Objectives

- To gain an understanding of what a CHF patient experiences at end of life
- To employ a symptom-oriented approach to CHF
- To understand why prognostication (& obtaining DNR) is difficult and to list strategies to help facilitate these discussions
- To list services available for the palliation of CHF and how to access them

Number 1.
Dying of Congestive Heart Failure is symptomatic and symptoms are often poorly controlled

Clinical Features

- Shortness of breath
- Swelling of feet & legs
- Chronic lack of energy
- Difficulty sleeping at night due to breathing problems
- Swollen or tender abdomen with loss of appetite
- Gagging with frothing sputum
- Increased urination at night
- Confusion and/or impaired memory
Severe symptoms in last 48–72 hrs prior to death
(SUPPORT study Krumholtz, Circulation 1998)
- Breathlessness 66%
- Pain 41%
- Severe confusion 15%

Regional Study of Care of the Dying study
(Addington, Pall Med 1995)
- Dyspnea 50%
- Pain 50%
- Low mood 59%
- Anxiety 45%

Lung Cancer
- Clear trajectory
- Feel well; told ill
- Understand diagnosis/prognosis
- Relatives anxious
- Swing between hope/despair

Cardiac Failure
- Unclear trajectory
- Feel ill; told well
- Don’t understand diagnosis/prognosis
- Relatives isolated/exhausted
- Daily hopelessness

Experience of Patients
(Murray, BMJ 2002)
Mrs. G. M.
- 87 y.o. referred with inoperable critical aortic stenosis
- PMHx: DM, OA, MI, Previous angio with 2 stents placed, previous CABC x3 10 years ago.
- Experiences R sided chest pressure every few days
- Takes NTG 0.4mg – If no response calls 911
- Pressure at rest & on exertion – not predictable
- Dyspnea on mild exertion & feels faint if stands quickly
- In ER weekly

Case Study 1.

O/E: hr 60, bp 140/110. S1 soft, Normal S2. 6/6 SEM best at base with rad to carotids
Mild bilat periph edema
++ Crackles half way up lung fields bilat. JVP 5 cm ASA.

Meds:
- Ramipril 10mg po od, Furosemide 40mg bid, Slow K, Insulin Lantis and Novo-rapid, Tylenol #3, NTP 0.8mg/hr in day, NTG 0.4 mg SL prn, Hydralazine 5 mg po od, Simvastatin 20 mg od.

Goals of consult?

1) Establish code status and care desired by patient
2) Decrease emergency room visits
   - Devise pall care plan to be implemented at home
   - Must include counselling, and control symptoms

Do we stop or can we further optimize cardio meds?
Can we add in medications aimed at symptom control?
## 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>Spironolactone</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>B-blocker</td>
<td></td>
<td></td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digitalis</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

(Doyne et al. Oxford Textbook of Palliative Care 2002)

## Symptom Oriented Palliation in CHF

### Pain
- Chest pain 29%
- Other pain 37%
  (Blinderman, J Pain Sympt Manage 2006)
- Inadequately dealt 90%
  (Gibbs, Heart 2002)

#### Management
- Anti-anginals
- Opioids
- Revascularization
- TENS, Spinal cord stimulators

### Dyspnea
- Management
  - Oxygen
  - CHF medications
  - Opioids
  - Other

## Opioids in Heart Failure

- Used for pain and dyspnea
  - Morphine and Hydromorphone
    - Metabolized by liver and excreted by kidneys
    - Both can build up toxic metabolites (HM safer)
  - Fentanyl
    - Cleared through liver
    - Patches very strong – not for opioid naive
    - Given subling or intranasal:
      - quick onset
      - lasts about 1 hr
      - good for incident pain or dyspnea

## Evidence for Opioids in CHF

- small (n=10), randomized, double-blind, crossover
- Morphine vs Placebo in NYHA Class III/IV
- 6/10 patients had improved breathlessness score
  (Johnson et al. Eur J Heart Failure 2001)

- Cochrane review 2010 – lack of evidence in CHF
- All expert opinion papers recommend their use
Symptom Oriented Palliation

- Depression and Anxiety
  - Regular assessment
  - Exercise program
  - Relaxation exercises
  - Antidepressants
  - Consider nocturnal opioid +/− benzodiazepine

Case Study 1.
- Pt wants palliation/avoid ER
- Started:
  - HM 0.5mg qid and q1h prn (d/ced T#3)
  - Fentanyl 50 mcg subling q15 min x 3
  - Furosemide dose doubled for 3 days (didn’t want labs)
- Care plan:
  - If chest pain or dyspnea – nitro and fentanyl
  - Then call palliative care nurse for further advice
  - Continue to see her Family Dr. and Endocrinologist
  - Will require follow up

Number 2.
Prognostication is very difficult in congestive heart failure – discuss goals of care early
Case Study 2.

- Mr. C.D. 76 y.o. Male. No prior MI, CHF, TIA/stroke
- Extensive Anterior Wall STEMI and acute onset CHF
  - What is the likelihood he will die in hospital?
  - Be dead at 6 months?

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>STEMI</th>
<th>Non-STEMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)</td>
<td>HR</td>
<td>95% CI</td>
</tr>
<tr>
<td>65-74</td>
<td>3.48</td>
<td>2.06-6.06</td>
</tr>
<tr>
<td>&gt;75</td>
<td>8.95</td>
<td>5.28-15.20</td>
</tr>
<tr>
<td>Medical history</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HF</td>
<td>2.21</td>
<td>1.61-3.04</td>
</tr>
<tr>
<td>MI</td>
<td>1.69</td>
<td>1.28-2.22</td>
</tr>
<tr>
<td>TIA/Stroke</td>
<td>1.37</td>
<td>1.03-1.84</td>
</tr>
<tr>
<td>Hospital complications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiogenic shock</td>
<td>1.94</td>
<td>1.20-3.15</td>
</tr>
<tr>
<td>HF</td>
<td>2.16</td>
<td>1.65-2.83</td>
</tr>
<tr>
<td>Stroke</td>
<td>2.51</td>
<td>1.32-4.78</td>
</tr>
</tbody>
</table>

Factors Associated With An Increased Risk of Post–Discharge Death

Hospital Case–Fatality Rates According to Development of Heart Failure in Setting of ACS

<table>
<thead>
<tr>
<th>Group</th>
<th>HF (+)</th>
<th>HF (-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients</td>
<td>12.0%</td>
<td>2.9%</td>
</tr>
<tr>
<td>STEMI</td>
<td>16.5%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Non-STEMI</td>
<td>10.3%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Unstable angina</td>
<td>6.7%</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

At Six–Month Follow–Up*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>STEMI</th>
<th>NSTEMI</th>
<th>UA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>5% (480/9414)</td>
<td>6% (496/7977)</td>
<td>4% (349/9357)</td>
</tr>
<tr>
<td>Stroke</td>
<td>1% (110/11673)</td>
<td>1% (103/7749)</td>
<td>1% (78/9176)</td>
</tr>
<tr>
<td>Rehospitalized</td>
<td>18% (1619/9147)</td>
<td>19% (1501/7721)</td>
<td>19% (1761/9150)</td>
</tr>
</tbody>
</table>

*Excluding events that occurred in hospital

(Goldberg, Am J Cardiol 2004)
Phase 1 – initial symptoms, Phase 2 – plateau after initial management Phase 3 – declining functional status, exacerbations respond to rescue Phase 4 – Stage D HF Phase 5 – End of Life (Goodlin, J Am Coll Cardiol 2009)

Very difficult to prognosticate

- Liver failure, renal failure, delirium
- Unable to tolerate ACE-I due to bp
- NYHA Class 4
- EF < 20%
- Frequent hospitalizations
- Cachexia

(Hauptman, Arch Intern Med 2005; Ward, Heart 2002)

### Table 4. Heart Failure Risk Scoring System

<table>
<thead>
<tr>
<th>Variable</th>
<th>30-Day Score</th>
<th>1-Year Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia</td>
<td>+5/-5</td>
<td>+5/-5</td>
</tr>
<tr>
<td>Renal failure, over 60% GFR</td>
<td>+5/-5</td>
<td>+5/-5</td>
</tr>
<tr>
<td>NYHA Class 4</td>
<td>+5/-5</td>
<td>+5/-5</td>
</tr>
<tr>
<td>EF &lt; 20%</td>
<td>+5/-5</td>
<td>+5/-5</td>
</tr>
<tr>
<td>Frequent hospitalizations</td>
<td>+5/-5</td>
<td>+5/-5</td>
</tr>
<tr>
<td>Cachexia</td>
<td>+5/-5</td>
<td>+5/-5</td>
</tr>
</tbody>
</table>

### CCORT Risk Assessment Model

The predicted effects of adding medications and an ICD to a heart failure patient with an annual mortality of 20% and a mean survival of 4.1 years at baseline. Adding the above meds increases the mean survival by 5.6 years.

Levy, Circulation, 2006

### Seattle Heart Failure Model

Levy, Circulation, 2006
Rematch study: Improved survival and quality of life in NYHA Class 4 patients ineligible for transplant (NEJM 2001)

Newer studies show a 50-60% survival at 2 years with new devices, better surgical techniques and a multidisciplinary approach (JACC 2012)

> Leave Pacemakers intact
> Turn off/disable ICD’s
  > 73% – no discussion about turning off prior to last hours
  > 8% – receive shocks minutes before death
  > Inform Funeral Home
  > Plan ahead!

(Goldstein, Ann Intern Med 2004)

Initiating medical treatment
- 3–4 months into any treatment
- When medical condition deteriorates
  - Acute medical or surgical crisis
  - Decrease QOL or increase symptom burden
- When patient initiates
- When any member of the multidisciplinary team feels they wouldn’t be surprised if the patient died within a year
Communication Starters

- Many people think about what they might experience as things change and their heart disease progresses. (Normalize)
- Have you thought about this?
- Do you want me to talk about what changes are likely to happen?
- Talking early allows patients to make own decisions

Number 3.

Palliative Care services are available & often underutilized for cardiac deaths

Issues in Palliative Care

- Lack support networks & communication
- Prognostication difficult
- DNR difficult issue
  - Written on 5% (47% in Ca, 52% in AIDS)
  - Wanted by pt in 23 – 25%
  - Incorrectly Perceived by 25% of physicians
  - 40% rescind
- Only 4% of CHF on palliative care programs

(WRHA Cardiology Palliative Care Collaboration)

- Group meets every 6 weeks to discuss palliative cardiology patients
- Team consists of cardio and pall care MD’s and CNS’s
- Discuss referrals for end of life care, and symptom management

(Gibbs, Heart 2002 & Krumholz, Circulation 1998)
When Should I Palliate?

- Prognosis poor (<6 mo)
- Difficulty controlling symptoms
- Actively dying
- Patient requests
- Call anytime with questions

The Canadian Virtual Hospice provides support and personalized information about palliative and end-of-life care to patients, family members and health care providers.

www.virtualhospice.ca
References

Zambroski, Cheryl. Patients With Heart Failure Who Die in Hospice. AM Heart J 2005; 149:518-64.

Pantilat, Steven. Palliative Care for Patients with Heart Failure. JAMA. 2004; 291: 2476-82.


http://www.ccort.ca/CHFriskmodel.asp


Murray, Scott. Dying of Lung Cancer or Cardiac Failure: Prospective Qualitative Interview Study of Patients and Their Carers in the Community. BMJ. 2002; 325:929-34.


## References


