Heart Failure Palliative Care for In-patient and Out-patient

July 18, 2018
1:00pm – 2:00pm Central

Presenter:
Lee R. Goldberg MD, MPH
Advanced Heart Failure Certification

This certification is offered by The Joint Commission in collaboration with the American Heart Association

- Assist organizations in helping patients manage chronic disease
- Reduce unwanted variations in care and improve the patient experience
- Improve efficiency and outcomes at a potential lower cost
- Position your service line to effectively face new challenges
- Unique survey approach that combines unique survey approach with what AHA has to offer
- Receive recognition of your quality program
- Promote a culture of excellence to boost retention and recruitment of talent
- As of January 1, 2019, all AHF certified organizations will be required to participate in the AHA GWTG-HF registry

Email accreditation@heart.org for more information
Our Presenter

Lee R. Goldberg MD, MPH, FACC
Vice Chair of Medicine - Informatics
Section Chief, Advanced Heart Failure and Cardiac Transplant

Associate Professor of Medicine
University of Pennsylvania
Heart Failure Palliative Care for In-patient and Out-patient

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Phenotype of Heart Failure is Changing

- Improved survival
  - Medications
  - Devices
  - Primary angioplasty

- Decreased sudden death
  - ICD
  - Medications

- Appearance of low cardiac output state

- Survive to get cancer, dementia, renal failure etc.
New Devices – New Challenges

• ICD
  – PTSD/Anxiety
  – Deactivation

• VAD’s
  – Poor outcome but “can’t die”
  – Deactivation
## Classification of Heart Failure

<table>
<thead>
<tr>
<th>Stage</th>
<th>“Course of Disease”</th>
<th>Class</th>
<th>“Symptoms at that moment”</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>At high risk for HF but without structural heart disease or symptoms of HF</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Structural heart disease but without signs or symptoms of HF</td>
<td>I</td>
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</tr>
<tr>
<td>C</td>
<td>Structural heart disease with prior or current symptoms of HF</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>II</td>
<td>Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in HF symptoms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>III</td>
<td>Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes HF symptoms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IV</td>
<td>Unable to carry on any physical activity without HF symptoms, or symptoms at rest</td>
</tr>
<tr>
<td>D</td>
<td>Refractory HF requiring specialized interventions</td>
<td>IV</td>
<td>Unable to carry on any physical activity without HF symptoms, or symptoms at rest</td>
</tr>
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</table>

The minimal required therapies to prevent progression and reduce morbidity and mortality

Therapies to reduce symptoms or trigger referral to advanced therapies or hospice

## Classification of Heart Failure

### ACCF/AHA Stages NYHA Functional Classification

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The minimal required therapies to prevent progression and reduce morbidity and mortality

Therapies to reduce symptoms or trigger referral to advanced therapies or hospice

Trajectory of HF: Uncertain Prognosis

Palliative Care Definition – World Health Organization

“... an approach that improves the quality of life (QOL) of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.”

➢ Distinct from Hospice

Palliative Care is **not** Hospice

## Palliative Care Versus Hospice

<table>
<thead>
<tr>
<th>Palliative Care</th>
<th>Hospice</th>
</tr>
</thead>
<tbody>
<tr>
<td>A medical specialty</td>
<td>An insurance benefit</td>
</tr>
<tr>
<td>Appropriate at any time during a serious illness,</td>
<td>Appropriate when 2 or more physicians determine</td>
</tr>
<tr>
<td>independent of goals or prognosis</td>
<td>likely prognosis of 6 months or less</td>
</tr>
<tr>
<td>Continued curative or life-prolonging therapies</td>
<td>Goal of comfort-focused care</td>
</tr>
<tr>
<td>available</td>
<td></td>
</tr>
<tr>
<td>Can monitor the patient anywhere</td>
<td>Provided at home, in a long-term care facility, or</td>
</tr>
<tr>
<td></td>
<td>at an inpatient hospice</td>
</tr>
</tbody>
</table>

Models of Palliative Care

Fig 1. Models of palliative care.

Complex medical decision making

Heart Failure Home Management Challenges and Reasons for Readmission: a Qualitative Study to Understand the Patient’s Perspective

Jonathan Sevilla-Cazes, MD, MPH\textsuperscript{1}, Faraz S. Ahmad, MD, MS\textsuperscript{2}, Kathryn H. Bowles, PhD, RN, FAAN, FACMI\textsuperscript{3}, Anne Jaskowiak, MS, BSW\textsuperscript{1}, Tom Gallagher\textsuperscript{1}, Lee R. Goldberg, MD, MPH\textsuperscript{1}, Shreya Kangovi, MD, MSHP\textsuperscript{1}, Madeline Alexander, PhD\textsuperscript{1}, Barbara Riegel, PhD, RN, FAAN, FAHA\textsuperscript{3}, Frances K. Barg, PhD, MEd\textsuperscript{1}, and Stephen E. Kimmel, MD, MSCE, FAHA\textsuperscript{1}
Benefits of early Palliative Care

Early Palliative Care for Patients with Metastatic Non–Small-Cell Lung Cancer

Benefits of early Palliative Care in Lung Cancer

Improved Quality of Life and **Survival**

"Instead of serving as a reason to avoid conversation, uncertainty should be a trigger for exploration."

Heart Failure Patients

- Chronic life threatening condition
  - Depression
  - Psychological Pain
  - Distress
  - Symptom burden
- Very similar to patients with cancer
Palliating the Broken Heart

- Primary PC
  - Basic management of pain and symptoms
  - Basic management of depression and anxiety
  - Basic discussions about
    - Prognosis
    - Goals of treatment
    - Suffering
    - Code status

- Specialist PC
  - Management of refractory pain or other symptoms
  - Management of more complex depression, anxiety, grief, and existential distress
  - Assistance with conflict resolution regarding goals or methods of treatment
    - Within families
    - Between staff and families
    - Among treatment teams
  - Assistance in addressing cases of near futility

Heart Failure Patients are Complicated

• Many comorbidities
  – COPD
  – Gout
  – Renal failure
  – Dementia
  – Cancer

• Complexity
  – Management
  – Symptoms
  – Distress
## Studies of Palliative Care in Heart Failure

<table>
<thead>
<tr>
<th>Authors, Year Published (Ref)</th>
<th>Selection Criteria/ Patients Included</th>
<th>Study Type</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wikar et al., 2017^11</td>
<td>2262 patients discharged after admission for congestive HF exacerbation who received PC consult propensity matched with 2262 patients who had not</td>
<td>Retrospective cohort study with propensity matching</td>
<td>PC consult during admission</td>
<td>Reduced all-cause and HF-specific readmission at 9 months (p &lt; 0.01), reduced hospital charges (p &lt; 0.01) in intervention group.</td>
</tr>
<tr>
<td>Sidebottom et al., 2015^13</td>
<td>232 patients hospitalized with acute heart failure Patients in ICU, with LVADs excluded</td>
<td>Randomized controlled trial</td>
<td>PC consultation with baseline measurement of symptom burden, depression and QOL Consists targeted spiritual well-being, symptom management, coordination of care Follow-up on as-needed basis</td>
<td>Improvements at 1 month in QOL (p &gt; 0.01), symptom burden (p &lt; 0.03), depression (p &lt; 0.01 ) domains, increased advance care planning in intervention group</td>
</tr>
<tr>
<td>Rogen et al., 2017^13</td>
<td>150 inpatients and outpatient at high risk of rehospitalization based on risk scores of Evaluation Study of Congestive Heart Failure and Pulmonary Artery Catheterization Effectiveness</td>
<td>Randomized controlled trial</td>
<td>PC consult with assessment of symptom control, spiritual distress, advance care planning Focus on goal-setting with patient and cardiology team</td>
<td>Improved symptom management on multiple scales at 6 months (p = 0.03), improved depression scores (p = 0.02), spiritual well-being (p = 0.027) in intervention group</td>
</tr>
<tr>
<td>Naylor et al., 2004^13</td>
<td>239 patients ages greater than 65 years hospitalized with HF</td>
<td>Randomized controlled trial</td>
<td>Outpatient follow-up after discharge 3-month APN-directed discharge planning and home follow-up protocol</td>
<td>No change in rehospitalization or mortality Increased time to first readmission or death (p = 0.26), reduced readmission rates (p = 0.047), lower total mean costs (p &lt; 0.05) in intervention group</td>
</tr>
<tr>
<td>Wong et al., 2016^16; Ng and Wong, 2018^11</td>
<td>84 patients admitted to hospital meeting 2 or more indicators of end stage HF</td>
<td>Randomized controlled trial</td>
<td>Predischarge meeting and 4-week post-discharge telephone and in-person follow-up with ongoing discussion of disease management and treatment preferences</td>
<td>Reduced readmissions at 12 weeks in intervention group (p = 0.0009), significant improvements in depression, dyspnea, and overall symptom and QOL scores</td>
</tr>
<tr>
<td>Brunstrom et al., 2014^12</td>
<td>72 outpatients with NYHA stage II or IV heart failure with at least 1 hospitalization in the past 6 months or documentation of increased support needs</td>
<td>Randomized controlled trial</td>
<td>Intensive identification and management of medical, psychosocial, and spiritual needs by physician; subsequent nurse-led palliative care</td>
<td>Improvement in quality of life, symptom burden, self-efficacy, and NYHA class in intervention group vs. control, reduced rehospitalizations in intervention group</td>
</tr>
</tbody>
</table>

APN, advanced practice nurse; HF, heart failure; ICU, intensive care unit; LVAD, left ventricular assist device; NYHA, New York Heart Association; PC, palliative care; QOL, quality of life.

# Palliative Care and Readmission

Table 1 Baseline demographic and patient characteristics for patients referred to palliative care and those that did not get referred. Only patients who survived to hospital discharge for their index admission were included in the analysis.

<table>
<thead>
<tr>
<th></th>
<th>Overall cohort</th>
<th>Propensity-matched cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Palliative care consult</td>
<td>No palliative care consult</td>
</tr>
<tr>
<td>Age in years, mean (SD)</td>
<td>80.9 (11.1)</td>
<td>72.7 (14.1)</td>
</tr>
<tr>
<td>Any 9-month readmission, n (%)</td>
<td>526 (21.8)</td>
<td>60 170 (59.8)</td>
</tr>
<tr>
<td>9 month CHF readmission, n (%)</td>
<td>226 (9.3)</td>
<td>28 197 (28.0)</td>
</tr>
<tr>
<td>Length of stay in days, median (IQR)</td>
<td>5.1 (2.9–8.7)</td>
<td>3.5 (2.0–5.9)</td>
</tr>
<tr>
<td>Female sex, n (%)</td>
<td>1224 (54.0)</td>
<td>48 483 (48.6)</td>
</tr>
<tr>
<td>Insurance coverage, n (%)</td>
<td>2158 (94.7)</td>
<td>94 901 (94.7)</td>
</tr>
<tr>
<td>Discharge location, n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>289 (10.7)</td>
<td>53 514 (52.7)</td>
</tr>
<tr>
<td>Skilled nursing facility</td>
<td>982 (44.5)</td>
<td>19 000 (19.5)</td>
</tr>
<tr>
<td>Hospice / Home care</td>
<td>934 (41.4)</td>
<td>25 622 (25.4)</td>
</tr>
<tr>
<td>Other</td>
<td>82 (3.3)</td>
<td>23 223 (2.3)</td>
</tr>
<tr>
<td>Teaching hospital, n (%)</td>
<td>1080 (47.8)</td>
<td>43 771 (44.6)</td>
</tr>
<tr>
<td>Do not resuscitate status, n (%)</td>
<td>1259 (52.4)</td>
<td>7906 (7.9)</td>
</tr>
<tr>
<td>Non metastatic cancer, n (%)</td>
<td>74 (3.0)</td>
<td>1638 (1.7)</td>
</tr>
<tr>
<td>Metastatic cancer, n (%)</td>
<td>68 (2.7)</td>
<td>895 (0.9)</td>
</tr>
</tbody>
</table>

SD, standard deviation; IQR, interquartile range. Propensity-matched analysis is displayed on the right hand side of the table, patients were matched 1 : 1 on the propensity to receive a palliative care referral during the index hospitalization.
# Inpatient Palliative Care Consults

## Table 2. Comparison of Change from Baseline to 1 and 3 Months, Adjusted for Age, Gender, and Marital Status

<table>
<thead>
<tr>
<th></th>
<th>Change at 1 month from baseline</th>
<th>Change at 3 months from baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intervention (n = 86)</td>
<td>Control (n = 89)</td>
</tr>
<tr>
<td></td>
<td>Mean change</td>
<td>Mean change</td>
</tr>
<tr>
<td>Pain</td>
<td>0.63</td>
<td>0.87</td>
</tr>
<tr>
<td>Tiredness</td>
<td>1.78</td>
<td>1.50</td>
</tr>
<tr>
<td>Nausea</td>
<td>0.08</td>
<td>0.29</td>
</tr>
<tr>
<td>Depression</td>
<td>0.77</td>
<td>0.65</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.06</td>
<td>0.65</td>
</tr>
<tr>
<td>Drowsiness</td>
<td>1.32</td>
<td>1.06</td>
</tr>
<tr>
<td>Appetite</td>
<td>-0.19</td>
<td>-0.41</td>
</tr>
<tr>
<td>Well-being</td>
<td>0.37</td>
<td>0.24</td>
</tr>
<tr>
<td>Short of breath</td>
<td>2.55</td>
<td>1.45</td>
</tr>
<tr>
<td>Total (range 0–90)</td>
<td>8.39</td>
<td>4.70</td>
</tr>
</tbody>
</table>

**Edmonton Symptom Assessment Scale**

**PHQ-9**

<table>
<thead>
<tr>
<th></th>
<th>Little interest or pleasure in doing things</th>
<th>Feeling down, depressed, or hopeless</th>
<th>Trouble falling asleep or staying asleep, or sleeping too much</th>
<th>Feeling tired or having little energy</th>
<th>Poor appetite or overeating</th>
<th>Feeling had about yourself</th>
<th>Feeling concentrating</th>
<th>Motor retardation or agitation</th>
<th>Thoughts that you would be better off</th>
<th>Total (range 0–27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention (n = 86)</td>
<td>0.52</td>
<td>0.35</td>
<td>0.43</td>
<td>0.61</td>
<td>0.20</td>
<td>0.29</td>
<td>0.15</td>
<td>0.27</td>
<td>0.13</td>
<td>2.99</td>
</tr>
<tr>
<td>Mean change</td>
<td>0.41</td>
<td>0.17</td>
<td>0.30</td>
<td>0.48</td>
<td>0.02</td>
<td>0.34</td>
<td>0.11</td>
<td>0.04</td>
<td>0.05</td>
<td>1.56</td>
</tr>
<tr>
<td>Mean change</td>
<td>0.10</td>
<td>0.18</td>
<td>0.13</td>
<td>0.14</td>
<td>0.18</td>
<td>0.33</td>
<td>0.04</td>
<td>0.23</td>
<td>0.07</td>
<td>1.42</td>
</tr>
<tr>
<td>Mean difference between groups (CI)</td>
<td>0.504</td>
<td>0.23</td>
<td>0.407</td>
<td>0.374</td>
<td>0.25</td>
<td>0.033</td>
<td>0.789</td>
<td>0.135</td>
<td>0.637</td>
<td>0.000</td>
</tr>
<tr>
<td>p-value</td>
<td>0.504</td>
<td>0.23</td>
<td>0.407</td>
<td>0.374</td>
<td>0.25</td>
<td>0.033</td>
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**PHQ-9**

**Minnesota Living with Heart Failure Questionnaire**

<table>
<thead>
<tr>
<th></th>
<th>Physical subscale</th>
<th>Emotional subscale</th>
<th>Total (range 0–105)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention (n = 86)</td>
<td>8.27</td>
<td>2.19</td>
<td>12.92</td>
</tr>
<tr>
<td>Mean change</td>
<td>4.75</td>
<td>1.23</td>
<td>8.00</td>
</tr>
<tr>
<td>Mean change</td>
<td>3.51 (3.21, 3.82)</td>
<td>0.96 (0.65,1.27)</td>
<td>4.92 (4.61, 5.23)</td>
</tr>
<tr>
<td>Mean difference between groups (CI)</td>
<td>8.01</td>
<td>3.65</td>
<td>14.86</td>
</tr>
<tr>
<td>p-value</td>
<td>6.76</td>
<td>1.92</td>
<td>11.80</td>
</tr>
<tr>
<td>Mean difference between groups (CI)</td>
<td>1.25 (0.94, 1.57)</td>
<td>1.72 (1.41, 2.04)</td>
<td>3.06 (2.75, 3.37)</td>
</tr>
</tbody>
</table>

Calculated as baseline minus 1 month or 3 month scores. Positive number indicates improvement since baseline and negative indicates worse condition than baseline.

CI, confidence interval; PHQ-9, Patient Health Questionnaire-9.
Inpatient Palliative Care Consults

• Improved at 3 months
  – Quality of life
  – Symptom burden
  – Depressive symptoms

• More likely to have an advanced care plan
Benefits of Palliative Care in Heart Failure Patients

Palliative Care in Heart Failure
The PAL-HF Randomized, Controlled Clinical Trial

Joseph G. Rogers, MD, a,b Chetan B. Patel, MD, a,b Robert J. Mentz, MD, a,b Bradi B. Granger, PhD, MSN, RN, c Karen E. Steinhauser, PhD, a,d Mona Fiuzat, PharmD, a Patricia A. Adams, BSN, CCRC, a Adam Speck, BS, a Kimberly S. Johnson, MD, a,b Arun Krishnamoorthy, MD, e Hongqiu Yang, PhD, b Kevin J. Anstrom, PhD, b,f Gwen C. Dodson, MSN, a Donald H. Taylor, Jr, PhD, MPA, a,g,h Jerry L. Kirchner, BS, CCRP, b Daniel B. Mark, MD, a,b Christopher M. O’Connor, MD, a,i James A. Tulsky, MD j,k

Benefits of Palliative Care

Randomized Trial

Effects of a transitional palliative care model on patients with end-stage heart failure: a randomised controlled trial

Frances Kam Yuet Wong,1 Alina Yee Man Ng,1 Paul Hong Lee,1 Po-tin Lam,2 Jeffrey Sheung Ching Ng,3 Nancy Hiu Yim Ng,2 Michael Mau Kwong Sham4

• Randomized control trial of transitional palliative care
  – Weekly visits at home for 4 weeks
  – Monthly visits to 1 year

# Results

## Table 2: Readmission at 4 and 12 weeks

<table>
<thead>
<tr>
<th></th>
<th>Control (n=41)</th>
<th>Intervention (n=43)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of readmissions at 4 weeks (mean, SE)</td>
<td>0.41 (0.10)</td>
<td>0.21 (0.07)</td>
<td>0.10</td>
</tr>
<tr>
<td>Number of readmissions at 12 weeks (mean, SE)**</td>
<td>1.10 (0.16)</td>
<td>0.42 (0.10)</td>
<td>0.001</td>
</tr>
<tr>
<td>Readmissions within 28 days (n, %)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>29 (70.7%)</td>
<td>34 (79.1%)</td>
<td>0.38</td>
</tr>
<tr>
<td>Yes</td>
<td>12 (29.3%)</td>
<td>9 (20.9%)</td>
<td></td>
</tr>
<tr>
<td>Readmissions within 84 days (n, %)*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>16 (39.0%)</td>
<td>29 (67.4%)</td>
<td>0.009</td>
</tr>
<tr>
<td>Yes</td>
<td>25 (61.0%)</td>
<td>14 (33.6%)</td>
<td></td>
</tr>
</tbody>
</table>

Tested using Poisson regression and $\chi^2$ test. *p<0.05; **p<0.01.

## Table 3: Change in ESAS at 02 (n=68)

<table>
<thead>
<tr>
<th></th>
<th>Control (n=31)</th>
<th>Intervention (n=37)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deterioration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>10 (32.3%)</td>
<td>15 (40.5%)</td>
<td>0.31</td>
</tr>
<tr>
<td>Tiredness</td>
<td>11 (35.5%)</td>
<td>13 (35.1%)</td>
<td>0.71</td>
</tr>
<tr>
<td>Nausea</td>
<td>1 (3.2%)</td>
<td>3 (8.1%)</td>
<td>0.51</td>
</tr>
<tr>
<td>Depression*</td>
<td>11 (35.5%)</td>
<td>13 (35.1%)</td>
<td>0.71</td>
</tr>
<tr>
<td>Anxiety</td>
<td>8 (25.8%)</td>
<td>13 (35.1%)</td>
<td>0.31</td>
</tr>
<tr>
<td>Drowsiness</td>
<td>3 (9.7%)</td>
<td>31 (83.8%)</td>
<td>0.005</td>
</tr>
<tr>
<td>Loss of appetite</td>
<td>10 (32.3%)</td>
<td>14 (37.8%)</td>
<td>0.3</td>
</tr>
<tr>
<td>Sense of well-being</td>
<td>14 (45.2%)</td>
<td>14 (37.8%)</td>
<td>0.3</td>
</tr>
<tr>
<td>Dyspnoea*</td>
<td>10 (32.3%)</td>
<td>10 (27.1%)</td>
<td>0.6</td>
</tr>
<tr>
<td>Total*</td>
<td>12 (41.4%)</td>
<td>17 (45.9%)</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Tests using $\chi^2$; *p<0.05.  
Note: The MCID cut-offs for improvement/deterioration of each symptom were: pain 1.4–1, tiredness 1.5–1.5, nausea 1.6–2.3, depression 1–1.8, anxiety 1.7–1.4, drowsiness 0.8–2, loss of appetite 1.2–2.1, sense of well-being 1.2–1.9, and total 5.7–2.9.  
ESAS, Edmonton Symptom Assessment Scale; MCID, minimal clinically important difference.
High symptom burden

Hospitalized patients with HF

## Indications for Referral

### Indications for Palliative Care Referral in Patients with Heart Failure (HF)

<table>
<thead>
<tr>
<th>Symptom Needs</th>
<th>Psychosocial Needs</th>
<th>Transitions in Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York Heart Association Class III/IV symptoms</td>
<td>Caregiver support</td>
<td>Left ventricular assist device evaluation</td>
</tr>
<tr>
<td>Frequent readmissions for HF</td>
<td>Goals of care</td>
<td>Transplant evaluation</td>
</tr>
<tr>
<td>Recurrent implantable cardioverter-defibrillator shocks</td>
<td>Supportive counseling</td>
<td>Transcatheter aortic valve replacement evaluation</td>
</tr>
<tr>
<td>Refractory angina</td>
<td>Advance care planning</td>
<td>Initiation of home inotropic therapy</td>
</tr>
<tr>
<td>Anxiety or depression impacting quality of life and disease management</td>
<td></td>
<td>Hospice referral/ discussion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Withdrawal of life-prolonging interventions</td>
</tr>
</tbody>
</table>

Heart Failure Advanced Care Planning

- Define goals
  - Intubation
  - Dialysis
  - Re-hospitalization

- Deactivate ICD
  - Maintain BiV pacing functions
Timeline for Palliative Care in Heart Failure

Fig 2. Timeline for palliative care in heart failure.

### Inotropes – ACC/AHA Guidelines

<table>
<thead>
<tr>
<th>Indications for intravenous inotropic support</th>
<th>Class</th>
<th>LOE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiogenic shock pending definite therapy or resolution</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>Bridge to transplant or mechanical circulatory support in stage D heart failure refractory to guideline-directed medical therapy</td>
<td>IIa</td>
<td>B</td>
</tr>
<tr>
<td>Short-term support for threatened end-organ dysfunction in hospitalized patients with stage D and severe HFrEF</td>
<td>IIb</td>
<td>B</td>
</tr>
<tr>
<td><strong>Long-term support with continuous infusion palliative therapy in selected stage D heart failure</strong></td>
<td>IIb</td>
<td>B</td>
</tr>
<tr>
<td>Routine intravenous use, either continuous or intermittent, is potentially harmful in stage D heart failure</td>
<td>III</td>
<td>B</td>
</tr>
<tr>
<td>Short-term intravenous use in hospitalized patients without evidence of shock or threatened end-organ performance is potentially harmful</td>
<td>III</td>
<td>B</td>
</tr>
</tbody>
</table>

*Class class of recommendation: *I* is indicated, *IIa* should be considered, *IIb* may be considered, *III* is not recommended, *LOE* level of evidence: *B* limited populations evaluated (data from either one single randomized trial or nonrandomized studies), *C* expert consensus, *HFrEF* heart failure with reduced ejection fraction*
Palliative Milrinone

• Can prevent hospitalizations and transiently improve quality of life
• 50% mortality at 6 months
• 90% mortality at 1 year
• Requires IV access – often PICC line
• By definition need palliative care consult
  – Improved symptoms may delay palliative care
  – Initiation of inotropes is a “sentinel” event
• If consideration of MCD or Transplant need expedited work-up
Mechanical Circulatory Support

- Destination therapy
  - Not candidate for transplant
  - More comorbidities
  - More psychosocial challenges
The MCS Journey

HF course  VAD decision  Pre-implant  Life on VAD  EOL/Bereavement

Symptoms, complex decision making, caregiver burden, uncertain prognosis

Adapted from JN Kirkpatrick
Complex Decision Making

Figure 2. Prognosis is not only about expectations for survival. There are multiple domains that are of varying importance to individual patients. Adapted from Spilker.38

High caregiver burden

Pre-implant: Preparedness Planning

Figure 10  Hazard function curves indicating the instantaneous risk of death over time for the major causes/modes of death. RHF, right heart failure; MSOF, multisystem organ failure.

# Studies of Palliative Care in LVAD

<table>
<thead>
<tr>
<th>Authors, Year Published (Ref)</th>
<th>Selection Criteria</th>
<th>Study Type</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinha et al., 2017&lt;sup&gt;22&lt;/sup&gt;</td>
<td>122 patients undergoing LVAD implantation, both destination (DT) and bridge to transplantation therapy (BTT) at a single institution</td>
<td>Retrospective chart review</td>
<td>Automated trigger of interdisciplinary palliative care (PC) consult for all patients undergoing LVAD evaluation, compared to pre-intervention control group.</td>
<td>Percentage of total PC consults placed before LVAD implantation increased from 17.2% (11) before protocol to 96.6% (56) after protocol (p &lt; 0.0001). Documented surrogate decision maker increased from 40.6% (26) before protocol to 98.3% (57) after protocol (p &lt; 0.0001).</td>
</tr>
<tr>
<td>Salomon et al., 2018&lt;sup&gt;18&lt;/sup&gt;</td>
<td>51 patients receiving LVADs at a single urban academic medical left</td>
<td>Retrospective chart review</td>
<td>Use of an electronic order by cardiotoracic surgery team to initiate PC consult (9 months intervention) compared with use of PC physician participating in interdisciplinary LVAD rounds (3 months intervention).</td>
<td>During electronic order intervention, 35% of patients received a PC consult compared with 71% of patients during PC physician rounding intervention. Symptom assessment, psychosocial assessment, and advance care planning were performed in 100% of consults.</td>
</tr>
<tr>
<td>Nakagawa et al., 2017&lt;sup&gt;33&lt;/sup&gt;</td>
<td>112 patients undergoing evaluation for DT (75) or BTT (37) LVAD at a single centre</td>
<td>Prospective single arm study</td>
<td>Mandatory PC consult during pre-LVAD evaluation, using a semi-structured interview script based on the PC communication literature</td>
<td>All patients could express what makes their life meaningful, and 104 (92%) could discuss possible complications. 79 patients (70.5%) could describe their unacceptable health state. There was no difference between DT and BTT groups. Family awareness increased significantly from 35% to 58% after intervention (p &lt; 0.01).</td>
</tr>
<tr>
<td>Swett et al., 2014&lt;sup&gt;40&lt;/sup&gt;</td>
<td>19 patients with DT LVAD at single tertiary care centre</td>
<td>Retrospective chart review</td>
<td>Interdisciplinary PC consult at time of evaluation for destination LVAD. Focus on preparedness planning: care preferences in the case of poor quality of life, acute device failure, catastrophic complication, or progressive comorbid condition.</td>
<td>13 patients received a PC consult; 6 did not. 11 patients (85%) in the intervention group had documented advance directives compared with 3 patients (30%) in the group that did not undergo PC consultation (F = .26). Considering the small sample size, the significance of this is unknown.</td>
</tr>
<tr>
<td>Allen et al., 2018&lt;sup&gt;32&lt;/sup&gt;</td>
<td>248 adult patients being evaluated for LVAD as a DT at 6 LVAD implanting centres in the United States</td>
<td>Randomized controlled trial</td>
<td>Delivery of a 2.5-hour clinician-directed decision support training and use of a 26-minute video and 8-page pamphlet decision aid intervention was compared with existing evaluation process at each site, using institution-specific materials.</td>
<td>The intervention improved patient decision quality, measured by patient knowledge and concordance between stated values, and patient-reported treatment choice. It did not improve concordance between stated values and actual treatment received. The LVAD implantation rate was substantially lower in the intervention compared with the control group.</td>
</tr>
</tbody>
</table>

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LVAD Deactivation

• Complicated volitional process
  – On part of patients, caregivers, providers
• High stress on caregivers as surrogate decision makers

LVAD Deactivation Logistics

Table 1. Basic Deactivation Sequence Checklist for HeartMate II LVAD

a. Unscrew small black nickel-sized battery in “System Driver” (also called controller) to disable back-up alarms.
b. Press alarm silence button on controller.
c. Remove power from controller by removing the patient cable (also referred to as the Y-cable) coming from the main power base unit (simultaneous removal of both cables will limit alarms).
d. Detach controller from patient (cord going from LVAD driveline exiting patient to the controller).

If deactivation occurs sequentially and not simultaneously, there is the risk of the device alarming due to low power or low flow, which can be distressing to families.

Specialist PC for MCS patients

Regulatory Requirement

• Impartial voice in decision making
• Facilitator of advanced care planning
• Contributor to improved patient and family experience
• Support for MCS team members
• Support for transition to hospice and MCS deactivation

Sagin A et al, J Pain Symptom Manage 52(4);2016.
End of Life Scenarios
End-stage Heart Failure

• Poor QOL despite medical/device therapies
• Progression of comorbid conditions
  – ESRD
  – Cancer
  – Dementia
• Incompatibility with goals of care

Challenges

• Most providers do not receive palliative care training
• Discussing death is challenging
• Perception of “failure” or “letting down” patient and their family
• Better to have act of “commission” versus “omission”
• Misunderstanding of the power of palliative care – improved QOL, improved survival
Benefits

- Empower patients and families
  - Restore their “voice”
  - Avoid conflicts
- Respect preferences and goals
- Reduce suffering
- Extend survival
Conversations
• Define limits of current therapies
• Provide options
  – Advanced therapies or why not
  – Palliative inotropes
  – Deactivate ICD
  – Re-hospitalization, intubation, dialysis, etc.
• Define role of the “proxy”
• Encourage communication
  – Gift of defining wishes to avoid conflict
• Introduce palliative care
Systems to Provide Earlier Referral

- Mortality score calculated for each patient
- Provided to staff caring for patient
- Set threshold for referral to “pre-hospice” homecare
- Set threshold for referral for inpatient palliative care consult
- Access to outpatient palliative care consults
Ominous prognostic factors

Intolerance of beta-blockers
Intolerance of ACEi/ARBs
Recurrent hospitalizations
Need for inotropes
Hyponatremia
Progressive renal insufficiency

No one factor is “predictive” enough – combine and weight several into a predictive “model”
Referral to Advanced Therapy

Remember acronym to assist in decision making for referral to advanced heart failure specialist:

I-NEED-HELP (also see Table 6)

I: IV inotropes
N: NYHA IIIB/IV or persistently elevated natriuretic peptides
E: End-organ dysfunction
E: Ejection fraction ≤35%
D: Defibrillator shocks
H: Hospitalizations >1
E: Edema despite escalating diuretics
L: Low blood pressure, high heart rate
P: Prognostic medication – progressive intolerance or down-titration of GDMT

Yancy et al.
2017 Pathways for Optimization of Heart Failure Treatment

JACC Vol. 71, No. 2, 2018
January 16, 2018: 201-30
Penn “Wired-Way”

- Using 6 month mortality predictive model
- Refer patients to home care with a palliative care component
  - Provide additional services
  - IV diuretic escalation
  - Discussion around goals of care and wishes
Benefits of Prognostic Models

TABLE 1. Potential Benefits of Using Prognostic Models for Heart Failure

- Allows patients and families to have a realistic expectation of the prognosis
- Allows appropriate allocation of resources, including transplantation, mechanical circulatory assist devices, and implantable defibrillators
- Allows selection of therapies most likely to positively affect the quality and quantity of life
- Promotes open, honest communication between clinicians, patients, and their families to define the goals of therapy

Goldberg, Jessup *Circulation* 2007; 116:360
# Hazards of Prognostic Models

**TABLE 2. Hazards of Using Prognostic Models for Heart Failure**

- The model was derived from a different population of patients
- Patient compliance, preferences, or attitudes are not incorporated
- New therapies become available, making the models obsolete
- The patient is not compensated or on evidence-based therapies
- Scores from the models will replace informed, compassionate, clinician–patient conversations

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Goldberg, Jessup *Circulation* 2007; 116:360
Conclusions

• Palliative care provides improved quality of life and survival in heart failure patients
• Palliative care reduces readmissions and assists patients and families define advanced care plans
• Many patients are referred to late due to lack of comfort of providers and patients – use models to help
• All team members should assess for the need for palliative care
Contact Us to Learn More

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