PALLIATIVE CARE NEEDS OF PEOPLE WITH END-STAGE HEART FAILURE

Nancy M. Albert PhD, CCNS, CCRN, CNA

The Cleveland Clinic Foundation
Cleveland, Ohio
OBJECTIVES

- Provide overview of advanced HF pathophysiology, modes of death, and treatment
- Describe prognostic factors and issues of determining prognosis
- State current guidelines related to end-of-life
- Discuss palliative care needs
  - Symptom management
  - Depression and anxiety
  - Skin breakdown
  - Pain
  - Sleep
  - GI complaints
  - Conversations
Hypertrophy, remodeling, apoptosis, ischemia, ↑HR, ↓HR variability, arrhythmias, fibrosis

Mortality

Angiotensin II
-aldosterone
-vasopressin

Norepinephrine
-reduced baroreceptor sensitivity

Cytokines

Hypertrophy, remodeling, apoptosis, ischemia,
↑HR, ↓HR variability, arrhythmias, fibrosis

Mortality
LV REMODELING

Normal Heart → Dilated Cardiomyopathic Heart

↓ β-AR signal transduction, cytokines, RAAS
↓ Bioenergetics

Altered Ca2+ handling architecture
Fetal gene induction
Apoptosis

Mortality

Mann & Bristow, Circulation 2005;111:2837.
Patients with NYHA class II-IV HF (n=3991) were randomized to a target 200-mg once-daily dose of metoprolol succinate (n=1990) or placebo (n=2001) and followed for a mean of 1 year.

Chronic HF: Mode of Death
Single center, Disease Mgmt program study

N = 74 deaths

- Metabolic: Creatinine > 4.0 mg/dL in 1 month of death; Creatinine > 3.0 mg/dL before referral to hospice; Progressive hepatic failure
- Progressive: NYHA FC IV symptoms without renal or hepatic failure
- Other: Trauma, sepsis or other non-cardiac causes
- Unwitnesed-Sudden
- SCD
- Unknown

Derfler et al. AJGC 2004;13:299-306
January 2000 - October 20, 2003
• 160 deaths; 50% outpatients; 21% SCD
  ▪ In 6 months before death:
    • 50% NYHA FC III-IV symptoms
    • Renal insufficiency and hyponatremia were worse in months preceding death than at the time of death
      • Creatinine: 3.2 vs. 2.3 mg/dL
      • Sodium: 128 vs. 135 mmol/L

**P < .001**

Teuteberg et al. *J Cardiac Failure* 2006;12:47
Evidence-Based Treatment Across the Continuum of LVD and HF

Reduce Mortality
- ACEI or ARB
- β-Blocker
- Aldosterone Antagonist
- ICD*
- CRT ± an ICD*
- Hyd/ISDN*

Treat Comorbidities
- Aspirin*
- Warfarin*
- Statin*

Enhance Adherence
- Education
- Disease Management
- Performance Improvement Systems

*For select indicated patients.

Heart Failure-Related Deaths: Impact of Contemporary Therapy

24 month data from placebo arm of ValHeft

# ICD Device Trials in HF & LVD

### HF Etiology
- Ischemic: 100%
- Ischemic: 59%
- Nonischemic: 41%
- Nonischemic: 100%
- Ischemic: 52%
- Nonischemic: 48%

### NYHA Class
- I/II/III (35%/35%/30%)
- III/IV (87%/13%)
- I/II/III (20%/60%/20%)
- II/III (71%/29%)

### LVEF
- ≤30%
- ≤35%
- ≤35%
- ≤35%

### No. Pts
- 1232
- 1520
- 458
- 2521

### Follow-Up
- 20 months
- 12 months
- 24 months
- 45 months

### Hazard Ratio
- Control: 0.69
- Therapy: 0.64
- 0.66
- 0.77

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Evidence-Based Treatment in Advanced HF

Reduce Symptoms and Improve QOL
- ACEI or ARB
- β-Blocker
- Aldosterone Antagonist
- CRT ± an ICD*
- Hyd/ISDN*

Control Volume
- Salt Restriction*
- Diuretics*
- Treat Residual Symptoms
- Digoxin*

Improve Adherence and QOL
- Education
- Disease Management
- Performance Improvement Systems

*For select indicated patients.

Cardiac Resynchronization: Must be “ON” Continuously to Achieve Effects

Ejection fraction

Mitral Regurgitation


†, significant diff. compared to 3 mo
*, significant diff. compared to baseline

N=25


††, significant diff. compared to 3 mo, significant diff. compared to 3 mo

**, significant diff. compared to baseline

††††
Size matters.

Cardiac Device in and active matters.
Renal function matters.
Home and Hospital care matters.
Prognosis Near Death: Support

- CHF
- COPD
- Cirrhosis

6-Month Survival Estimate

Days to Death

Bock et al. New Horizons, 1997; 5:51
VARIABILITY in FC from I-IV
### VARIABLES ASSOCIATED with POOR PROGNOSTIC

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum Na</td>
<td>&lt; 136 mg/dL</td>
</tr>
<tr>
<td>Serum creatinine</td>
<td>≥ 2.0 mg/dL</td>
</tr>
<tr>
<td>Presence of CVA, COPD, Ca, dementia</td>
<td></td>
</tr>
<tr>
<td>Low BP w. Acute Decomp. HF</td>
<td></td>
</tr>
<tr>
<td>Dyspnea</td>
<td>Orthopnea</td>
</tr>
<tr>
<td>↓ In 6 min. walk test</td>
<td>Dependent</td>
</tr>
<tr>
<td>NYHA Class</td>
<td>↓ Peak VO2</td>
</tr>
<tr>
<td>3 or more hospitalizations/yr</td>
<td>↑ serum BNP</td>
</tr>
<tr>
<td>Syncope</td>
<td>Atrial Fib</td>
</tr>
<tr>
<td>↑ Resp rate</td>
<td>↓ HRV</td>
</tr>
<tr>
<td>↓ HR &gt; 100 bpm</td>
<td></td>
</tr>
<tr>
<td>↓ PND</td>
<td></td>
</tr>
<tr>
<td>↑ NYHA FC IV</td>
<td></td>
</tr>
</tbody>
</table>

**Problem:** We do not know which factors remain the most important in mortality risk after multivariate regression...need RESEARCH

PROGNOSTIC MODELS

• 280 patients w advanced HF from 16 US sites
• Applied 4 prognostic models from literature
• 148 deaths or transplantations occurred
  ▪ Average follow-up was 31.2 months
• Each model identified patients with different prognoses
  ▪ Limited overall predictive power
  ▪ Many component patient characteristics did not have independent prognostic significance

Frankel et al. J Cardiac Failure. 2006;12:430
PROGNOSTIC MODELS

- Most powerful prognostic factors within the models:
  - Increasing age
  - Ischemic cardiomyopathy
  - History of cardiomyopathy
  - Ankle edema
  - Decreased peak oxygen consumption
  - Absence of beta-blocker use

Problem: Physician researchers focused on variables associated with demographics, medical Hx, drug tx’s but not social or psychological factors known to affect outcomes ... need RESEARCH

Frankel et al. J Cardiac Failure. 2006;12:430
### GUIDELINES on End-of-Life

**Level C evidence**

<table>
<thead>
<tr>
<th>ACC/AHA (2005) (^1)</th>
<th>HFSA (2006) (^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing discussions w pt/family about prognosis</td>
<td>Ongoing discussions w pt/family about QOL and prognosis</td>
</tr>
<tr>
<td>Education about advance directives</td>
<td>Discuss and individualize advanced directives and resuscitation wishes</td>
</tr>
</tbody>
</table>
| Ensure continuity of medical care from inpatient to ambulatory | Optimize pt status- medically and psychologically BEFORE discussing end-of-life  
Consider end-of-life if symptoms warrant:  
• Frequent hospitalizations  
• Chronic poor QOL  
• Need intermittent or chronic IV support  
• Considered for assist device |

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## GUIDELINES on End-of-Life

<table>
<thead>
<tr>
<th>ACC/AHA (2005)&lt;sup&gt;1&lt;/sup&gt;</th>
<th>HFSA (2006)&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss inactivating ICD</td>
<td>Give directions about clinical response if does not want resuscitation; Discuss inactivating ICD</td>
</tr>
<tr>
<td>Hospice components for symptom palliation include opiates, inotropes and IV diuretics</td>
<td>Individualize strategies for symptom management, limiting testing and interventions</td>
</tr>
<tr>
<td>Professionals working with HF pts should examine end-of-life processes and make improvements</td>
<td>Have pts reassess their wishes concerning Tx options as decisions may change over time</td>
</tr>
<tr>
<td>Aggressive procedures in the final days of life are not appropriate</td>
<td>Discuss the possibility of unexpected cardiac death. Consider hospice care in the home, hospital or special hospice unit</td>
</tr>
</tbody>
</table>

Palliative Care Needs at End of Life
**Characteristics of patients with HF**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Women</th>
<th>Men</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean</td>
<td>79</td>
<td>73</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>HTN %</td>
<td>72</td>
<td>61</td>
<td>0.02</td>
</tr>
<tr>
<td>DM %</td>
<td>19</td>
<td>29</td>
<td>0.03</td>
</tr>
<tr>
<td>Smoking %</td>
<td>35</td>
<td>68</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hyperlipidemia</td>
<td>16</td>
<td>20</td>
<td>NS</td>
</tr>
<tr>
<td>$\geq$ 3 comorbidities</td>
<td>22</td>
<td>31</td>
<td>0.04</td>
</tr>
<tr>
<td>History MI</td>
<td>19</td>
<td>26</td>
<td>NS</td>
</tr>
<tr>
<td>Obesity (BMI $\geq$ 25)</td>
<td>49</td>
<td>62</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Roger et al. JAMA 2004;292:344
Chronic HF: Place of Death
Single center, Disease Mgmt program study

N = 74; mean age 57.7 years

Derfler et al. AJGC 2004;13:299-306
ADHERE Registry; All Enrolled Discharges from April 1, 2004 to March 31, 2005 with History of HF and LVEF Documented and < 0.40 (n = 29,759) Scios, Inc.

*Excludes patients with documented contraindications.
The Copernicus Study: Mean Change in SBP by Beta Blocker or Placebo Assignment in Severe Chronic HF

<table>
<thead>
<tr>
<th>Blood Pressure (mm Hg)</th>
<th>Placebo n (%)</th>
<th>Carvedilol n (%)</th>
<th>Risk Reduction (Mortality)</th>
<th>Risk Reduction Death or Hospitalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>85-95</td>
<td>62 (5)</td>
<td>70 (6)</td>
<td>23%</td>
<td>26%</td>
</tr>
<tr>
<td>96-105</td>
<td>128 (11)</td>
<td>136 (12)</td>
<td>39%</td>
<td>25%</td>
</tr>
<tr>
<td>106-115</td>
<td>244 (22)</td>
<td>224 (19)</td>
<td>35%</td>
<td>22%</td>
</tr>
<tr>
<td>116-125</td>
<td>221 (20)</td>
<td>251 (22)</td>
<td>39%</td>
<td>46%</td>
</tr>
<tr>
<td>&gt;125</td>
<td>478 (42)</td>
<td>475 (41)</td>
<td>40%</td>
<td>32%</td>
</tr>
</tbody>
</table>

SBP in Advanced HF

Healthy heart: SBP is a product of SV and the impedance to ejection (afterload)
• Impedance does NOT affect SV, just pressure

Failing heart: Impedance controls SV
• Neurohormonal & vascular consequences of HF raise impedance
  ▪ SV becomes the measure of severity of LV dysfunction

HYPOTENSION is d/t reduced contractile function of the heart

GOAL: Lower impedance & slow progression of structural and functional disease

Cohn JN. JACC. 2004;43:1430
### MEDICATION Dosage/Timing

- **Drugs that peak at same time:**

<table>
<thead>
<tr>
<th>1 - 2 hours</th>
<th>2 - 4 hours</th>
<th>4 - 6 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loop diuretics</td>
<td>Metolazone</td>
<td>HCTZ</td>
</tr>
<tr>
<td>Eplerenone</td>
<td>Carvedilol</td>
<td>Ramipril</td>
</tr>
<tr>
<td>Captopril</td>
<td>Bisoprolol</td>
<td>Enalapril</td>
</tr>
<tr>
<td>Hydralazine</td>
<td>Candesartan</td>
<td>Lisinopril (7 hrs)</td>
</tr>
<tr>
<td>/nitrate combo</td>
<td>Fosinopril</td>
<td>Metoprolol</td>
</tr>
<tr>
<td>Trandolapril</td>
<td>Quinapril</td>
<td>succinate</td>
</tr>
<tr>
<td></td>
<td>Valsartan</td>
<td>(6-12 hrs)</td>
</tr>
</tbody>
</table>
PERSISTENT SYMPTOMS

• Symptomatic hypotension (orthostasis)
• Increasing dyspnea
• Worsening renal dysfunction
• Hypoperfusion
  - Decreased urine output
  - Cold, clammy skin
  - Mental obtundation, confusion, sleepy
  - Dizzy, lightheaded, weak, fatigued
  - Tachycardia
  - Nausea, anorexia, no appetite, bloating
MEDICATIONS for PERSISTENT SYMPTOMS

- Are HF medication therapies optimized?
  - Right drugs, right doses, right schedule?
- Continuous ambulatory IV inotropic support
  - Milrinone or dobutamine
    - May decrease survival
    - May improve QOL
  - Regularly obtain hemodynamic data to assess for need
- Nesiritide infusion is NOT supported
**BAD PHARMACOLOGICAL THERAPIES**

- Antidepressants that inhibit CNS neuron uptake of dopamine or norepinephrine
  - SSRI class OK
- Drugs used in psychosis; bipolar mania
- COX-2 inhibitor-NSAID’s (ALL!!)
- Thiazolidinedione (TZD) Type II DM agents
- Most antidysrhythmics
  - Exception: amiodarone
BAD “OTC” DRUGS/ THERAPIES

- Na+ based antacids (Rolaids)
- ASA (high dose)
- NSAID’s
- Ginseng (germanium)
- Ginkgo
- Echinacea
- Black licorice
- Decongestants
Medication Summary

• Follow “optimal HF drug” guidelines
  ▪ Unless patient is unable to swallow or is obtunded
• Resist inclination to remove HF drugs if no contraindications
  ▪ May worsen symptoms / increase suffering
• Remove excess non-HF drugs and alternative therapies
• Assess potassium and creatinine if:
  ▪ Aggressive diuresis
  ▪ Adding aldosterone inhibitor
Clinical Evidence of Congestion 4 to 6 Weeks after Hospitalization & Survival

Survival (%)

Congestion Criteria
- Orthopnea
- JVD
- Weight gain > 2 lbs in one week
- ↑ diuretic dose on visit
- Edema

Lucas et al., AHJ. 2000; 140:840
More than 50% of Patients Have Little or no Weight Loss During Hospitalization

Fonarow GC. Rev Cardiovasc Med. 2003; 4 (Suppl. 7): 21
Congestion Often Does not Translate in Signs/Symptoms

- Among pts. with severe heart failure
  - PCWP 33 ± 6 mmHg, CI 1.8 ± 0.5, LVEF 0.18 ± 0.06
  - CXR: 27% no congestion, 41% minimal congestion
- Among pts. with moderate to severe heart failure
  - PCWP 30 ± 9 mmHg, CI 2.1 ± 0.8, LVEF 0.18 ± 0.06
  - No rales: 84%, No edema: 80%, No JVP 50%, No orthopnea: 22%
- Hemodynamic congestion may not be recognized clinically (doesn’t translate into symptoms/signs until late)

1 Mahdyoon H et al. Am J Card. 2003; 63: 625
2 Stevenson LW et al. JAMA. 1989; 261: 884
MANAGEMENT

Breathlessness due to Congestion

- Non-drug Tx
- Symptomatic drug Tx
- Correct correctable cause

Exertion, At rest, Terminal

- Pharmaceutical and non-pharmaceutical measures
Medications

Devices
Complications of Diuretic Therapy in HF

DEVICE Trends Provide Clinical Information to Monitor Changes in Status

- AT/AF (hrs/day)
- Ventricular Rate During AT/AF (bpm)
- % Pacing/day
- Avg Ventricular Rate (Day/Night)
- Pt Activity (hrs/day)
- Heart Rate Variability (ms)

Graph showing trends over time:
- AT/AF total hours/day
- V. rate during AT/AF (bpm)
- % Pacing/day (Atrial, Ventricular)
- Avg V. rate (bpm) (Day, Night)
- Patient activity hours/day
- Heart rate variability (ms)
DEVICE Monitoring: Intra-Thoracic Impedance

“Wetter” Lungs

Impedance

“Impedance”

“Dryer” Lungs
Intra-Thoracic Impedance

MD Programmed Threshold

Accumulation of difference between daily and reference impedance

Reference impedance slowly adapts to daily impedance

Daily impedance is average of one day’s measurements
DIET and FLUIDS

- Low sodium diet
  - Educate
    - Restaurants
    - Relatives homes
  - Monitor
- Fluids
  - Educate
  - Tricks to decrease thirst
    - Suck on hard candy, frozen grapes, cold washcloth...
IF CONGESTION INCREASES

- Carefully assess adherence to current diuretic regime
  - Especially related to when taken during day
- Increase loop diuretic dose or frequency; give IV
- Change loop diuretic agent to one with different absorption (i.e., furosemide to torsemide)
- Add a thiazide diuretic
- Topical or oral nitrate at night (if not on during daytime)
  - May improve sleep / decrease awakenings
- Carefully assess adherence to diet and fluid regime and tighten modifications
- Initiate or tighten fluid restriction
Congestion Summary

- Use loop diuretics to control symptoms
  - Add metolazone p.r.n. but beware of erratic absorption
- Overdiuresis causes increased fatigue and symptoms that mimic worsening HF
- Use low sodium diet
  - 1600 mg sodium/day
- Use fluid restriction
  - Less than 8 cups/day
DEPRESSION and ANXIETY
Effects on health status at 6 months

- 139 ambulatory patients with HF in primary care
- Mean age 75 ± 9.7 yrs

**Depression**

*HAM-D*

<table>
<thead>
<tr>
<th></th>
<th>Fatigue</th>
<th>Breathlessness</th>
<th>Chest Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>r</strong></td>
<td>0.33**</td>
<td>0.33</td>
<td>0.32*</td>
</tr>
</tbody>
</table>

* P < 0.05; ** P < 0.01; ***P < 0.001

**Sullivan et al. AJGC 2004;13:252-260**
DEPRESSION and ANXIETY

• Predictors of anxiety and depression in a consecutive series of 227 hospitalized HF patients; mean age, 77.1 ± 7.9 yrs


Hierarchal regression model with all 4 factors

<table>
<thead>
<tr>
<th>Variables</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor perceived emotional-informational support</td>
<td>0.34</td>
</tr>
<tr>
<td>Higher levels of fatigue</td>
<td>0.40</td>
</tr>
<tr>
<td>Poorer health perception</td>
<td>0.21</td>
</tr>
<tr>
<td>Not living with family</td>
<td>0.10</td>
</tr>
</tbody>
</table>

R², 0.49
DEPRESSION and ANXIETY

- Assess mood, morale and coping skills
- Counseling
  - Support groups (church, community, neighbor, or healthcare initiated)
  - Caretaker classes
- Help patient to retain a sense of control of their disease processes
- Treat depression with serotonin reuptake inhibitors, as needed
- Treat anxiety with short acting and longer acting anxiolytics, as needed
SKIN BREAKDOWN

- Can occur from edema or venous stasis
- Can be painful
- Treatment:
  - Assess cause and correct when possible
  - Elastic stockings or elastic wraps
  - Exercise and active ROM exercises
  - Consult with skin care/wound experts as needed
PAIN

• Systematic review of pain in HF
  ▪ 9 descriptive studies; 5 specifically on HF
  ▪ 23-75% of patients with HF reported pain
  ▪ Factors related to pain:
    • Anxiety
    • Depression
    • Self rating of poor QOL
    • Dyspnea
    • More dependencies in ADL’s
  ▪ Symptom of pain is NOT well understood

• PAIN-HF study underway

PAIN RELIEF

• Clinical practice guidelines by ACC/AHA:
  ▪ No recommendations on pain assessment
  ▪ No recommendations on ongoing monitoring
  ▪ 1 recommendation on management: “opiates”
    • No details on opiate therapy
• Palliative care medicine providers are the experts; we defer to you!!
Sleep related breathing disorders are prevalent at end-of-life:

- Orthopnea
- Paroxysmal nocturnal dyspnea
- Obstructive sleep apnea
- Central sleep apnea
- Cheyne stokes respirations
- Daytime sleepiness
SLEEP

• Management:
  ▪ Elevate HOB
  ▪ Oral or topical nitrate at night
  ▪ CPAP for obstructive sleep apnea
  ▪ Diuresis/fluid removal for central sleep apnea
  ▪ Oxygen at night?
    • Does not improve daytime sleepiness
    • Does not improve health related QOL
CPAP in Central Sleep Apnea


Transplantation-free Survival (%) vs Time from Enrollment (mo).

CPAP group (32 events) vs Control group (32 events).

P = 0.54
CPAP in Central Sleep Apnea

CPAP in Central Sleep Apnea

Also improved in CPAP group:
Mean and minimal oxygen saturation

GI COMPLAINTS

• Nausea and loss of appetite
  ▪ Caused by congestion in liver and stomach
    • Avoid fluid overload
  ▪ Caused by low cardiac output
    • Assess for hypoperfusion; treat
• Digoxin toxicity
  ▪ Use low dose (0.125 mg/day)
    • Screen for toxicity, as needed
• Constipation
  ▪ Fluid status and morphine
    • Avoid OTC pre-packaged enemas (Na+ based)
    • Stool softeners and laxatives OK
END-OF-LIFE CONVERSATIONS

TOPICS

• Unfavorable prognosis & treatment failure
• Treatment choices and family responses
• Advance care planning
• Concerns about one’s ability to cope
• Life goals and other life-closure issues
• Anticipatory mourning
• The meaning of illness and the suffering it creates
END-OF-LIFE CONVERSATIONS

ENHANCING CONVERSATIONS

• Interpersonal communication skills
• Patient centered care
  ▪ Mutual participation relationships
    • Informed choice
    • Patient autonomy
• Need to understand the meaning of illness for the patient
### Preferences for Death vs. Conditions:

The graph above illustrates the preferences of patients to spend all of their time in various conditions, ranked from most to least preferred. The data is categorized by time periods:

- **6 months to 3 months**: Patient preference to spend all of their time in these conditions is indicated by a bar graph. The chart shows the percentage of patients preferring each condition.
- **3 months to 1 month**: Similar data is presented for patients preferring to spend all of their time in these conditions.
- **1 month to 3 days**: The graph shows the percentage of patients preferring to spend all of their time in these conditions.

The data is represented by three bars for each time period, each color-coded to indicate different conditions:

- **Ventilator**
- **Feeding tube**
- **Nursing home**

### Data Details:

- **Ventilator**: The percentage of patients preferring ventilator care decreases as the time period缩短ens. For instance, a higher percentage of patients prefer ventilator care in the 6 months to 3 months period compared to the 1 month to 3 days period.
- **Feeding tube**: The percentage of patients preferring feeding tube care also decreases with shorter time periods.
- **Nursing home**: The percentage of patients preferring nursing home care is relatively lower compared to the other two conditions, but also decreases with shorter time periods.

### Statistical Information:

- **Sample Size**:
  - 6 months to 3 months: n=97
  - 3 months to 1 month: n=109
  - 1 month to 3 days: n=107

### Source:

Levenson et al. JAGS, 2000; 48:5101.
Preferences for Death vs. Symptoms:
Patient Would Rather Die Than Spend All of the Time In:

<table>
<thead>
<tr>
<th></th>
<th>Pain</th>
<th>Confusion</th>
<th>Coma</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 mos. - 3 mos.</td>
<td>40%</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>3 mos. - 1 mo.</td>
<td>45%</td>
<td>40%</td>
<td>55%</td>
</tr>
<tr>
<td>1 mo. - 3 days</td>
<td>50%</td>
<td>45%</td>
<td>60%</td>
</tr>
</tbody>
</table>

n=97  n=109  n=107

Levenson et al. JAGS, 2000; 48:5101.
Preferences for Care Over
The Last 6 Months of Life

- Prefers comfort care, $P = 0.069$
- Prefers DNR, $P = 0.017$

<table>
<thead>
<tr>
<th>Period</th>
<th>Comfort Care</th>
<th>DNR</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 mos. - 3 mos.</td>
<td>n=217</td>
<td>n=222</td>
</tr>
<tr>
<td>3 mos. - 1 mo.</td>
<td>n=200</td>
<td>n=207</td>
</tr>
<tr>
<td>1 mo. - 3 days</td>
<td>n=155</td>
<td>n=159</td>
</tr>
</tbody>
</table>
• Balancing therapies:
  ▪ Aggressive
  ▪ Palliative

• Promoting:
  ▪ QOL
  ▪ A good death