PALLIATIVE CARE IN HEART FAILURE

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Objectives

Define Heart Failure (HF), end stage HF

Define Palliative Care

Prognosis in HF

Palliative care for HF
Heart Failure

( definition)

• The inability of heart to meet the metabolic demands of the body
The Burden of Advanced Heart Failure

More than 5 million Americans have heart failure, 1-2% of general population, 20% of elderly (Hauptman 2005)

The number of deaths due to heart failure in 2004 was 284,365

The yearly cost of heart failure was roughly $30 billion in 2006.

End-stage heart failure has one of the largest effects on quality of life of any advanced disease.
Decision Making in Advanced Heart Failure: A Scientific Statement From the American Heart Association

Larry A. Allen, Lynne W. Stevenson, Kathleen L. Grady, Nathan E. Goldstein, Daniel D. Matlock, Robert M. Arnold, Nancy R. Cook, G. Michael Felker, Gary S. Francis, Paul J. Hauptman, Edward P. Havranek, Harlan M. Krumholz, Donna Mancini, Barbara Riegel and John A. Spertus

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Why palliative care for HF?

• Median survival:
  – grades 3 and 4 - 1 year

  “More malignant than cancer? Five-year survival following first admission for heart failure”.

Eur J Heart Fail 2001
Why

Table 1. Incidence of and Number of Deaths Due to Heart Failure Compared With Other Common Causes of Death in the United States

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Incidence</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart failure³</td>
<td>≈500 000</td>
<td>284 365</td>
</tr>
<tr>
<td>Lung cancer⁴</td>
<td>196 252</td>
<td>158 006</td>
</tr>
<tr>
<td>Breast cancer⁴</td>
<td>188 587</td>
<td>41 316</td>
</tr>
<tr>
<td>Prostate cancer⁴</td>
<td>189 075</td>
<td>29 002</td>
</tr>
<tr>
<td>HIV/AIDS⁵</td>
<td>37 726</td>
<td>16 395</td>
</tr>
</tbody>
</table>
Palliative Care

WHO

Approach that improves quality of life of patients and families facing life-threatening illness

- Prevention and relief of suffering
- Early identification and assessment
- Treatment of pain and other problems: physical, psychosocial, and spiritual
Palliative care integrative model
Heart failure common symptoms

- Fatigue
- Dyspnea
- Edema
- Insomnia
- Anxiety and Depression
- Pain
- Confusion
- Anorexia
- Constipation
- Polypharmacy
- Fear of the future

Similarities to Cancer
An Evaluation of the Prevalence and Severity of Pain and Other Symptoms in Acute Decompensated Heart Failure

Pain is a common, under recognized symptom in patients with chronic but acute decompensated heart failure. The most common and severe symptoms in patients with chronic heart failure, regardless of ejection fraction.

• Decreased well-being
• Shortness of breath
• Tiredness

Barriers to the integration of Palliative care and Cardiology services

• Recognition End stage disease of HF
• The unpredictable disease trajectory (Prognostic paralysis)
• Reluctance of Knowledge that CHF is terminal illness
• Lack coordination of services and lack of confidence communication
“Cancer” trajectory – diagnosis to death

Onset of incurable cancer

Time

--- Often a few years, but decline usually < 2 months

Function

High

Low

Possible hospice enrollment

Death
‘Organ system failure’ trajectory

- Begin to use hospital often, self-care becomes difficult
- Time
- ~ 2-5 years, but death usually seems “sudden”
Stage of Heart Failure

American College of Cardiology defines stage of Heart Failure:

- **Stage A**: high risk for developing HF
- **Stage B**: asymptomatic LV dysfunction
- **Stage C**: past or current symptoms of HF
- **Stage D**: end stage HF
New York Heart Association (NYHA) Classification

- **Class I** – No dyspnea (but low EF on echo)
- **Class II** – Dyspnea on strenuous activity
- **Class III** – Dyspnea on activities of daily living
- **Class IV** – Dyspnea at rest
Stages in the Development of Heart Failure

Stage A: At high risk of heart failure but without structural heart disease or symptoms of disease
- Hypertension
- Atherosclerotic disease
- Diabetes
- Obesity
- Metabolic syndrome
- Patients: Using cardiotoxins
- With family history of cardiomyopathy

Stage B: Structural heart disease but without signs or symptoms of heart failure
- Patients with:
  - Previous myocardial infarction
  - Left-ventricular remodelling including left-ventricular hypertension and low ejection fraction
  - Asymptomatic valvular disease

Stage C: Structural heart disease with previous or current symptoms of heart failure
- Patients with:
  - Known structural heart disease
  - Shortness of breath and fatigue, reduced exercise tolerance

Stage D: Refractory heart failure requiring specialised interventions
- Patients with:
  - Pronounced symptoms at rest despite best medical treatment (eg, those who are recurrently admitted or cannot be safely discharged from hospital without specialised interventions)
Schematic Etiology of Heart Failure Symptoms
End Stage Heart Failure

NYHA Grade IV

- Dyspnea at rest
- Often have hypotension
- Clinical features of CHF
  - Typically EF < 20%
  - (Grade 4 Ventricle)
Prognosis in Heart Failure

- Difficult to predict time of death
- Challenging in HF d/t:
  - Cyclical nature of disease
  - Complexity of care
  - Recent advances (in med. devices):
    - Implantable defibrillators
    - Biventricular pacesmakers
    - LVAD
Prognosis in Heart Failure

Mechanism of death in HF:

- Sudden cardiac death
- Arrhythmias - Brady- or Tachy
- Progressive heart failure

Varies depending on NYHA class:

- Class II – higher risk of sudden death or “drop”
- Class IV - increasing symptoms
## Prognostication

<table>
<thead>
<tr>
<th>NYHA Class</th>
<th>1 Year Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>5-10%</td>
</tr>
<tr>
<td>II-III</td>
<td>15-30%</td>
</tr>
<tr>
<td>IV</td>
<td>50-60%</td>
</tr>
</tbody>
</table>
Prognosis in Heart Failure

Heart Failure Prognostic Tools

Single-item predictors: 6-minute walk test, maximal oxygen consumption, B-type natriuretic peptide, creatinine levels

Complex multivariable models –

Seattle Heart Failure Score –

ADHERE (Acute Decompensated Heart Failure – National Registry)
Prognosis in Heart Failure

Factors that predict an increased likelihood of death:

- frequent emergency department visits or hospitalizations
- symptoms at rest
- weight loss 10%, albumin 2.5 g/dL
- ejection fraction 20%
- symptomatic arrhythmia
- prior cardiopulmonary resuscitation, prior syncope, and embolic stroke
Prognosis in Heart Failure (cont.)

New York Heart Association Class IV admission in past 12 months

Decline in functional status and need for assistance in activities of daily living

Persistent S3 gallop rhythm

Serum creatinine increased

Resting heart rate ≥100 bpm

Age ≥70 years

Serum haemoglobin ≤115 g/L without documented site of bleeding
Guideline Recommendations for Palliation in End-Stage Heart Failure (ACC & AHA 2005)

Stage D Heart Failure
(SHFS or HFSS 50% survival <1 yr, Persistently Elevated BNP, Low VO2 Max)
Establish goals of care, living will, and health care proxy

Transplant Candidate?
(under 70, no end organ damage, no significant co-morbidities)

No
AICD? - Consider changing settings depending on patient's wishes
Assess pain control, screen for depression
Palliative care consultation
Consider hospice
Consider home inotropes
Consider LVAD destination Rx

Yes
Refer to transplant center
Possible LVAD as bridge to transplant
Optimal Medical Management
### Table 1  Pharmacological management of end stage heart failure

1–5

- **Goal 1: Improvement of morbidity and mortality**
  - ACE inhibitors
  - ARBs (if ACE inhibitor intolerant or plus ACE inhibitors if still symptomatic)
  - Selected β-blockers
  - Aldosterone antagonists

- **Goal 2: Control of symptoms**
  - Diuretics (eventually thiazide plus loop diuretic)
  - Digitalis (low-dose)
  - Consider temporary inotropics
  - Selected antiarrhythmics

- **Goal 3: Palliation**
  - Opioids, antidepressants, anxiolytics
  - Oxygen
  - Consider continuous inotropics

ACE, angiotensin-converting enzyme; ARBs, angiotensin II type 1 receptor blockers.
## Pharmacologic Management

<table>
<thead>
<tr>
<th>Drug</th>
<th>NYHA 1</th>
<th>NYHA 2</th>
<th>NYHA 3</th>
<th>NYHA 4</th>
<th>Survival</th>
<th>Hospital Admits</th>
<th>Functional Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diuretic</td>
<td>X</td>
<td>☆</td>
<td>☆</td>
<td>☆</td>
<td></td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td>ACE-I</td>
<td>☆</td>
<td>☆</td>
<td>☆</td>
<td>☆</td>
<td>↑</td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td>ARB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td>ARNI</td>
<td></td>
<td></td>
<td>+++)</td>
<td></td>
<td></td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td>Spironolactone</td>
<td>X</td>
<td>X</td>
<td>☆</td>
<td>☆</td>
<td>↑</td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td>B-blocker</td>
<td>X</td>
<td>☆</td>
<td>☆</td>
<td>☆</td>
<td>↑</td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td>Digoxin</td>
<td>X</td>
<td>☆</td>
<td>☆</td>
<td>☆</td>
<td></td>
<td></td>
<td>↑</td>
</tr>
</tbody>
</table>

Oxford 2002
Sources of Suffering in Advanced Heart Failure

The most common symptoms and comorbidities

- Dyspnea
- Pain
- Depression
- Fatigue
- Edema
Symptom Oriented Palliation
Symptom Oriented Palliation: Dyspnea

Loop diuretics with or without thiazides
Nitrates
Low-dose opioids

Benzodiazepines
Oxygen
Inotropes

Acupuncture
Relaxation Techniques
Psychotherapy
Exercise Training
Breathing Training

???
Pain

78% of heart failure patients experience pain

- Need to consider psychological, emotional and spiritual aspects, what pain signifies e.g. progression of illness
- Need full assessment of pain site e.g other causes than heart failure

Analgesic Ladder –

Step one Non opioid (e.g. Paracetamol)

Step two Weak opioid +/- step one analgesia

Step three Strong opioid + step one

Remember- Non steroidal anti-inflammatory agents worsen heart failure!
Symptom Oriented Palliation: Pain

Opioids

studies suggest true addiction in terminally ill patients is rare !!!

Bone pain: bisphosphonates

Anginal pain:

nitrates –
b-blockers –
calcium channel blockers –
Revascularization –
Symptom Oriented Palliation: Depression

- **SSRI** (first-line!)
- **SNRI**
- **TCA** (avoid!)

Psychological interventions:
- cognitive behavioral therapy
- counseling
- supportive therapy

Exercise

Acupuncture
# Causes of *fatigue* in heart failure

<table>
<thead>
<tr>
<th><strong>Drug causes</strong></th>
<th><strong>Sleep problems</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Overdiuresis</td>
<td>Orthopnoea</td>
</tr>
<tr>
<td>Hypokalaemia from loop diuretics</td>
<td>Paroxysmal nocturnal dyspnoea</td>
</tr>
<tr>
<td>b-blockers</td>
<td>Periodic respiration / sleep apnoe</td>
</tr>
<tr>
<td>Blood loss due to aspirin</td>
<td>Anxiety / depression</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Anaemia</strong></th>
<th><strong>Psychological</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>See aspirin</td>
<td>Depression</td>
</tr>
<tr>
<td>Anaemia of chronic disease</td>
<td>Anxiety</td>
</tr>
<tr>
<td>Co-morbidities—for example, pernicious anaemia, malignancy</td>
<td></td>
</tr>
</tbody>
</table>

- **Psychological**
  - Depression
  - Anxiety
Symptom Oriented Palliation: Fatigue

secondary causes:

- anemia, infection, dehydration, electrolyte abnormalities, thyroid dysfunction, depression.

primary fatigue:

- Methylphenidate (cautiously!)
- training in energy conservation and aerobic exercise
- CPAP for OSA
Symptom Oriented Palliation:

**Edema**

- Monitor weight regularly
- Weight loss 0.5-1 kg/day
- Diuretics
- Compression stockings
- Fluid restriction
- Elevate lower limbs
- Paracentesis for refractory ascites
Symptom Oriented Palliation: Nausea and Vomiting

Patients with advanced heart failure have multiple causes of nausea and vomiting.

- Consider drug cause
- If constant nausea, renal impairment or renal failure use **Haloperidol 1.5-3mg orally**
- If related to meals, early satiety, vomiting of undigested food or hepatomegaly
  - **Metoclopramide 10mg po**
Symptom Oriented Palliation: Cachexia and Anorexia

Patients with heart failure have poor appetite and lose significant amounts of weight. Focus of earlier dietary advise may need to be revised.

- For cachectic patients consider high calorie, high protein with no added salt.

Patients may develop low cholesterol levels and in these circumstances consider stopping statin.

- Fat-soluble vitamins
- Referral to dietician
Medical Therapy Discontinuation

The discontinuation of medical therapy may result in an improvement in quality of life:

**B-Blockers** may need to be withdrawn in patients with refractory fluid overload or symptomatic bradycardia

**ACE-I /ARB** if end-stage patients develop azotemia or symptomatic hypotension

**Aspirin**

**Statines**
<table>
<thead>
<tr>
<th>Drug</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-steroidal anti-inflammatory drugs (NSAIDs)</td>
<td>Salt and water retention with risk of decompensation</td>
</tr>
<tr>
<td>Steroids</td>
<td>Same as for NSAIDs</td>
</tr>
<tr>
<td>Drugs with significant anticholinergic effect, e.g., cyclizine and</td>
<td>Pro-arrhythmic: avoid unless patient is in the dying phase</td>
</tr>
<tr>
<td>tricyclics antidepressants</td>
<td></td>
</tr>
<tr>
<td>Bulking agents such as ispaghula husk</td>
<td>Risk of exacerbating constipation in patients on fluid</td>
</tr>
<tr>
<td></td>
<td>restriction</td>
</tr>
</tbody>
</table>

General note: be aware of potential of drug interactions with patients on warfarin.
Comprehensive HF care

Supportive care:

Communication .A
Education .B
Psychosocial and spiritual issues .C
Symptom management .D
Communication in End-Stage Heart Failure

- minimal communication from physicians about what to expect!
- advance directives
- goals of care, established by the patient:
- comfort measures to life-prolonging measures
Effective dialogue includes the following:

“Some of my patients tell me that if they were permanently comatose or severely brain injured and unable to recognize or interact with loved ones, they would want care focused only on *making sure they were comfortable*. Other patients of mine tell me they would want *all life-prolonging technologies, no matter how brain damaged they were*. Which would you choose?”
# Communicating With Patients With Advanced Heart Disease Using the N-U-R-S-E Mnemonic

<table>
<thead>
<tr>
<th>Technique</th>
<th>Sample Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name the emotion</td>
<td>You seem worried about what will happen if we don’t implant the LVAD. Can you tell me more about that?</td>
</tr>
<tr>
<td>Understand the emotion</td>
<td>I see why you might be fearful of proceeding with the transplant. Can you help me understand what you’re afraid of?</td>
</tr>
<tr>
<td>Respect the emotion</td>
<td>You have shown a lot of strength up to this point. Tell me more about what keeps you going</td>
</tr>
<tr>
<td>Support the patient</td>
<td>Whether or not you choose to have the procedure, I want you to know that I will continue to be your cardiologist and will take care of you no matter what happens</td>
</tr>
<tr>
<td>Explore the emotion</td>
<td>You mentioned earlier that you’re concerned about what this worsening of your shortness of breath might mean. Can you tell me more about your concerns?</td>
</tr>
</tbody>
</table>
Schematic Depiction of Comprehensive Heart Failure Care
<table>
<thead>
<tr>
<th></th>
<th>PHASE 1</th>
<th>PHASE 2</th>
<th>PHASE 3</th>
<th>PHASE 4</th>
<th>PHASE 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NYHA class</strong></td>
<td>II-III</td>
<td>II-IV</td>
<td>III</td>
<td>IV</td>
<td>IV</td>
</tr>
<tr>
<td><strong>HF CARE</strong></td>
<td>Stand. Care</td>
<td>Drug tx</td>
<td>Re-evaluat.</td>
<td>Heart transp</td>
<td>Stop medic.</td>
</tr>
<tr>
<td></td>
<td>ICD/CRT</td>
<td>Drug tx</td>
<td>Drug tx</td>
<td>Inotrope</td>
<td>Cont ace, arb</td>
</tr>
<tr>
<td><strong>Decision making</strong></td>
<td>Preference</td>
<td>General goals</td>
<td>Patient preferences?</td>
<td>Palliative care?</td>
<td>Site of care? How to manage death</td>
</tr>
<tr>
<td></td>
<td>ICD/CRT-D</td>
<td>care</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td><strong>Supportive Care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A. Communication</strong></td>
<td>Understand concerns and fears</td>
<td>Elicit sympt. and assess QOL</td>
<td>Re-evaluate goals of care</td>
<td>Acknowledg e present status</td>
<td>Preferences for end-of-life care</td>
</tr>
<tr>
<td><strong>B. Education</strong></td>
<td>Patient/fam. selfmanagement</td>
<td>What to do in an emergency</td>
<td>Intervent.indeterioration in status</td>
<td>Optimal management</td>
<td>Advanced directives</td>
</tr>
<tr>
<td><strong>C. Psych/soc.-spiritual</strong></td>
<td>Coping with illness pat. and family</td>
<td>financial resources</td>
<td>Family stresses and resources</td>
<td>Re-evaluate stresses, needs</td>
<td>concerns regarding dying</td>
</tr>
<tr>
<td><strong>D. Sympt. Care</strong></td>
<td>Symptom management</td>
<td>Symptom management</td>
<td>MO, O2, stimulants</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Summary

• CHF has a very poor prognosis
• Often need multiple medications for symptom control
• Palliative care can be of help in CHF
• Need multidisciplinary team
• Do we have the resources to palliate CHF??
Palliative Care Means

To cure, sometimes
To relieve, often
To comfort, always