Preventing Re-admission with Heart Failure: Transitioning from Acute to Home Care

Speaker(s): Rebecca Crouch, PT, DPT, CCS  
Ellen Hillegass, PT, PhD, CCS, FAPTA  
Kenneth Miller, PT, DPT, CEEAA

Session Type: Educational Sessions  
Session Level: Intermediate

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Preventing re-admission with Heart Failure: Transitioning from Acute to Home Care

E. Hillegass, Mercer University
R. Crouch, Campbell University
K.L. Miller, Touro College

Disclosures

None.
Course Description

- Re-admission to the hospital for patients with heart failure is a national concern and problem as well as it comes with a penalty from CMS if the re-admission occurs within 30 days of discharge.
- Patients with heart failure require monitoring beyond the acute care setting and currently evidence supports continued monitoring of these patients beyond the acute care setting.
- Transition from the acute care setting to the home (or outpatient setting) is not always smooth and communication is often lacking.

This course will discuss:

- The problem of readmission and transition of care, and then discuss how heart failure is treated in the acute care setting and moves to the home setting.
- The identification of high risk heart failure patients, the medications the patients may be sent home with, as well as BEST PRACTICE for care in the home and outside the hospital.
Course Objectives

Upon completion of this course, you will be able to:

• Apply the information on heart failure diagnosis, prognosis and diagnostic testing and determine risk for re-admission and for monitoring in the home setting or out patient setting.
• Analyze the patient with heart failure's medications and determine appropriate monitoring and treatment plan for patient in the home setting.
• Compare the information from a case with heart failure and determine best practice for home care programs for the case.
• Apply information on transition of care issues and determine appropriate documentation and transition practices.

Purpose

• Discuss Relevance to the Health Care System
• Discuss why this is relevant to PT
• Discuss what Influence PT Can have
Overview of Hospital Readmissions

• Heart Failure re-hospitalizations after discharge are #1 among readmission diagnoses in USA
• ~50% of ALL readmissions are for heart failure, other cardiac-related reasons, and renal disorders
• Respiratory diseases are within the top 10 readmission diagnoses

Ramifications of HF Readmissions

• Health Care policies are based on the research-based premise that the majority of readmissions are avoidable, thus reflective of hospital performance and quality
• If a hospital’s readmission rate is higher than the national average, CMS may levy a financial penalty the following year against that facility
Heart Failure Readmission: The Problem

- Leading cause of Hospitalization for individuals > 65 years old
- > 1 million hospitalized/year with diagnosis of HF
- Cost to Medicare: $15-17 billion/year
- >50% readmitted within 6 months of discharge
- 2009: Medicare required public reporting of all-cause readmission rates after HF admission; 2010 instituted penalties for readmission within 30 days.

HF Readmission statistics

- Readmission rates within 30 days are ~ 24% across the country
  - Days 0-30 are particularly vulnerable
  - Days 0-15 represent time frame with largest proportion (58.6% to 68%) (Bradford 2016, Dharmarajan 2013)
  - Days 2, 3, and 4 following discharge appear to be most prevalent for readmission (Bradford 2016, Dharmarajan 2013, Galloway 2016)
What are Factors Related to Readmission?

- Retired or disabled
- Had at least 1 ED visit in past 90 days
- Had a hospital LOS > 5 days
- At D/C, had BUN > 45 mg/dL (nl = 7-20 mg/dL)
- Inconclusive Factors: age, gender, race, marital status, payer type

(Bradford 2016)

Other Factors: Patient Perceptions

- Patient’s perceptions of readmission were studied
  - Perceptions: worsening HF, lack of knowledge
- Half thought re-hospitalization was preventable:
  - those who thought it preventable were less likely to be readmitted

Other Perspectives

- *Comparing Perspectives of Patients, Caregivers, and Clinicians on HF Management*
- Used “free listing” to name items in response to a question

Additional Perspectives
Regarding Knowledge

• *The HF Society of American Guidelines* recommends ongoing education because of lack of efficacy of a single session.

• Education must be routine to **ALL** outpatient visits and hospitalizations, targeting health literacy level, and post-teaching patient understanding


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Non-adherence to Recommendations

• Dietary nonadherence commonly identified by patients and physicians

• Reasons: socioeconomic challenges, lack of health care, low health literacy, psychosocial comorbidities

• Improved adherence through HF disease management programs with close follow-up and continuous education

HF Re-admission Pathophysiology

• Re-hospitalization preceded by gradual rise in ventricular filling pressures
  – Begins > 2 weeks post hospitalization
  – Starts before noticeable changes in weight or overt clinical symptoms
  – Documented this with implanted hemodynamic monitoring
  – As risk of HF events is related to **degree of chronic filling pressure elevation**
  – Risk gets progressively higher when PA diastolic pressure rises > 18 mm Hg.

  • Stephenson  Circulation 2010, Zile Circulation 2008
Rise in ventricular filling pressures

- Clinical symptoms *not sufficiently reliable* to detect early decompensation
  - There is a strong relationship of weight gain to fluid retention
  - There is a lag in weight gain following decompensation
  - Studies have shown intensive weight and vital sign monitoring has NOT reduced rehospitalization

Zile Circulation 2008

Cardio MEMS trial

- Implantable monitors measured PA pressures directly
- Allowed individuals to adjust diuretics
- Results: 39% reduction in HF hospitalizations

Abraham; Lancet 2011
Sometimes we just need a little assistance

Lifetime readmission rates in HF

- Chun (2012) studied 8,500 Canadian pts with HF
  - 30% of all readmissions were in first 2 mos.
  - 50% within 2 mos before death.
  - Lowest readmission 15-20% in time phase between two.
  - Similar results concluded in REMATCH trial (randomized evaluation of mechanical assist for treatment of congestive heart failure)
Lifetime admission risk for HF

Predictors of higher event rates

- Elevated filling pressures
  - Increased JVP
  - Orthopnea
  - Echocardiographic filling patterns
  - Biomarkers that remain high at discharge
    - BNP, troponin
- Low levels of Na
  - Increased renin angiotensin system metabolites
  - Increased circulating catecholamines
Indicators of disease progression and/or worsening clinical outcomes

- Increased diuretic needs
- Intolerance of neurohumoral antagonists (beta blockers, ACE)
  - Patients demonstrate increasing renal dysfunction
  - Patients demonstrate hypotension
- Renal impairment and worsening renal function when patient hospitalized: predictor of adverse outcomes and increased risk of readmission

Foraker  Circ Heart Fail  2011

Other indicators of poor outcomes or higher readmission

- Other diagnoses
  - Atrial fibrillation, ischemic heart disease, hypertension
- Co-morbidities
  - Chronic kidney, pulmonary dysfunction, diabetes, anemia
- Functional Limitations
  - Physical frailty
  - Decreased QOL
- Psychosocial +/-or socioeconomic factors
  - These limit adherence, compliance with meds, self monitoring and follow-up

Flint 2012
Lewis 2010
Frailty Measures

- Short Physical Performance Battery
- Gait Speed
- Handgrip Strength
- Lee criteria (Circulation 2010)
- Frailty Index- Comprehensive Geriatric Assessment (Jones Am Ger Soc 2004)
- Comprehensive Assessment Frailty (Sundermann Eur J Card Surg 2011)
- Frailty Staging System (Cacciatore Eur J Clin Invest 2005)
- Robinson (Ann Surg 2009)
- Edmonton Frailty Scale (Dasgupta; Arch Gerontol Geriatri 2009)

Fried Criteria for Frailty

- Unintentional weight loss
- Weak handgrip strength
- Self reported exhaustion
- Slow gait speed
- Low self reported physical activity
Physical Activity and Rehospitalization

• Waring J Cardioulmonary Rehab 2016:
  – Using accelerometers to measure activity levels after discharge
  – Those in lower physical activity group were more likely to be readmitted within 30 days (p=.02)
• Chawla Ann Am Thor Soc 2014
  – Minutes of higher physical activity were less in group that were rehospitalized (42 min/day vs. 114 min/day) and progressively decreased over time in those that were rehospitalized

Indications for HF Admission

• Decongestion
• Stabilization of fluid balance on oral diuretics
• Treat exacerbating factors
• Titrate neuro-hormonal Antagonists
• Comprehensive D/C planning
  – Follow-up within 7-10 days
  – Nearly ½ readmissions happened before first ambulatory visit Hernandez JAMA 2010
HFPEF

- Little available therapy for those with HFpEF
  - These individuals are ½ of overall burden of rehospitalization

Krumholz Circ 2006
Peterson
Desai NEJM 2011

Diastolic (HFPEF) vs Systolic (HFREF)
Are you still with me?
Heart Failure: the diagnosis, staging of HF, prognosis, diagnostic tests, symptoms, medications and treatment

HF Classifications

- Classification of Severity: New York Heart Association (NYHA)
  - Class I: No physical limitations
  - Class II: Slight limitation of physical activity in which ordinary physical activity leads to fatigue, palpitation, dyspnea, or angina pain, the person is comfortable at rest
  - Class III: Marked limitation of physical activity in which less than ordinary activity results in fatigue, palpitation, dyspnea, or angina pain, the person is comfortable at rest
  - Class IV: Inability to carry out any physical activity without discomfort but also symptoms of heart failure or angina syndrome at rest, with increased discomfort if any physical activity is undertaken
Diagnostic procedures

- CBC: anemia, or infection as cause of HF
- UA: proteinuria – associated with CVD
- Serum electrolyte levels: indicate fluid retention or renal dysfunction
- BUN and creatinine levels: indicate decreased renal blood flow
- Blood glucose: elevated levels indicate increased risk for pts with and without DM
- LFT: elevated in pts with liver dysfunction due to HF
- BNP and NT-proBNP: increased in HF and correlate to NYHF classification
- ECG: arrhythmias, ischemia as causes of HF

Diagnostic procedures

- Lipid profile and thyroid stimulating hormone levels
- Troponin levels if ACS is part of the clinical picture
- Chest Radiographs: pulmonary congestion/edema, cardiac silhouette, plural effusion
- Echocardiogram and doppler: ventricular abnormalities, valvular abnormalities
- Heart Cath and Angiography in select patients/situations
  - Initial dx
  - Symptoms worsen w/o clear cause
  - Before cardiac transplantation or LVAD placement
Treatment Goals

Table 2. Treatment Goals for ADHF
1. Improve symptoms, especially congestion and low-output symptoms
2. Restore normal oxygenation
3. Optimize volume status
4. Identify etiology
5. Identify and address precipitating factors
6. Optimize chronic oral therapy
7. Minimize side effects
8. Identify patients who might benefit from revascularization
9. Identify patients who might benefit from device therapy
10. Identify risk of thromboembolism and need for anticoagulation
11. Educate patients concerning medications and self-management of heart failure
12. Consider and, where possible, initiate a disease-management program

ADHF: acute decompensated heart failure.
Source: References 8, 14-16.

Non-pharmacological treatment

- ACCF/AHA Stage A at high risk for HF
  - Focused prevention/reduction of risk factors
    - Treat HTN, DLP
    - Smoking cessation
    - Prevent/control DM, insulin resistance
    - Encourage physical activity
    - Encourage weight reduction
- Patient education on adverse effects of non-adherence
- Dietary Na 2-3 gms per day and Fluid restriction 2L per day
Treatment of De-compensated HF in the Acute Care setting

HF Case

- Patient is a 58 year old male admitted to hospital for decompensated HF. Hx of large anterior MI in 2012, 2 stents in 2014 to RCA and first diagonal branch of L, EF 22%, still working as CEO and travels occasionally. Patient had been having increasing difficulty sleeping, requiring sleeping upright past few nights and getting up suddenly a few times in night due to shortness of breath. Weight gain of 8 lbs.
- On admission HR 100, BP 80/60, SpO2 86, CXR with extensive bibasilar edema, BNP 1400 on admission, c/o difficulty with urination, and exhaustion.
Acute De-compensated HF

- Clinical presentation
  - Dyspnea
  - Paroxysmal Nocturnal Dyspnea
  - Orthopnea
Hospitalization Recommended

- Evidence of severely decompensated HF
  - Hypotension
  - Worsening renal function
  - Altered mentation
- Dyspnea at rest
  - Typically reflected by resting tachypnea
  - Less commonly reflected by O2 sat < 90%
- Hemodynamically significant arrhythmia
  - Including new onset of rapid atrial fibrillation

Medical Management of HF

- Framingham Classification: dx based on 2 major criteria or 1 major and 2 minor criteria
- Major Criteria
  - Paroxysmal nocturnal dysnea (PND)
  - Weight gain of 4.5 kg (9.9 lbs)
  - Rales
  - Hepatojugular reflux
  - CVP greater than 16
  - Radiographic cardiomegaly
  - Acute pulmonary edema
  - JVD
  - S3 Gallop
  - Yancy HF Guidelines 2016
Medical Management of HF

• Minor Criteria
  – Nocturnal cough
  – Dyspnea on ordinary exertion
  – Decrease in vital capacity by 1/3 the maximal recorded value
  – Pleural effusion
  – Tachycardia (rate of 120)
  – Hepatomegaly
  – Bilateral ankle edema

De-compensated HF Treatment

• Patients with fluid overload: IV diuretics over oral
  – Current research is looking at ultrafiltration (CRRT) instead of diuretics to normalize fluid overload
• Watch for development of other side effects:
  – Renal dysfunction, electrolyte abnormality, symptomatic hypotension, gout
• All patients receiving diuretic therapy need constant hemodynamic monitoring to prevent adverse effects from excessive volume loss.
• Routine administration of supplemental oxygen in presence of hypoxemia.
De-compensated HF Treatment

- Use of Noninvasive Positive Pressure Ventilation is indicated in presence of hypoxemia and pulmonary edema with severe dyspnea
- Use of VTE prophylaxis (who are not already anticoagulated) to prevent proximal DVT and PE in patients admitted with acute decompensated HF
- In absence of symptomatic hypotension, IV nitroglycerin, nitroprusside or nesiritide (natrecor) should be started (in addition to diuretics) in individuals with congestion
- In individuals with severe pulmonary edema or severe hypertension initiation of IV vasodilators and diuretics.

Pharmacologic Treatment

- Heart Failure Cocktail
  - Diuretic- to reduce blood volume and venous pressure
  - Beta Blocker- arrhythmia prevention, rate control
  - ACE/ARB- neurohumoral modification, vasodilation, improvement in LVEF
  - Hydralazine and nitrates improves symptoms, ventricular dysfunction, and exercise capacity in those that cannot tolerate ACE/ARB
- Other options
  - Aldosterone antagonist- 2nd diuretic
  - Digoxin- can increase CO, anti-arrhythmia
  - Anticoagulant- decrease risk of thromboembolism
  - Inotropic agents- restore organ perfusion and reduce congestion
  - Hemodialysis/Ultrafiltration/CRRT
De-compensated HF Treatment

- IV inotropes (milrinone, dobutamine) should be initiated in individuals with advanced HF, dilated LV, reduced LVEF, diminished peripheral perfusion and end organ dysfunction to reduce symptoms and improve end organ function.

- Patients admitted with decompensated failure should be evaluated for atrial fibrillation or other serious arrhythmias, exacerbation of hypertension, myocardial ischemia, exacerbation of pulmonary dysfunction, anemia, thyroid dysfunction, drug interactions or other intervening factors.

Monitoring during hospitalization

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Specific Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>Determine weight after morning void and monitor food intake</td>
</tr>
<tr>
<td>Daily</td>
<td>Fluid intake and output</td>
</tr>
<tr>
<td>Throughout day</td>
<td>VS monitoring: watch for hypotension, O2 saturation</td>
</tr>
<tr>
<td>Daily</td>
<td>Symptom check: dyspnea, cough, fatigue, PND, lightheaded</td>
</tr>
<tr>
<td>Daily</td>
<td>Electrolyte monitoring: Na, K</td>
</tr>
<tr>
<td>Daily</td>
<td>Renal Function: BUN, serum creatinine</td>
</tr>
</tbody>
</table>
Non-pharmacological treatment

- ACCF/AHA Stage A at high risk for HF
  - Focused prevention/reduction of risk factors
    - Treat HTN, DLP
    - Smoking cessation
    - Prevent/control DM, insulin resistance
    - Encourage physical activity
    - Encourage weight reduction

- Patient education on adverse effects of non-adherence

- Dietary Na 2-3 gms per day / Fluid restriction 2L per day

Role of PT in hospital

- EARLY assessment...as soon as stabilized on meds when on bedrest
- Monitoring of ALL activities: ADLs, gait, stairs
- Immediate communication to all healthcare providers or normal OR abnormal responses
- Monitoring of ALL medication changes and assessing all activities when medication changes occur
- EDUCATION
Assessment of Frailty

- Assess frailty and make a plan for decreasing frailty upon discharge
  - Options: SPPB, Gait speed alone, 5 min walk, or any other option

HF Case

- Our patient was seen by PT on day 2. Patient underwent IV diuresis, and on .35 IV milrinone. (Down from .75 mg milrinone). VS 100/80, HR 86 and SpO2 96% at rest. Pt still c/o fatigue/weakness.
- Initial eval: patient tolerated upright and OOB to chair with flat BP responses, and was assessed with walking 50 feet with flat BP response.
- Performed SPPB: performed 5x sit to stands in 32 seconds, lost balance during tandem position of balance test and gait speed was 0.5 meters/sec.
- Results of SPPB places patient in highly frail category
Electrophysiologic Intervention

- Pacemakers-
- Implantable cardioverter-defibrillators
  - LVEF less than 35% from MI, greater than 40 days s/p
  - NICMO w/LVEF less than 35%, NYHA class II or III, w/optimal medical therapy, expected to survive longer than 1 year w/good functional status
  - Hx of VF
  - Documented hemodynamically unstable VT and/or VT w/syncope, expected to survive longer than 1 year w/good functional status
- Cardiac resynchronization therapy/biventricular pacing

Revascularization procedures

- CABG and PCI – indicated in presence of HF, if good quality of life
Valvular Surgery

- AV replacement for patients w/AS and less than 10% risk of surgical mortality
- TAVR for high risk patients
- MV repair or replacement for MR secondary to ventricular dilation, generally not recommended
- AV repair or replacement w/severe Aortic regurgitation, LVEF less than 50%

Endstage HF

- Mechanical circulatory support devices
- Heart transplantation
De-compensated HF Treatment

- Discharge planning should address the following issues:
  - Details regarding medication, dietary sodium restriction, and rec. activity level
  - Follow-up by phone or clinic visit early after discharge to reassess volume status
  - Medication and dietary adherence
  - Alcohol moderation and smoking cessation
  - Monitoring of body weight, electrolytes and renal function
  - Consideration of referral for formal disease management.
  - Plan to decrease frailty
Hanging in there?

What about after the acute care admission? What is the transition/information exchange to home care or outpatient?
Transitional Care

“…services designed to ensure health care continuity, avoid preventable poor outcomes among at-risk populations, and promote the safe and timely transfer of patients from one level of care to another or from one type of setting to another.”

Naylor et al. Health Affairs 2011

Care Transitions

- Vulnerable Exchange Points or “Handoffs”
  - Increased risk of potentially avoidable hospitalizations
    - 20% of Medicare Beneficiaries readmitted within 30 days.
    - 34% readmitted within 90 days.
    - 15 billion annually spent
Care Transitions Model

Model objectives
- Improve provider-to-provider communications
- Improving coordination of care
- Educating patients on how to self-monitor and manage their medical conditions

Interventions
- Coaching
- Use of IT
- Self Management Support
- Coordination of referrals
- Interactions with post acute, outpatient providers

Care Transitions Interventions Associated with Cost Avoidance

- Pt-centered coaching empowering individuals to better manage their health.
  - Personal Health Record, making follow up appointments, and responding to worsening signs and symptoms
- Initiated in hospital, continued for 30 days, one home visit and one to two phone calls.
- Outcomes:
  - 6-month cost avoidance, with an average of $3,752
  - 6-month readmissions per 1,000 persons were significantly lower for those in the intervention group (651 per 1,000 vs. 856 per 1,000, P=0.03)

Role of Therapists

“None of these innovative care transition models formally include physical therapist analysis of, or intervention on, known independent functional predictors of hospital readmission, such as gait speed, strength or activities of daily living (ADL) ability.”


Pharmacist Intervention for Low Literacy in Cardiovascular Disease (PILL-CVD) study

- Randomized Controlled Trial
- Pharmacist Assisted Medication Reconciliation and Counseling in Hospital
  - Illustrated Medication List
  - Pill Box and Instructions in use
- Follow up Coordinator Call to patient 1-4 days after discharge home
- N = 125
- Components of the intervention that received the most favorable responses were
  - speaking to the pharmacist *(72.8% rated as very helpful)*
  - receiving an illustrated medication schedule (69.6%)
  - follow-up phone call at home (68.0%)
Hospital Readmission Risk Factors (during transition to home)

- Medical complexity
- Age
- Comorbidities
- Access to care
- Social support
- Impaired physical function

HOME CARE PROGRAMS FOR THE PATIENT WITH HEART FAILURE: BEST PRACTICES UTILIZING ICF MODEL
Home Care Best Practices

- Patient-Centered Focus
- Medication Management
- Communication and Care Coordination
- Timely Follow-Up by the Health Care Team (including the primary care physician and home health)
- Patient-activated Education and Coaching

Patient Centered Focus

- Self Management
  - Daily Weights
  - Medication Adherence
  - Activity Level
  - Diet
- Patient Education Materials
- Teach Back
HF Self Management

**Green Zone = “All Clear”** Means: Your symptoms are under control; Continue taking your meds; Continue your prescribed diet; Keep your medical appointments; Enter your weight on the weight chart.

- No New Shortness of Breath
- No New Swelling of your feet, ankles, legs or stomach
- No Weight Gain
- You have no decrease in your ability to maintain normal activity

**Yellow Zone = “Caution”** If you begin to have any of the following signs and symptoms: call your health care provider as soon as you notice any of these changes.

- You have weight gain of no greater than 2 lbs. in one day or 5 lbs. in 5 days, you have a dry/moist hacking cough, you experience more swelling of your feet, ankles, legs or stomach, you have increased shortness of breath, you feel more tired, it is harder for you to breathe when lying down, you need more pillows to sleep, you need to sleep sitting up in a chair

**Red Zone = “Medical Alert”** You need to be evaluated by a physician right away. Call 911

- You have unrelieved shortness of breath while sitting still, you have difficulty breathing, you have wheezing or chest tightness at rest, you have chest pain, you have confusion or inability to think clearly, you have weight gain greater than 2 lbs. in one day or 5 lbs. in 5 days

Adapted from LIHN “Managing your heart failure” Teaching Guide. LIHN.org

Other Signs of HF

- Presence of S3 heart sound
- Elevated jugular venous pressure
- Inspiratory crackles
- Lower extremity edema.
- Tachycardia
- Blood Pressure may be high or low
Cardiovascular Disease and Frailty

Common Risk Factors
- obesity, smoking, sedentary lifestyle

AHA Recommendation
- **For Overall Cardiovascular Health:**
  - At least 30 minutes of moderate-intensity aerobic activity at least 5 days per week for a total of 150 OR:
  - At least 25 minutes of vigorous aerobic activity at least 3 days per week for a total of 75 minutes; or a combination of moderate- and vigorous-intensity aerobic activity AND Moderate- to high-intensity muscle-strengthening activity at least 2 days per week for additional health benefits.
- **For Lowering Blood Pressure and Cholesterol:**
  - An average 40 minutes of moderate- to vigorous-intensity aerobic activity 3 or 4 times per week
HF-ACTION Trial

- RCT – N= 2331. Two groups, control and exercise group
- Exercise training group
  - 11% reduction in all-cause mortality/hospitalizations
  - 15% reduction in cardiovascular mortality/HF hospitalizations
  - Improved QOL Kansas City Cardiomyopathy Questionnaire
- Exercise Prescription utilized a single approach to exercise
  - moderate intensity, continuous aerobic exercise, 3 times per week supervised for 30 minutes
- Supervised 36 sessions, with an individualized exercise prescription on the basis of cardiopulmonary exercise testing (CPX).
- Halfway through this training period, patients received, at no cost, a home treadmill or stationary bicycle and a heart-rate monitor for personal use.
  - They were instructed to exercise 5 times per week at moderate intensity for 40 min.


HF Management

- Edema Management
  - Elevation of LE’s
- Sleeping Positioning
  - Orthopnea
- Diet – sodium restrictions/fluid restrictions
- Ace Bandaging/Wraps/Compression Garments?
  - Get Orders from MD
    - Ankle Brachial Index (determine amount of compression)
    - Increased workload on heart
International Classification of Functioning, Disability and Health

Contextual Factors – Barriers and/or Facilitators for optimizing outcomes

- Environmental Factors - architectural, support system, attitudinal

- Personal Factors - occupation, hobbies, finances, education level

International Classification of Functioning, Disability and Health (ICF)
Barriers to Self Care – ↓ compliance

- Patient perception of how effective treatment is
- Health literacy
- Financial Impact
- Difficulty in identifying and understanding early symptoms
- Medication Concerns: unpleasant side effects, can’t afford, forget to take them, med management concerns
- Have you considered depression?
  - Fear of death/facing own mortality
  - Reduced ability to function


HF Case

- 58 year old male referred for home health.
- Patient goal return to work as CEO and travels occasionally.
- Height - 5’9”; Weight 220 pounds. BMI - 33.
- Meds: Metoprolol, Lisinopril, Simvastatin, Lasix, K-Dur. Low Salt Diet, NFR.
- On admission at rest: HR 88, BP 110/60, RR 20, SpO2 96%; with activity HR 90, BP 120/66, RR 24, SpO2 90%.
- PT Eval: Gait Speed - 1.6 ft/sec; RPE scale (climbing 3 steps) - 7/10
- Functional: Bed Mobility - I; Transfers - SBA; Amb 50’ x 2 - SBA +2 dyspnea
- Interventions? Goals?
Eligibility for Traditional Cardiac Rehab

- Acute MI within the preceding 12 months
- Coronary artery bypass surgery
- Heart valve repair or replacement
- Percutaneous transluminal coronary angioplasty (PTCA) or coronary stenting
- Heart or heart-lung transplant

HF Criteria for Traditional Cardiac Rehab

- Beneficiaries with stable, chronic HF, defined as L ventricular EF ≤ 35% AND NYHA class II,III,IV symptoms despite being on optimal HF therapy for at least 6 weeks
- Stable patients are defined as those who have not had recent (< 6 weeks) or planned (< 6 months) major cardiovascular hospitalizations or procedures

National Coverage Determination (NCD) for Cardiac Rehab, January 1, 2010
Example of a PT-based Out-Patient HF Program

- Criteria for PT-based Program
  - EF > 35% (For example: LVAD, LVAD or HF patient awaiting heart transplant, HFpEF, patients with physical impairments; i.e. CVA, other neurological impairments, morbidly obese, wheelchair bound, ambulatory impairments and devices, significant cardiac and pulmonary disease)
  - May be admitted from the time of acute D/C to 6 weeks after D/C
  - May use CPT codes for billing

Components of a PT-based HF Rehabilitation Program

- Aerobic Training
  - Walking (level surface or treadmill)
  - Stationary Biking (preferably recumbant)
  - Stairs
  - Interval training VERY EFFECTIVE!
- Flexibility and Posture Exercise
  - Stretch Pecs, hamstrings, gastroc/soleus
  - Posture correction
Components of a PT-based HF Rehabilitation Program

• Muscle Strengthening and Breathing Re-training
  – Core stabilization
  – Use light-moderate weights and elastic bands (Sit and/or Stand)
  – Balance training
  – Pursed lip breathing and paced breathing with activity
  – Oxygen management

• Circuit Training Stations
  – Focus on fun and functional activities: vacuuming/sweeping the floor, emptying the dishwasher, moving laundry from washer to dryer, tossing a ball, “stirring the pot”, swinging a golf club, picking up objects from the floor, marching in place, sit to stand, walking obstacle course

RECOMMENDATIONS
Recommendations

• PT should be involved EARLY during hospitalization for decompensation
  – Assessment of tolerance to activity as soon as stabilized on bedrest
  – Assessment of frailty
• Communication of exercise tolerance and frailty to transition team for D/C
• Upon D/C carry out previous plan

Whooooo has questions???
References


2. Desai AS and Stephenson LW. Rehospitalization for Heart Failure: Predict or Prevent? Circulation 2012;126:501


References


13. Flint KM et al. Frailty and the Selection of patients for Destination Therapy LVAD. Circ Heart Failure 2012; 5: 286


References