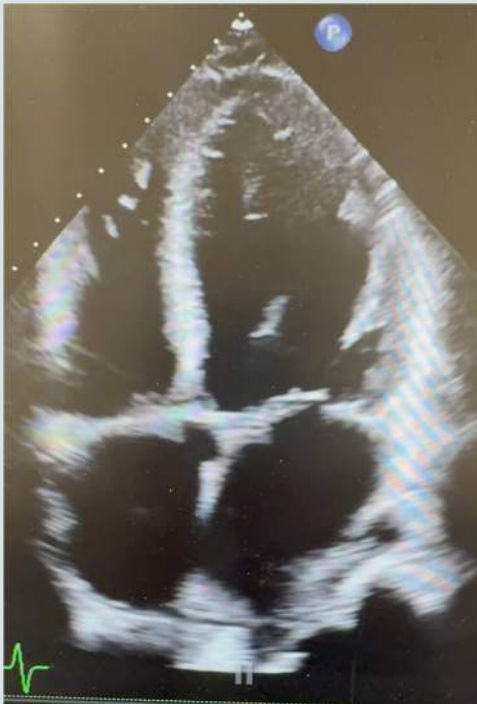
- 6MWD: 428ft
- F&P QOL Cardiac Overall score **14** (>23 WNL)
- Health & Functioning Subscale **11** (>23.2 WNL)
- Social & Economic Subscale **18** (>21.8 WNL)
- Psychological/Spiritual subscale **24** (>22.9 WNL)
- Family Subscale Score **27** (>25.6 WNL)
- 227 lbs

Post

- 6MWD: 1175ft
- F&P QOL Cardiac Overall score **25** (>23 WNL)
- Health & Functioning Subscale **26** (>23.2 WNL)
- Social & Economic Subscale **20** (>21.8 WNL)
- Psychological/Spiritual subscale **26** (>22.9 WNL)
- Family Subscale Score **27** (>25.6 WNL)
- 214 lbs

Perfect Attendance! Completed all prescribed Sessions!!

Outcomes Cont.



5-10% EF



50-55% EF

Conclusions

HIIT is effective in HFrEF populations

Resistance Training with emphasis on muscular endurance can enhance exercise tolerance and improve afterload

Think outside the box & don't be afraid to push patients beyond their norm