Exercise and HF Patients
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Disclosure

I have no actual or potential conflict of interest in relation to this program/presentation.
Heart Failure is an epidemic! This disease is crowding ER’s all across America, it’s expensive, it has a high mortality, it takes time to treat HF. “It takes a village to treat heart failure”
Heart Failure Facts

• About **5.7 million** adults in the United States have heart failure.

• One in 9 deaths in 2009 included heart failure as contributing cause.

• **About half** of people who develop heart failure **die within 5 years** of diagnosis.¹

• Heart failure costs the nation an estimated **$30.7 billion** each year. This total includes the cost of health care services, medications to treat heart failure, and missed days of work.
What is Heart Failure?

Normal EF 50-75%
HFrEF = EF < 40%
HFpEF = EF > 50%
HFmrEF = EF 41-49%
How do you get heart Failure?

- Uncontrolled High Blood Pressure
- Coronary Artery Disease/Heart Attack
- Drug Use (Cocaine & Crack)
- Severe ETOH intake
- Abnormal Heart Valves
- Myocarditis/Inflammation (amyloid)
- Heart Defects/Genetics/Severe Anemia
- Postpartum Cardiomyopathy
- Chemotherapy
- Lung Disease/Sleep Apnea
- Endocrine /Metabolic /Diabetes/Obesity
- Takotsubo/Stress
- Severe Infection
## Signs and symptoms of Heart Failure

<table>
<thead>
<tr>
<th>Symptom</th>
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<tbody>
<tr>
<td>Poor memory</td>
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<tr>
<td>Shortness of breath</td>
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<tr>
<td>Dry cough</td>
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<tr>
<td>Chest pain</td>
</tr>
<tr>
<td>Heart pounding or racing</td>
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<tr>
<td>Swollen abdomen</td>
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<tr>
<td>Loss of appetite</td>
</tr>
<tr>
<td>Cold hands</td>
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<tr>
<td>Swollen lower legs</td>
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<tr>
<td>Swollen ankles</td>
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<tr>
<td>Cold feet</td>
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How do we stage Heart Failure?

NEW YORK HEART ASSOCIATION (NYHA) HEART FAILURE CLASSIFICATION

**CLASS I**
- NO LIMITATION OF PHYSICAL ACTIVITY; ORDINARY PHYSICAL ACTIVITY DOES NOT CAUSE SYMPTOMS

**CLASS II**
- SLIGHT LIMITATION OF PHYSICAL ACTIVITY; COMFORTABLE AT REST; ORDINARY PHYSICAL ACTIVITY CAUSES SYMPTOMS

**CLASS III**
- MARKED LIMITATION OF PHYSICAL ACTIVITY; COMFORTABLE AT REST, BUT LESS THAN ORDINARY ACTIVITY CAUSES SYMPTOMS

**CLASS IV**
- SEVERE LIMITATION AND DISCOMFORT WITH ANY PHYSICAL ACTIVITY; SYMPTOMS PRESENT EVEN AT REST
Treatment for HF

**Diet:** Fluid/salt restriction

**Meds:** Beta Blocker, Diuretic, Ace, Arb, ARNI

**Rehab:** Cardio pulmonary rehab

**Devices:** ICD, Bi-V-ICD, CardioMems, Mitral Clip, LVAD.
What does a typical HF patient look like?

HF does not discriminate!
Benefits of Rehab for HF patients

- Improve Functional Capacity
- Decrease rate of recurrent cardiac or suspected cardiac events
- Decrease rate of re-hospitalizations
- Decrease frequency of falls
- Improve cognitive function
- HF ACTION Study (direct medical costs less in patients that participated in Rehab)
- Benefits of rehab I see (support group, positive self-esteem, they are monitored, more educated, awareness, social benefit, access to knowledgeable healthcare team, watch for weight gain)
Finding the correct HF patients for Rehab

The key word is: “STABLE”

• Per (CMS) **Stable is defined as**: no recent (≤6 weeks) or planned (≤6 months) major cardiovascular hospitalizations or procedures.

• Stable chronic HF with LVEF <35% and NYHA II-III symptoms despite treatment with optimal HF therapy for at least 6 weeks.

• Stable NYHA II-III HFrEF EF < 40%

• Stable NYHA II-III HFpEF EF >50%
Exercise Prescription for HF Patients

Intensity

Duration *(how long for each session)*

Frequency *(usually on a weekly basis)*

Location *(home-based or center)*

Type of Activity

Progression

RPE – Rating of Perceived Exertion

Monitored vs Non-Monitored
Initial Evaluation

- Medical Evaluation
- Baseline Assessment
- Education concerning medication adherence
- Risk factor reduction to include:
  - Dietary recommendations
  - Psychological support
  - Exercise training
  - Physical activity counseling
Typical HF Exercise Plan

• Includes a 3 day per week program with 30-40 minutes of aerobic activity

• Unsupervised home training can overlap with supervised sessions

• Unsupervised home training will gradually become the preferred modality of exercise

• Beta Blockers are a common med for HF patients. So the HR usually remains lower than the maximum by age
Combination Training (Aerobic & Resistance)

Aerobic Exercise
- Treadmill walking
- Cycling
- Upper body ergometry
- Stretching

Resistance Training
- In this population it is more limited
- Teach to breath to prevent Valsalva maneuver
HF meds that worsen exercise tolerance & cause fatigue

- Entresto
- Beta-Blockers
- Calcium Channel Blockers
Positive Effects of Cardiopulmonary rehab in HFrEF patients:

• Reduces HF related admissions
• Improves exercise tolerance
• Lower resting heart rates
• Lower resting neuro-hormonal levels (aldosterone, angiotensin, natriuretic peptide)
• Improves health related quality of life
• Reduces symptoms of depression
Positive Effects of Cardiopulmonary rehab in HFpEF patients:

- Improves functional status
- Improves exercise tolerance
- Improves health related quality of life
- Reduced SVR and cardiac afterload
- Increases endothelial nitric oxide (which reduces PA pressures)
- Reduces pro-inflammatory cytokines
Quality of life verses Mortality

**Quality of Life**
- Improved peak Vo2
- Improved distance in 6 min walk
- Improvement in health status
- Decreased depression
- Improved Lab values
- Improved exercise capacity
- Improvement with ADL’s

**Living longer/Mortality**
- No difference in ALL cause mortality
- If participate > 1 year it does = less mortality in HF patients
- Need more studies on this currently follow up study being done 4 yrs after starting CPR
- Remember NYHA III 5 year mortality rate
Why aren’t HF patients participating in CPR?

- This patient population has a high rate of NCNS
- Transportation/Distance
- Costs (co-pays)
- Lack of interest by the patient & Provider resulting in fewer referrals
- CPR not in standard order sets
- Social Support/Depression
- Business hours of clinic
- Lack of education (Dr, Case Manager, RN)
- Too many Dr. appointments
How to increase volume

• Need referrals
• Once you get referrals you have to act quickly (see the pt face to face)
• Once you see the patient (what’s in it for me?)
• Change their way of thinking...(you are sick and this can improve your illness)
• Provide transportation
• Advertise CPR differently: Risk reduction program
• Have flexible class times
• Find out the best way to communicate with patient
References