Symptom Management: Heart Failure
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Disclosures
Margaret Campbell has no real or perceived conflicts of interest that relate to this presentation.

Objectives
1) Identify the most common physical symptoms associated with advanced heart disease
2) Describe the etiology, assessment, and treatment of dyspnea, pain, and fatigue
Epidemiology of advanced heart failure

• 5.1 million Americans have heart failure
• 825,000 new cases annually
• 450,000 NYHA Class IV
• Leading cause of hospitalization in people > 65 years old
• 280,000 deaths per year
• 11% of hospice referrals

<table>
<thead>
<tr>
<th>Stages</th>
<th>Description</th>
<th>NYHA Functional Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Patients at high risk of developing HF because of the presence of conditions that are strongly associated with the development of HF. Such patients have no identifiable structural heart disease but have arrhythmias, pericardial disease, or evidence of heart failure, or have new onset signs or symptoms of HF.</td>
<td>I No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnea.</td>
</tr>
<tr>
<td>B</td>
<td>Patients who have developed structural heart disease that is strongly associated with the development of HF but who have never shown signs or symptoms of HF.</td>
<td>II Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitation, or dyspnea.</td>
</tr>
<tr>
<td>C</td>
<td>Patients who have current or prior symptoms of HF associated with underlying structural heart disease.</td>
<td>III Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitation, or dyspnea.</td>
</tr>
<tr>
<td>D</td>
<td>Patients with advanced structural heart disease and marked symptoms of HF at rest despite maximal medical therapy and who require specialized interventions.</td>
<td>IV Unable to carry out any physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.</td>
</tr>
</tbody>
</table>

Site of death by trajectory

- Determined by Rx goals
- ICU/acute care
- Home
- Extended care facility
Site of death by trajectory

- Frail
  - Home
  - Extended Care facility
  - Hospital

Site of death by trajectory

- Sudden
  - Home, Auto, Business, Public place
  - Hospital ED
  - Hospital ICU

Importance of advance planning

- Patient needs to understand about heart failure
  - Chronic
  - Progressive
  - Death can occur suddenly
  - Distress can be controlled
    - Along with prolongative, supportive Rx
    - At end-stage
- Goals can be discussed in the hypothetical
  - "Just in case" conversations
### Prevalence of pain across terminal illness (Solano et al. 2006)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Prevalence</th>
<th># of studies</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>35-96</td>
<td>19</td>
<td>10,379</td>
</tr>
<tr>
<td>AIDS</td>
<td>63-80</td>
<td>3</td>
<td>942</td>
</tr>
<tr>
<td>Heart disease</td>
<td>41-77</td>
<td>4</td>
<td>882</td>
</tr>
<tr>
<td>COPD</td>
<td>34-77</td>
<td>3</td>
<td>372</td>
</tr>
<tr>
<td>Renal disease</td>
<td>47-50</td>
<td>2</td>
<td>370</td>
</tr>
</tbody>
</table>

### Prevalence of dyspnea across terminal illnesses (Solano et al. 2006)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Prevalence</th>
<th># of studies</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>10-70</td>
<td>20</td>
<td>10,029</td>
</tr>
<tr>
<td>AIDS</td>
<td>11-62</td>
<td>2</td>
<td>504</td>
</tr>
<tr>
<td>Heart disease</td>
<td>60-88</td>
<td>6</td>
<td>948</td>
</tr>
<tr>
<td>COPD</td>
<td>90-95</td>
<td>4</td>
<td>372</td>
</tr>
<tr>
<td>Renal disease</td>
<td>11-62</td>
<td>2</td>
<td>334</td>
</tr>
</tbody>
</table>

### Prevalence of fatigue across terminal illness (Solano et al. 2006)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Prevalence</th>
<th># of studies</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>32-90</td>
<td>10</td>
<td>2888</td>
</tr>
<tr>
<td>AIDS</td>
<td>54-85</td>
<td>2</td>
<td>1435</td>
</tr>
<tr>
<td>Heart disease</td>
<td>69-82</td>
<td>3</td>
<td>409</td>
</tr>
<tr>
<td>COPD</td>
<td>68-80</td>
<td>2</td>
<td>285</td>
</tr>
<tr>
<td>Renal disease</td>
<td>73-87</td>
<td>2</td>
<td>116</td>
</tr>
</tbody>
</table>
Dyspnea etiologies – heart failure

- Left ventricular failure
  - Pulmonary edema
    - Diffusion defect
      - Hypoxemia
      - Inspiratory effort

Dyspnea Etiologies

- Right ventricular failure
  - Liver congestion
  - Ascites
    - Reduced diaphragmatic excursion
    - Inspiratory effort
- Respiratory myopathy
  - Increased respiratory rate
  - Inspiratory effort

Common dyspnea assessment tools

- Yes or No query: Are you short of breath?
- Numeric rating system: 0-10
- Visual analog scale: vertical or horizontal line anchored from 0-10 or 0-100 mm
- Modified Borg: category-ratio scale using descriptive terms to anchor responses to dyspnea after exercise
A review of quality of dyspnea assessment

- Most instruments are one-dimensional
- Quantify dyspnea at a particular moment
  - Numeric rating scale*
  - Visual analog scale
  - Modified Borg dyspnea scale
  - Quick and easy to administer
  - Not comprehensive
  - Require cognitive skills

* Most suitable for palliative care

Measuring respiratory distress in patients with cognitive impairment

- Gold standard instruments
  - Numeric report
  - Dyspnea visual analog scale
  - Modified Borg

- Observation tools
  - Respiratory Distress Observation Scale
Respiratory Distress Observation Scale

<table>
<thead>
<tr>
<th>Variable</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart rate per minute</td>
<td>&lt;90 beats</td>
<td>90-109 beats</td>
<td>≥110 beats</td>
<td></td>
</tr>
<tr>
<td>Respiratory rate per minute</td>
<td>≤18 breaths</td>
<td>19-30 breaths</td>
<td>&gt;30 breaths</td>
<td></td>
</tr>
<tr>
<td>Restlessness / non-purposeful movement</td>
<td>None</td>
<td>Occasional, slight movements</td>
<td>Frequent movements</td>
<td></td>
</tr>
<tr>
<td>Accessory muscle use / rise in clavicle during inspiration</td>
<td>None</td>
<td>Slight rise</td>
<td>Pronounced rise</td>
<td></td>
</tr>
<tr>
<td>Paradoxical breathing pattern</td>
<td>None</td>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gagging at end-expiration / guttural sound</td>
<td>None</td>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal flaring / involuntary movement of nares</td>
<td>None</td>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Look of fear</td>
<td>None</td>
<td>Eyes wide open, facial muscles tense, brow furrowed, mouth open</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dyspnea prevention

- Continue ACE inhibitors, inotropes, beta blockers, diuretics
- Maintain euvoeemia
  - Monitor daily weight
  - Restrict sodium
- Balance rest with activity

Dyspnea treatment

- Ascertain fluid status
  - Restrict intake
  - Diurese
- Vasodilate
- Oxygen
- Opioids
- Anxiolytics
### Pain etiologies in heart failure

- Ischemia
  - Coronary artery disease

- Iatrogenic
  - Blood pressure cuff inflation
  - Venipunctures
  - Venous or arterial lines

- Other chronic conditions

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### Pain assessment

- Numeric report

- Critical-care Pain Observation Tool
  (Gelinas, Am J Crit Care, 2006)

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### Critical-Care Pain Observation Tool (CPOT)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial expression</td>
<td>No muscular tension observed Presence of swelling, linear, linear, overt tightening, all of the above facial movements plus eyelids tightly closed</td>
<td>0</td>
</tr>
<tr>
<td>Body movements</td>
<td>Does not move at all when not necessarily mean absence of pain</td>
<td>0</td>
</tr>
<tr>
<td>Muscle tension Evaluation for passive extremities</td>
<td>No resistance to passive movements</td>
<td>0</td>
</tr>
<tr>
<td>Compliance with the ventilator (intubated patients)</td>
<td>Noisy breath, easily ventilated</td>
<td>0</td>
</tr>
<tr>
<td>Visualisation (intubated patients)</td>
<td>Talking in normal tone or no sound</td>
<td>0</td>
</tr>
<tr>
<td>Total, range</td>
<td></td>
<td>0-6</td>
</tr>
</tbody>
</table>
Pain treatment

- Avoid iatrogenic causes
  - Discontinue burdensome interventions
    - Labs, X-rays, EKGs, continuous monitoring
    - Invasive lines, catheters
- Balance rest with activity
- Nitrates
- Opioids
  - Bowel regimen

Fatigue etiology

- Myopathy
- Medication side effect
  - Hypokalemia
- Sleep-disordered breathing
- Anemia of chronic disease

Fatigue treatment

- Exercise
  - Chronic, stable heart failure
- ?
Symptom Management: Heart Failure
Hospice and Palliative Nurses Association (HPNA) E-Learning

Last days..... hours

- Consider discontinuing inotropes and pressors
  - Will discontinuation exacerbate volume overload or chest pain?
  - Are we waiting for someone from out of town?
- Continue diuretics
  - Topical vasodilator if anuria
- De-activate ICD
- Continue supportive/palliative measures until unconsciousness
  - Oxygen
  - Opioids
  - Anxiolytics
  - Senna