Emerging Concepts in Innovative Care of the Patient with Heart Failure

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Huron Valley Sinai Hospital Heart Failure Nurse Navigator
Objectives

- The learner will have improved knowledge of the background/relevance of HF as a core measure and related quality measures.

- The learner will have improved knowledge of HF including: prevalence, morbidity/mortality, definitions, and basic pathophysiology.

- The learner will have improved knowledge of organizational HF initiatives

- The learner will be able to describe potential opportunities for initiatives r/t COPD
What’s *driving* changes in health care related to heart failure?
Heart failure

**CHF Statistics**
- Affects 5.1 million people in U.S.
- Contributes to 1 in 9 deaths
- 1 million hospital admissions annually
- After age 40- 20% chance of HF

**Cost**
- $32 billion in U.S. health care costs

**Mortality**
- 50% mortality within 5 years of symptom onset
Core Measures

- The Joint Commission/Medicare mandates
  - LV assessment
  - ACEI/ARB prescription
  - Smoking cessation education
  - Discharge education
  - 30 day readmission rates
    - Reimbursement issues
      - Variable Cost of HF admission at HVSH averages $3100
Pathophysiology review
At-risk patient with risk factors

Triggering event (MI, arrhythmia)

LV dysfunction

Worsening heart failure

Increased vascular resistance
Increased heart rate
Altered renal blood flow
Adverse remodeling

Hemodynamic effects

Initial hemodynamic response

Reduced stroke volume
Increased filling pressures

Compensatory mechanisms

Activation of RAAS
Activation of SNS
Activation of pro-inflammatory cytokines
Increased vasopressin

(Ramani, Uber, & Mehra, 2010).
Fig. 2. The scheme of the renin-angiotensin-aldosterone system, the formation of angiotensin II and the effects of renin and angiotensin-converting enzyme (ACE) inhibition or angiotensin type 1 (AT₁) receptor blockade. Angiotensinogen is converted to angiotensin I by the protease renin. The ACE peptidase and chymases produce angiotensin II, which binds to the AT₁ and AT₂ receptors to exert biological functions and stimulates aldosterone secretion. ACE inhibitors (ACEIs) inhibit angiotensin II formation and the degradation of bradykinin. Angiotensin receptor antagonists (angiotensin receptor blockers; ARBs) selectively inhibit the AT₁ receptor, giving angiotensin II the opportunity to stimulate the AT₂ receptor pathway. Renin activity can be blocked by direct renin inhibitors (DRIs). (Werner, Poss, & Bohm, 2010).
<table>
<thead>
<tr>
<th>ACC/AHA Class</th>
<th>NYHA class</th>
<th>Management Strategy</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>I</td>
<td>Risk factor reduction, Lifestyle modification, Screening</td>
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<tr>
<td>B</td>
<td>II/III</td>
<td>ACEI/ARB, beta blockers, diuretics, ICD</td>
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<tr>
<td>C</td>
<td>IV</td>
<td>Hydralazine/nitrates, ICD/CRT, Aldosterone antagonism, Digoxin</td>
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<tr>
<td>D</td>
<td></td>
<td>Transplant, LVAD, palliation</td>
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(Ramani, Uber, & Mehra, 2010)
Pathophysiology review

- **Systolic dysfunction**
  - Weak pump
  - EF <40%
    - Decreased stroke volume
  - Increased pulmonary congestion
  - Usually has some associated diastolic dysfunction
  - Exercise has positive effects
  - Diagnosis: Echo, cardiac MRI, left heart cath., cardiolite stress test with multi-gated acquisition
Pathophysiology review

- **Diastolic dysfunction**
  - Stiff heart/impaired filling
  - Increased pulmonary congestion
  - Can occur without systolic dysfunction
  - Exercise “does not provide benefit”
  - Diagnosis: LV end diastolic pressure via heart catheterization >16mm Hg, capillary wedge pressure >12mm Hg, tissue doppler
  - Use diuretics /nitrates cautiously to prevent preload reduction?
  - Calcium channel blockers
CHF Process Improvement Focus

Pre-Hospitalization

Hospitalization

Post Hospitalization
HVSH HF Initiatives

- Heart Failure Nurse Navigator
  - Quality Measures- clinical pathway
  - Improved Inpatient education
  - Patient call-backs
  - Cardiac Rehab Pilot/Research study
  - Homecare Agency/Skilled nursing facility partnerships
Core Measures: 30 day Readmissions

CHF
MI
Sepsis
COPD
Pneumonia
CHF Action Items

- Pre-Hospitalization
  - Community Education
- CHF Support Group
- Coordination with Pre-hospital Care Providers (EMS)
- Physician Information
- Community Outreach
CHF Action Items (cont.)

- **Hospitalization**
  - Improve Nursing Education related to CHF
  - Improve Patient Education related to CHF
  - Develop Progressive Patient Education Pathway
  - Improve Medication Reconciliation and teaching
  - First Appointment before Discharge
Mandated Discharge HF Patient Education

- Daily weights
  - Scale
    - Does the patient have one? HVSH supplies scales to patients prior to D/C
- Signs/symptoms
- Medication compliance
- Low sodium diet
- Activity guidelines
- When to call physician/911
CHF Action Items (cont.)

- **Post Hospitalization**
  - Call Backs: Day 3, day 8, day 13, day 25
  - CHF Rehab pilot/research study
  - Work with Home Care agencies to coordinate care across continuum
Care Navigation

- Identify CHF patients-monitor compliance of EBP standards
- Support patient/family self-mgt education
- Ultimate goal: Develop long-term relationships with patients/families
- Assess care transitions process
  - Develop relationships with homecare/SARs for improved communication/process improvement
  - Provide input about how to best meet pt/family need
  - Assist patients/families through continuum of care
Kris Roberts RN  
Heart Failure Nurse Navigator  
DMC Huron Valley-Sinai Hospital  
Phone: (248) 937-4242

My role is to support you by providing heart health education and assistance to help you take charge of your health care needs. These services are provided by Huron Valley-Sinai Hospital at no cost to you.

I am available/responsible for:

- Inpatient heart failure education.
- Post-discharge telephone follow-up *(1x/week for 1st month home)*.
- Outpatient individual consultations such as:
  - Heart education
  - Cardiac diet
  - Medication review
  - Exercise prescription
- Heart Failure Outpatient Exercise Program.
- **Monthly Heart Failure Support Group.** Held on the 2nd Wednesday of the month at 5PM located in Outpatient Cardiology.
- Ongoing telephone support.
- Community education/screening.

Please call 248-937-4242 for more information.
How and why was the role created?

- **Why**
  - Reduce rate of readmissions within 30 days
  - Best practice
  - Improved continuum of care

- **How**
  - Pilot program: **Data, Data, DATA**
  - Perseverance- (the right person at the right time)
Current Data

- Prior to program: HVSH CHF 30-day readmit rate was 21% (national average 23%)
- 2015 readmit rate was 16%

24% Reduction
Patient Identification

- Monitor lab values: BNP
- Census sweeps
- Chart reviews
  - Primary or secondary dx CHF
  - Teachable patient/family
  - Identification of potential issues with continuum of care
Advantages

- Oversight of transition of care
- Real time process improvement
- Open communication
  - Patient/family ↔ hospital
  - Hospital ↔ SAR/homecare
- Referral for ancillary services
The Impact of Supervised Exercise using a Phase II Cardiac Rehabilitation Framework on Select Outcomes among Patients with Heart Failure

1. To determine the impact of a supervised exercise program on the functional capacity, quality of life, and depression in patients with heart failure

2. To determine if a supervised heart failure exercise program decreases the rate of hospital readmission.
Significance

- **Phase II Cardiac Rehab**
  - **Class 1 A** recommendation for most cardiac dx
    - Increases functional capacity
    - Provides educational support for patient self-management
    - Improves quality of life

- **Heart failure patients**
  - Prior to 2014
    - Medicare: No reimbursement stating lack of evidence to support inclusion
    - IRB approval for study Sept 2013
  - February 2014
    - Medicare updated policy: Now allows a small subgroup of HF patients (Ejection fraction <35%)
      - Continues to state lack of evidence to support attendance for all heart failure patients.
The Impact of Supervised Exercise using a Phase II Cardiac Rehabilitation Framework on Select Outcomes among Patients with Heart Failure

- 18 sessions of phase II (2x/week)
- PHQ-9 Pre/Post
- Kansas City Cardiomyopathy Questionnaire Pre/Post
- 6 Minute Walk Distance Test (6MWD) Pre/Post
- Hospital Readmissions- # of admissions/LOS
  - 6 months pre-enrollment
  - Concurrent with program
  - 6 months post-discharge
Measure #1

Quality of life Assessment
Kansas City Cardiomyopathy Questionnaire (KCCQ)
Pre/Post
Measure #2

Depression Assessment

Patient Health Questionnaire -9 (PHQ-9)

Pre/Post
Measure #3

Functional Status Assessment

6 Minute Walk Distance Test (6MWD)

Pre/Post
Measure #4

Rate of hospital admission/total days hospitalized

1. Preprogram within 6 months of start
2. Concurrent with program participation
3. Post-program within 6 months completion
Procedure

Eligible HF Pts

Pretesting
PHQ9
KCCQ
6MWD

Participate in 18 sessions of supervised exercise (phase II format)

Post testing
PHQ9
KCCQ
6MWD

# hospitalizations
Total days
hospitalization w/in 6 mos participation

# hospitalizations
Total days
hospitalization concurrent with participation

# hospitalizations
Total days
hospitalization post 6 mos participation
Results

**Quality of life Assessment KCCQ**

Pre/Post (n= 67)

30% Average improvement QOL score (t= -7.35, p<.01)
Results

Depression PHQ-9
Pre/Post (n=68)
47% Average Decrease in depression score
(t=5.86, p<.01)

Functional Status 6MWD
Pre/Post (n=65)
22% Average improvement
(t= -8.55, p<.01)
Results

Hospitalization
6 months Pre/Concurrent/6 months Post (n=70)

Concurrent with participation: decrease rate of hospitalization by 86% and 90% decrease in # days.

6 mos pre to post: 68% decreased rate (t=6.07, p<.01) and 72% decrease in days (t=4.96, p<.01)
Conclusion

Implications for Clinical Practice

- Dissemination of these positive current results may provide support for additional changes in Medicare policy coverage providing all HF patients access to supervised exercise programs.
Success Stories

Research study
Post discharge calls
Homecare/SAR relationships
Readmission rates
Conclusion

- Questions?
References


