Palliative Care Discussions in Advanced Heart Failure Patients

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Disclosures

- I have no financial disclosures or or potential conflict of interest in relation to this presentation.

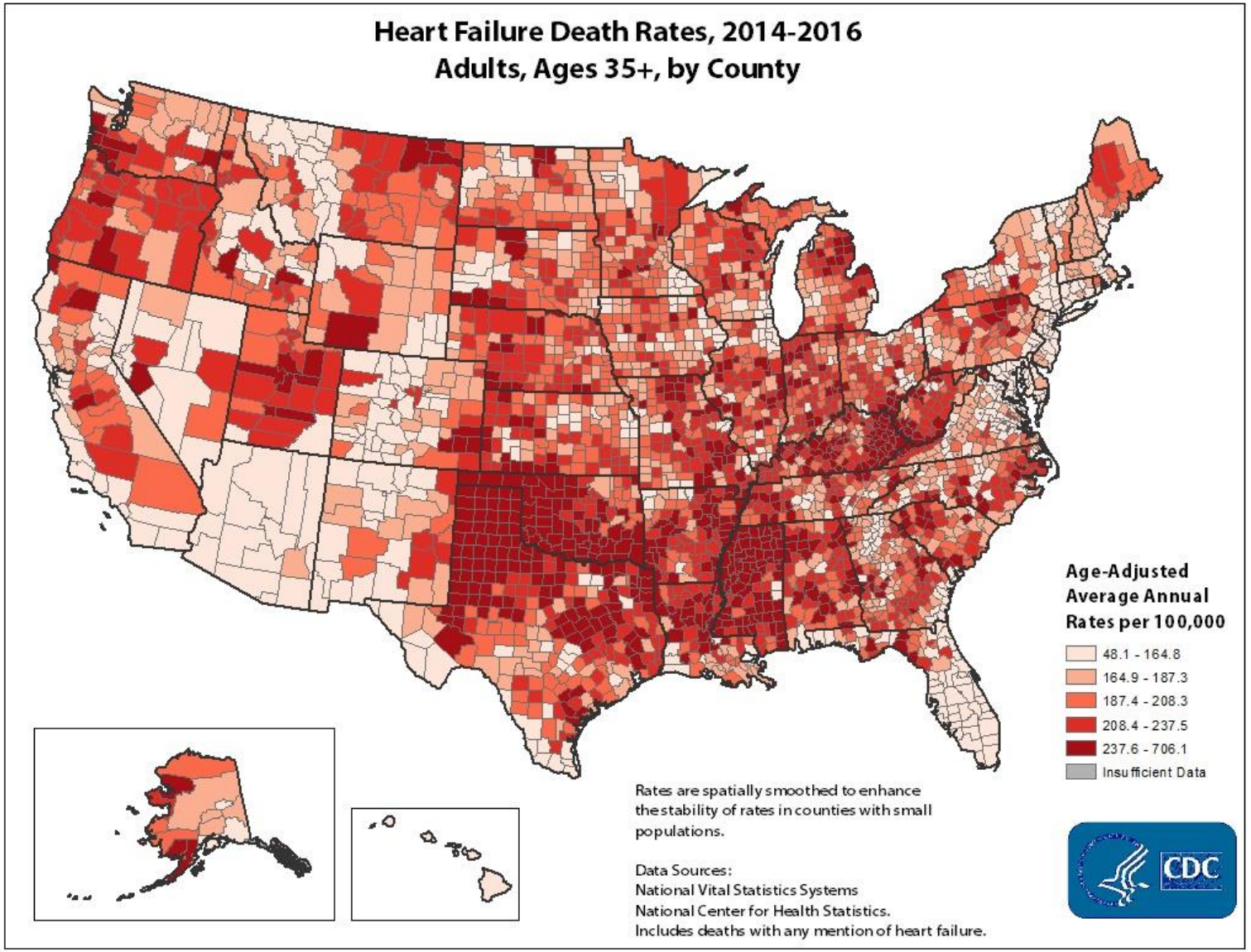
Goals of Discussion Today

- Heart Failure – is it really ***that*** bad?
- Symptoms of Heart Failure – beyond the google search.
- Standard vs. Advanced Therapy Options in Heart Failure
- Prognosis even after Advanced Therapy Interventions
- What does End of Life Look Like for palliative interventions

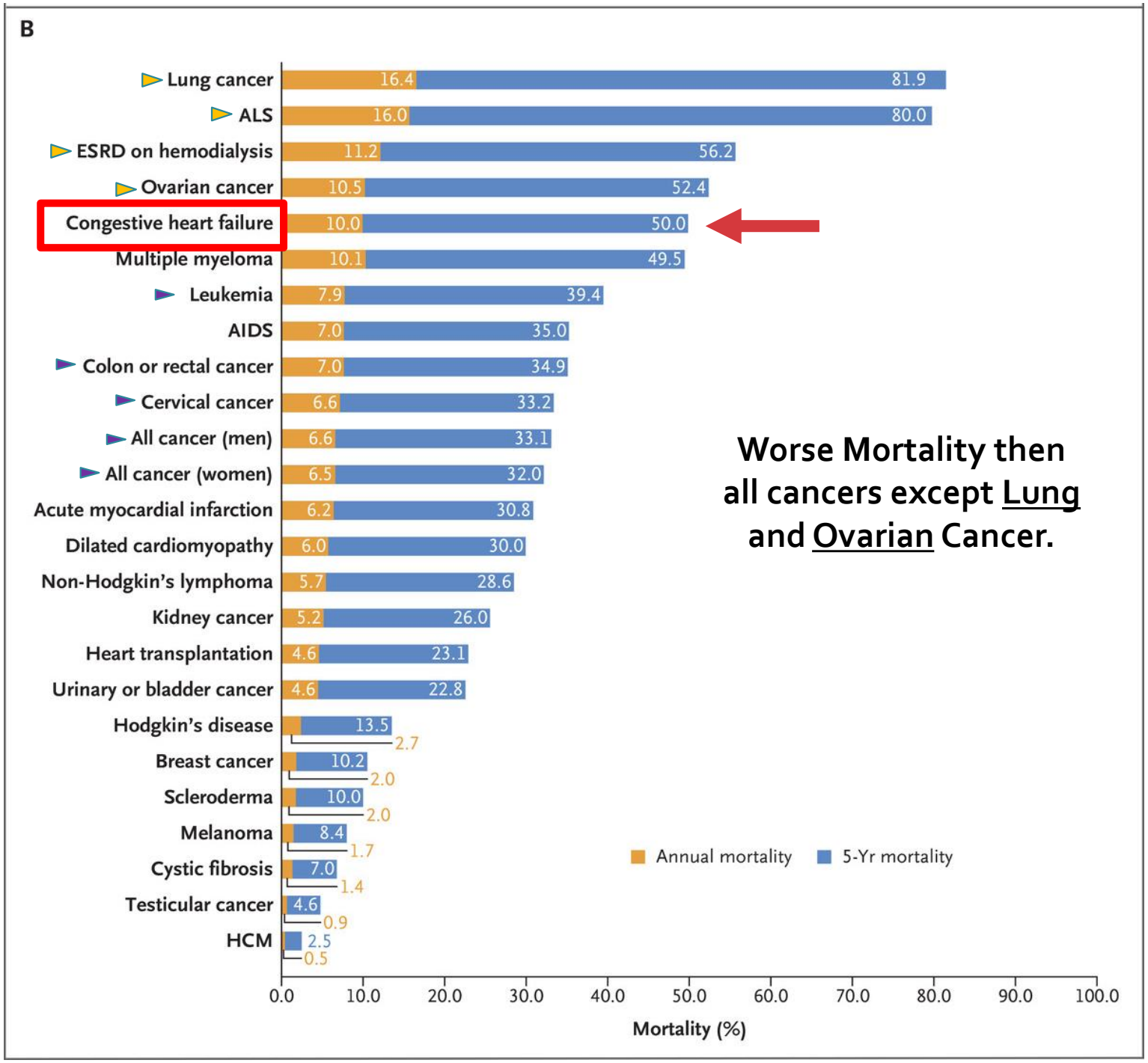
Congestive Heart Failure – Is it really ***that*** bad?

- **~6 million** Americans have HF
- over **800,000** new cases diagnosed each year
- **Primary** diagnosis in over **1 million hospitalizations** each year
- Incidences are increasing and are expected to continue to increase
- Annual expenditures are over **$30.7 billion**

~50% mortality rate at 5 years if no intervention.



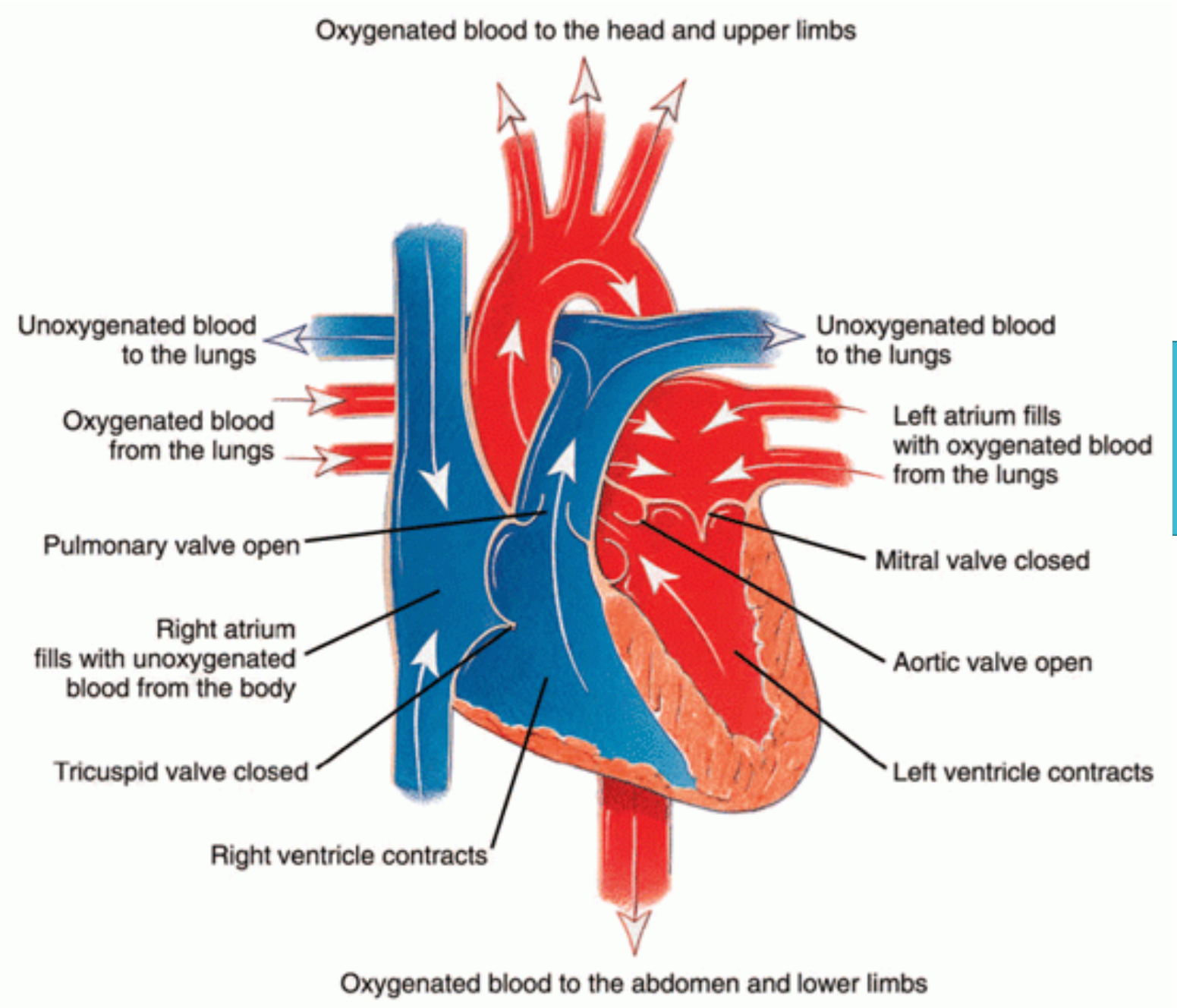
CHF Mortality in Comparison



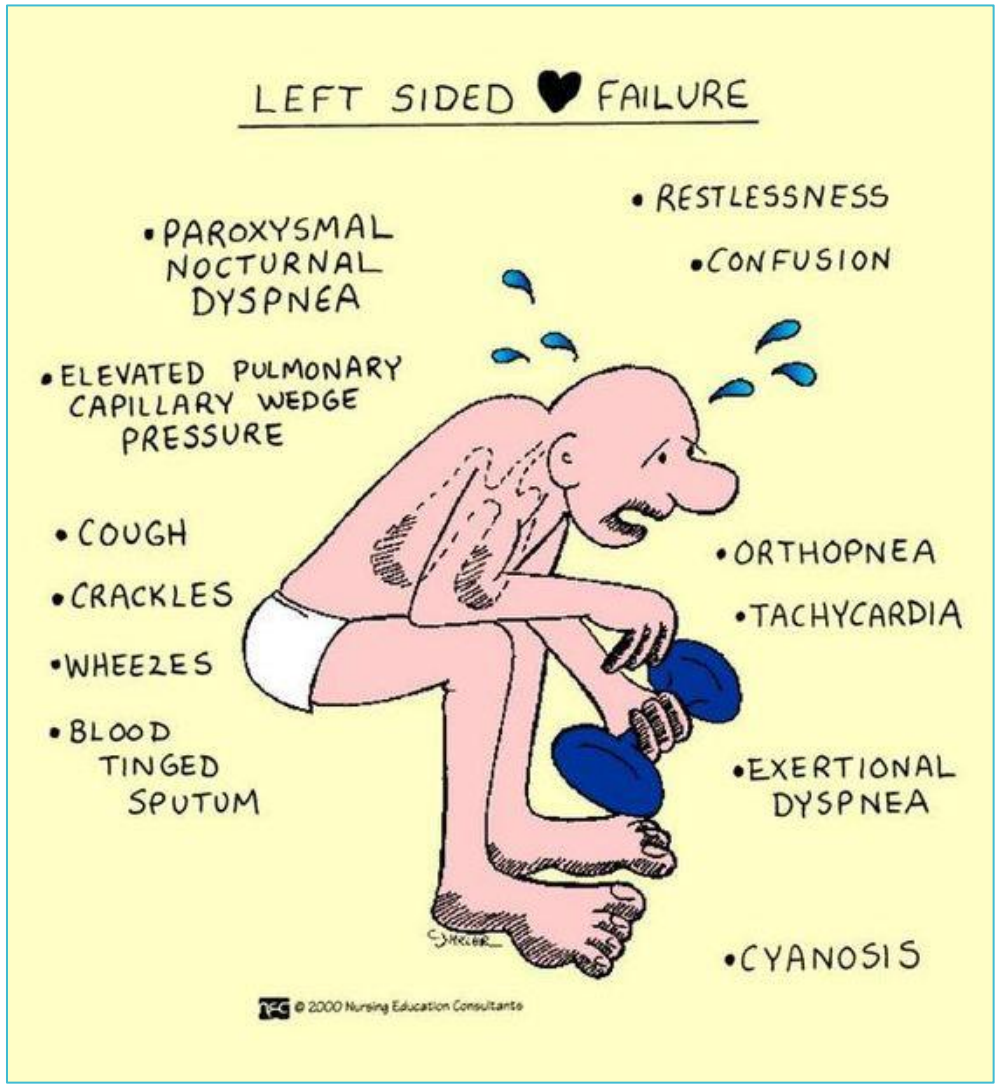
Worse Mortality then all cancers except <u>Lung</u> and <u>Ovarian</u> Cancer.

BJ Maron. N Engl J Med 2018;379:655-668.

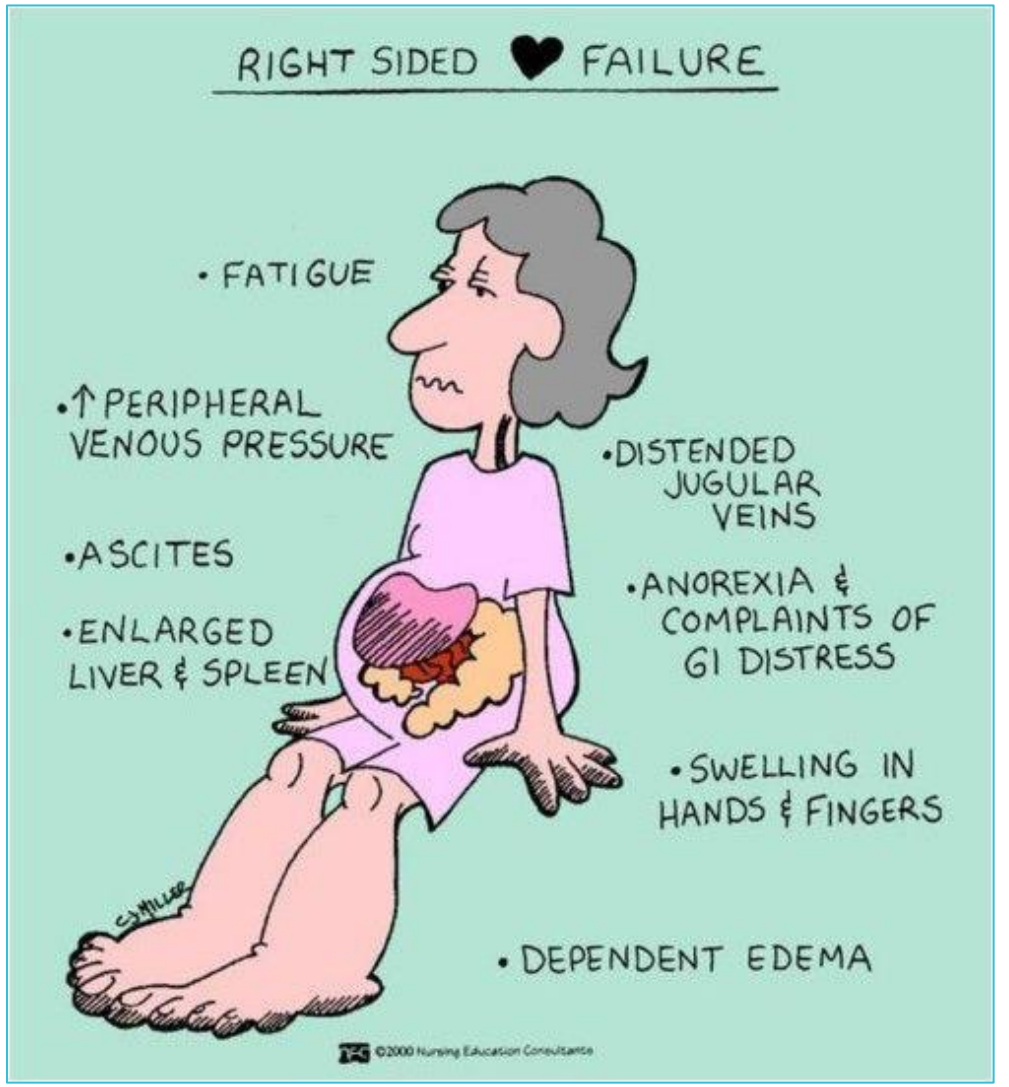
Heart Failure Physiology



Left Sided Heart Failure Symptoms



Right Sided Heart Failure Symptoms



Causes of Low Output Heart Failure – EF < 40%

*Heart Failure Reduced Ejection Fraction = **HFrEF**

- **Ischemic Cardiomyopathy**
  - Coronary Artery Disease ~ 50%
- **Non-Ischemic Cardiomyopathy** – 50%
  - Idiopathic – 35%
  - Hypertension
  - Valvular disease
  - Obesity
  - Infection
  - Auto-immune (infiltrative)

Goals of Treatment

- Improve quality of life
- Relieve symptoms
- Prevent hospitalizations for exacerbation
- Slow progression of the disease
- Prolong survival

First Line Interventions for HFrEF

- General **Medical Therapy Management**

Reduce Mortality - Medication Management

We Can Save a Lot of Lives

	Relative Risk	2-Year Mortality in HFrEF
None		35%
ARNI	↓ 28%	25%
+ Beta-blocker	↓ 35%	16%
+ Aldosterone antagonist	↓ 30%	11.5%
+ SGLT2 inhibitor	↓ 17%	9.5%

Courtesy of Gregg Fonarow MD

Treatments that - **IMPROVE ASPECTS RELATED TO HF**

(Not proven to decrease mortality)

Loop Diuretics

- Symptom Management

Digoxin

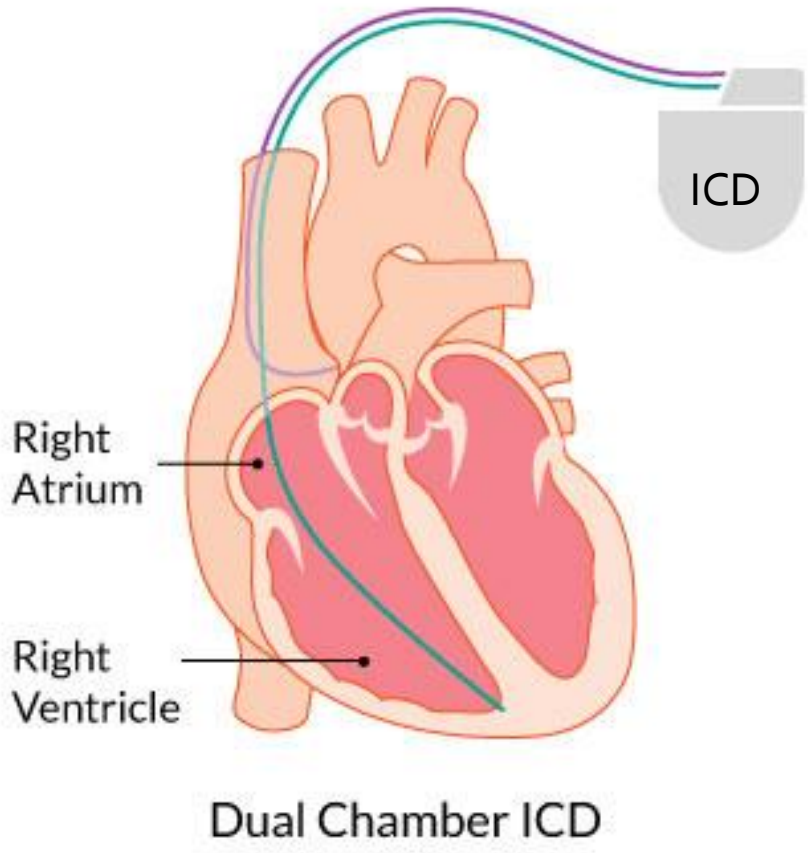
- Symptom Management
- **Reduced Hospitalizations**

Ivabradine

- Reduced Hospitalizations

Interventions for HFrEF

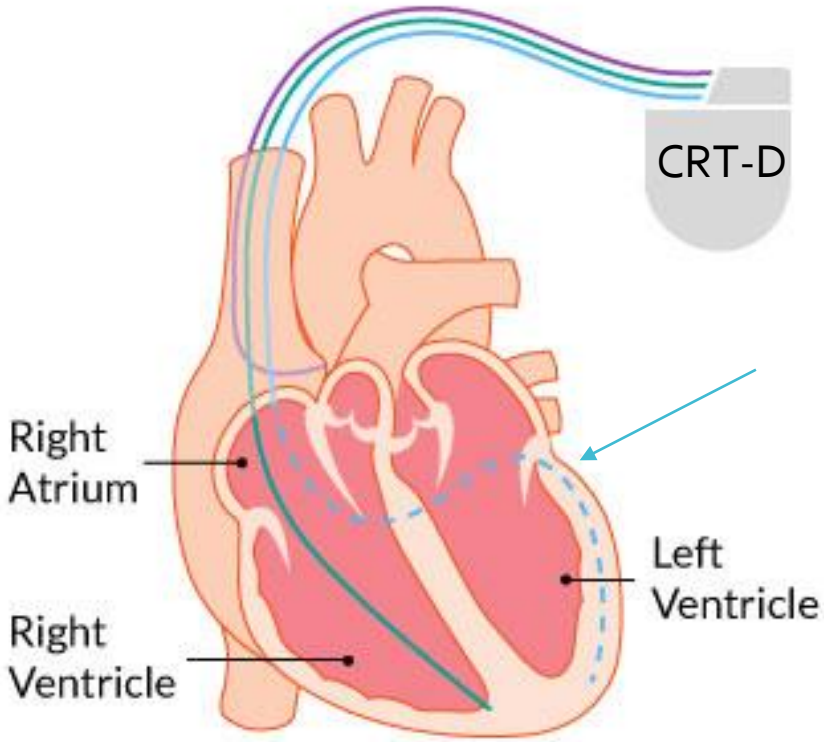
- General **Medical Therapy** Optimization
- **ICD*** - Implantable Cardio Defibrillator
  - Indicated if life expectancy > 50% at 1 year
  - Reduce **Mortality** 23%
- **CRT-D*** – Cardiac Resynchronization Therapy + ICD
  - Can improve symptoms and Ejection Fraction
  - Mortality and **Morbidity** reduction up to 34%



Dual Chamber ICD

ICD – Mortality Improvement

CRT-D – Mortality and Morbiditiy

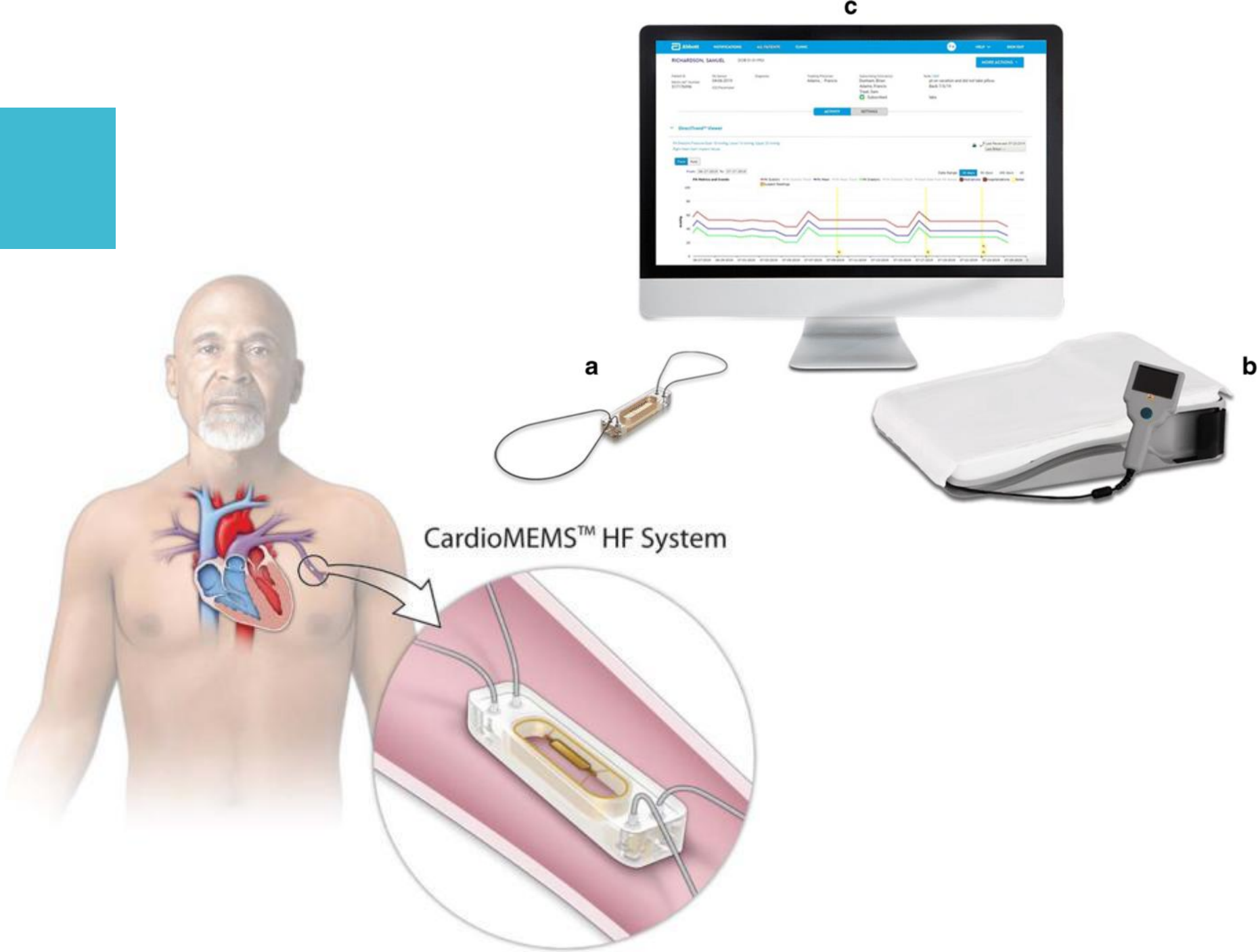


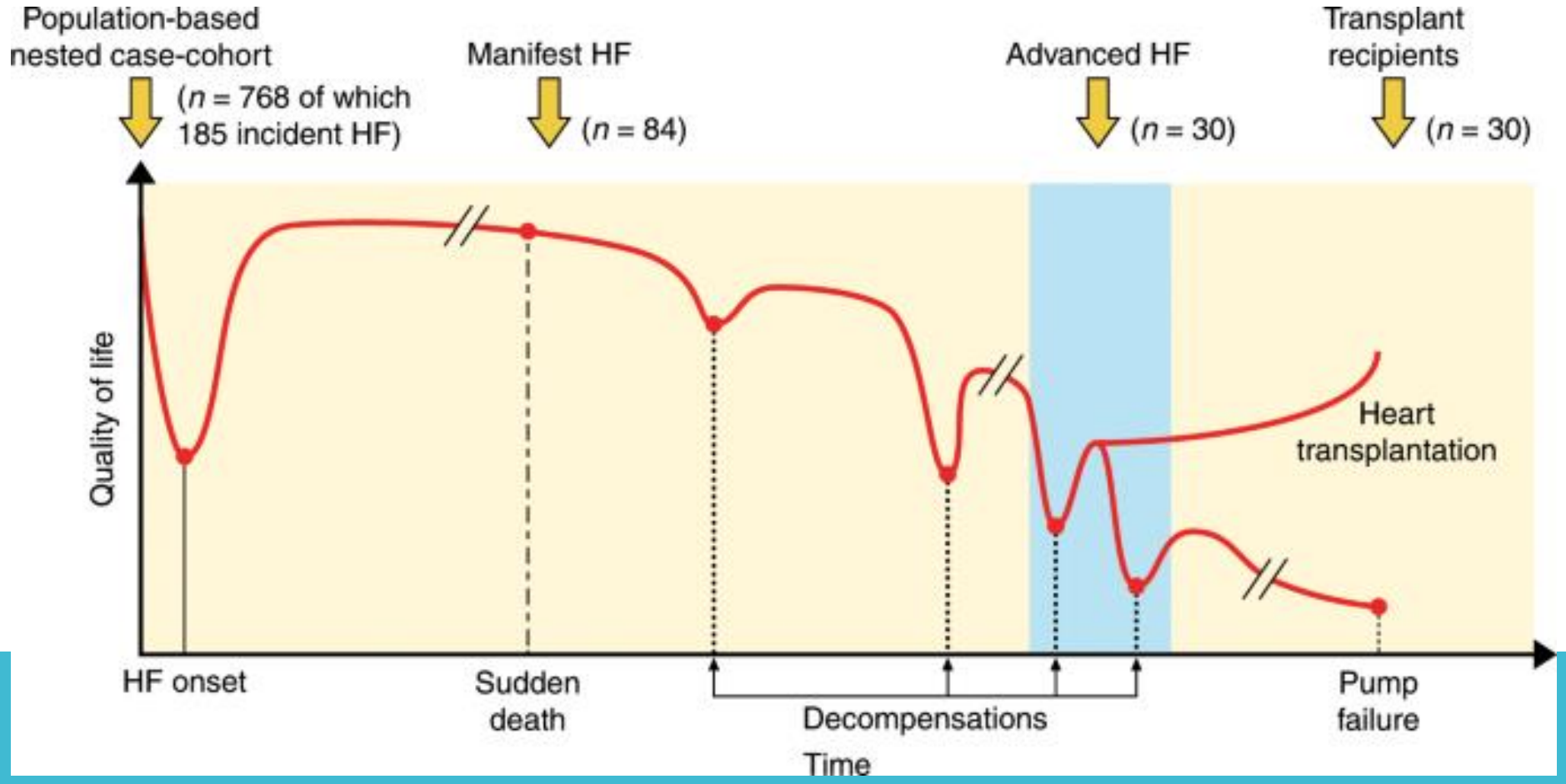
Biventricular Devices (CRT)

Interventions for HFrEF

- General **Medical Therapy** Optimization
- **ICD*** - Implantable Cardio Defibrillator
  - Indicated if life expectancy > 50% at 1 year
  - Reduce **Mortality** 23%
- **CRT-D*** – Cardiac Resynchronization Therapy + ICD
  - Can improve symptoms and Ejection Fraction
  - Mortality and **Morbidity** reduction up to 34%
- **CardioMems device** – implantable monitor volume status remotely.
  - **Morbidity** reduction to reduce hospitalizations

Implantable Device





When **Heart Failure** progresses → **Advanced Heart Failure**

Nature Communications (*Nat Commun*) ISSN 2041-1723 (online)

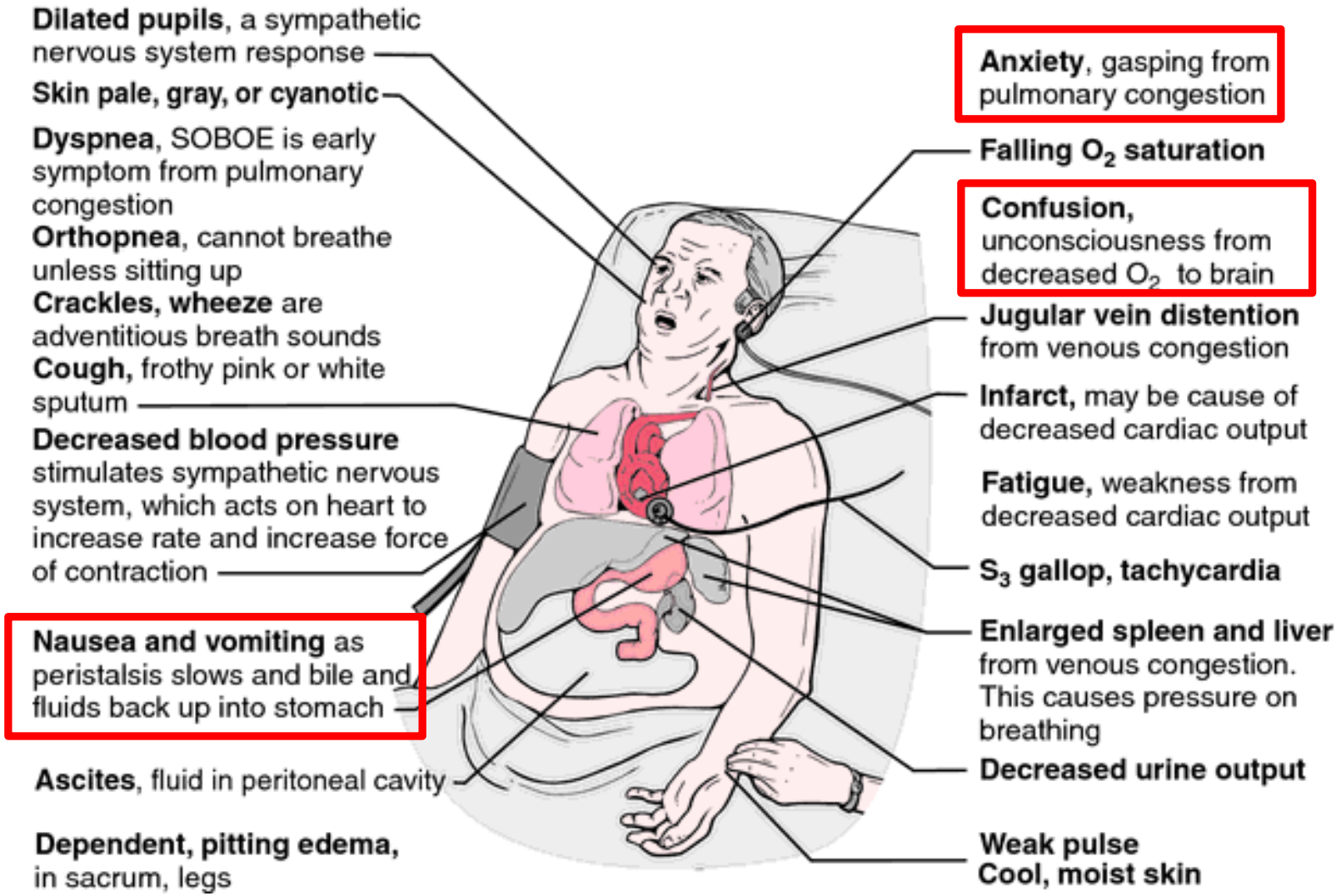
Markers of Advanced Heart Failure

I	Inotropes	Previous or ongoing
N	NYHA class/Natriuretic peptides	NYHA III/IV or high NT-pBNP
E	End-organ dysfunction	Worsening renal/liver function
E	Ejection fraction	EF <20%
D	Defibrillator shocks	Appropriate shocks
H	Hospitalizations	≥1 HF hospitalizations in 12 months
E	Edema/Escalating diuretics	Persistent overload, diuretic resistance
L	Low blood pressure	<90mmHg
P	Prognostic medication	Inability to titrate (or decrease) GDMT

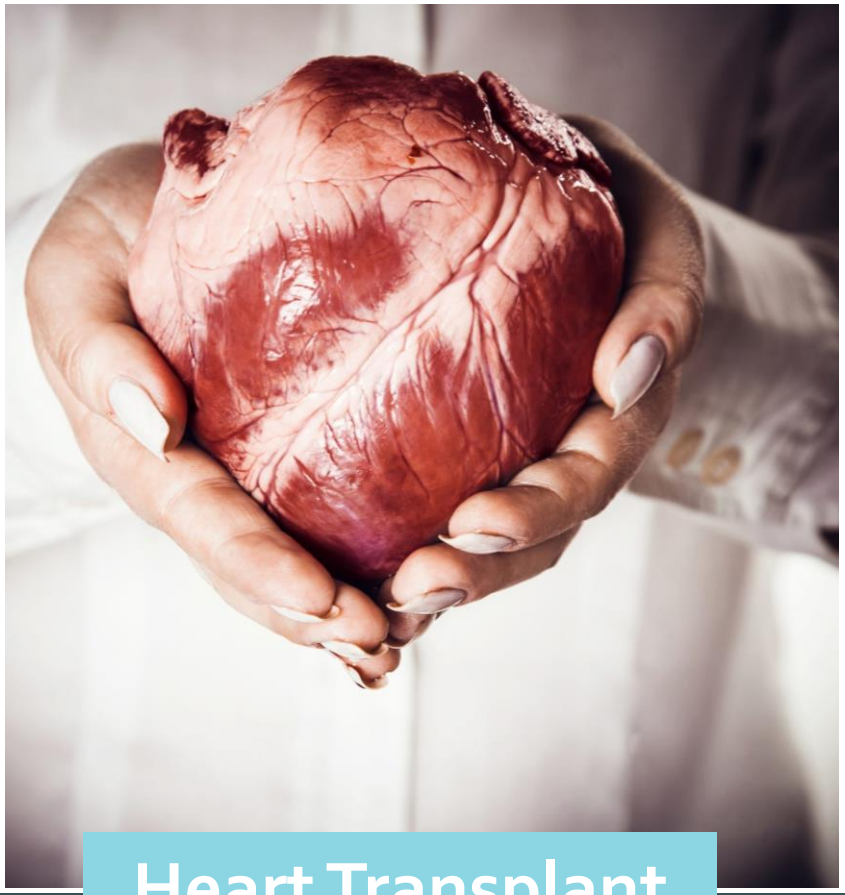
ACC.21

Baumwol J. J Heart Lung Trans 2017 36:593-594

Advanced Symptoms

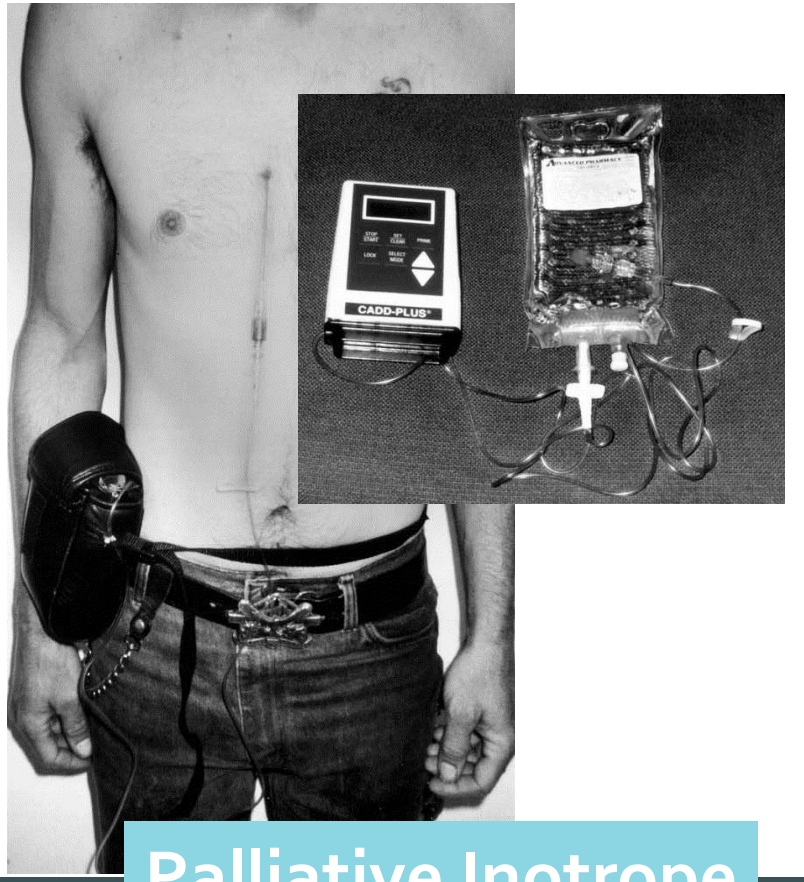


Clinical portrait of congestive heart failure. (SOBOE=shortness of breath on exertion) From Jarvis, 1996.



Heart Transplant

LVAD



Palliative Inotrope

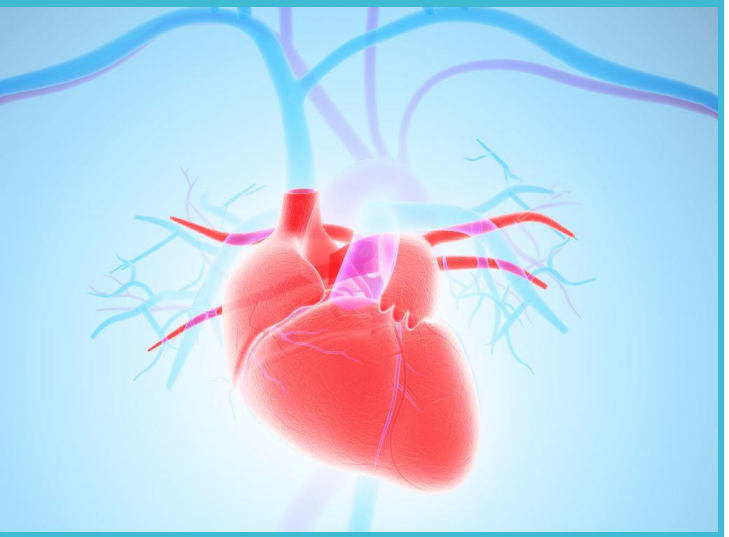
Advanced Therapy Interventions

Palliative Care Consultation

- Palliative care consultation should be considered in treatment of end-stage heart failure when evaluating for advanced therapies.
  - 1 year life expectancy < 70-80% with meds alone
  - Goals of care and planning for expected and unexpected outcomes.

Curr Cardiol Rev. 2015 Feb; 11(1): 63–72.

Heart Transplant



Best Option for patients if Appropriate candidate.

- Greatest option for long term benefit vs. LVAD or Inotropic therapy

Limited number of Donor Hearts Available

- 2,500-3,000 Heart transplants per year since 1990.
- Average wait time at home for heart transplant > 1 year
- Sicker the patient, higher risk transplant but shorter wait time.

Morbidity and Mortality Post Transplant

- 90% survival at 1 year post transplant
- **75% survival** at **3 years** post transplant
- Median **life span post** transplant is **roughly 12-15 years**.
- **Malignancy** increase risk – primarily skin cancer (30% life time)
- **Hypertension**, **Hyperlipidemia** and **Diabetes Mellitus**
- Progressive **Renal Dysfunction**

Contraindications to Heart Transplant Candidacy

Absolute Contraindications

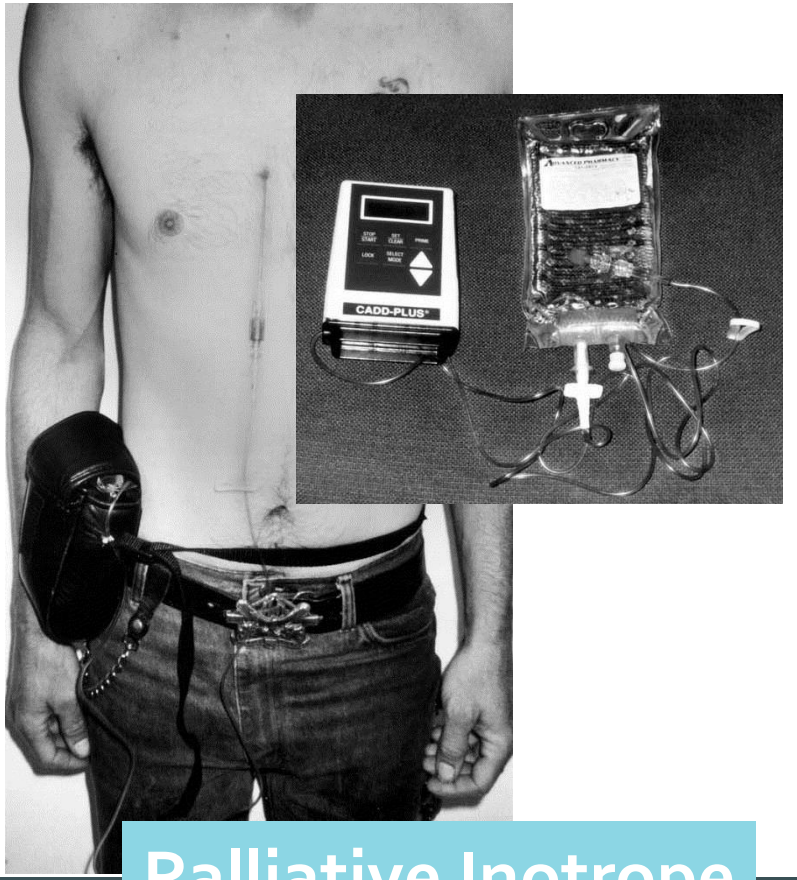
- Systemic Illness with **life expectancy < 5 years**
- Active **malignancy** or recent malignancy with high risk of recurrence.
- **Irreversible** severe **renal**, **hepatic** or **pulmonary** disease (unless combined organ transplant)

Relative Contraindications

- **Age** > 70 years old
- Uncontrolled **Diabetes** (A1c > 8%) with end organ dysfunction
- Morbid **Obesity** (BMI > 38-40)
- Marked **Cachexia** (<60% ideal body weight)
- Poor medical compliance
- Lack of Adequate Support system
- Active **Substance Abuse** - including tobacco abuse or ETOH abuse
- Uncontrolled psychiatric illness
- Peripheral vascular disease

Heart Transplant

LVAD

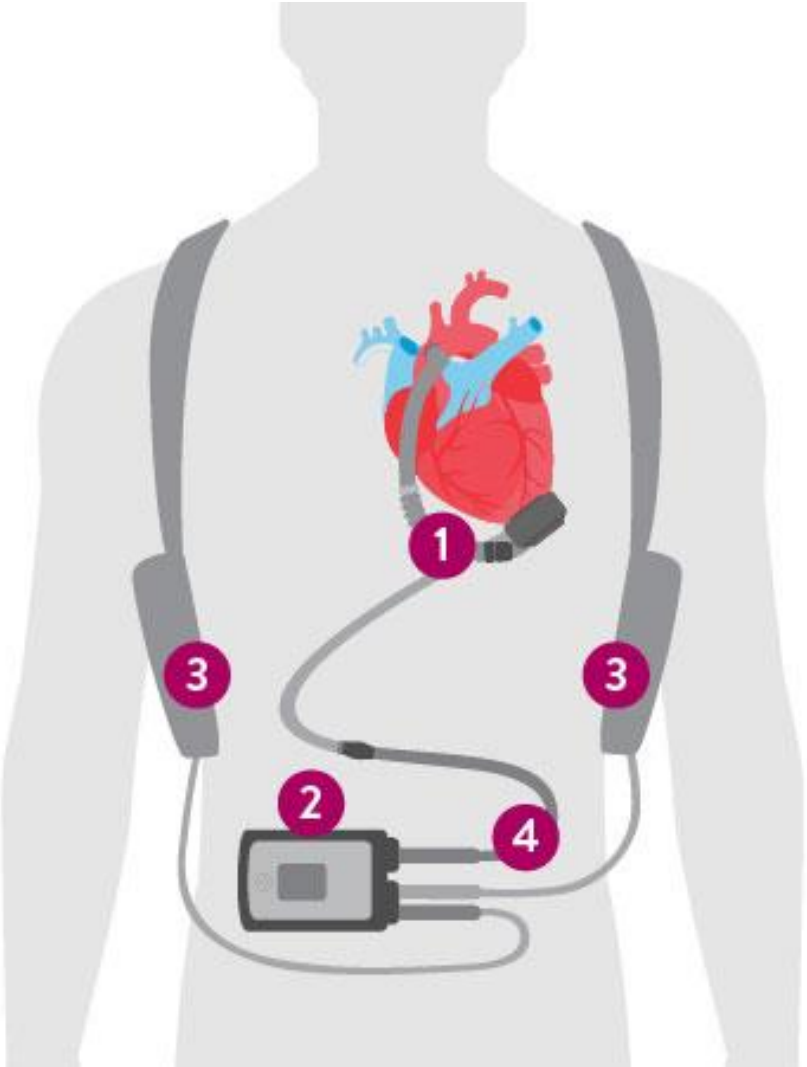


Palliative Inotrope

Not a Heart Transplant **Candidate**?

LVAD

Left
Ventricular
Assist
Device



1. HeartMate 3 LVAD
2. System Controller
3. Batteries
4. Modular Driveline

LVAD

Left
Ventricular
Assist
Device

1. BTT LVAD - Bridge to Transplant

- Patient needs more durable support to **buy time to transplant**
- Will be listed for transplant right away while they also have LVAD
- **Wait time with LVAD** on transplant list average **> 1 year**

2. BTD LVAD - Bridge to Decision/Candidacy

- Needs advanced support, but **not candidate** for **transplant <u>right now</u>**
- **Modifiable Contraindication** they need time to improve
  - Nicotine/Drug/ETOH abstinence > 6 months
  - Improved Diabetes Control, Weight loss, Adherence/Compliance
  - Time from Malignancy (generally 5 years from solid organ malignancy)

3. DT LVAD - Destination Therapy (Palliation)

- This is the final therapeutic intervention for patient.
- Not expected to be a transplant candidate in the future.
- **Age > 70-72**
- High risk non-modifiable risk factors.

Contraindications to LVAD

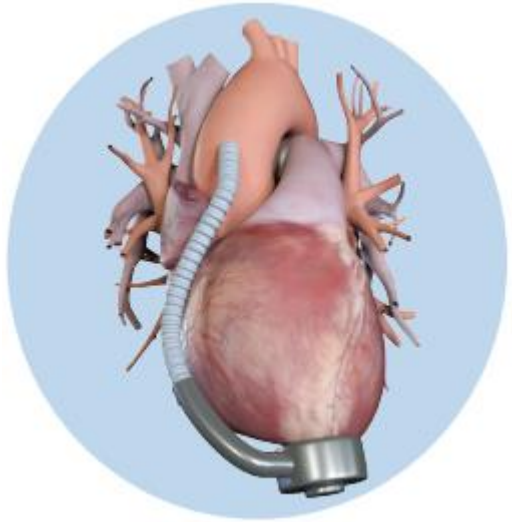
- **Relative Contraindications**
  - **Age > 80**
  - Poor Expected Survival after Major Surgery
  - Severe **right sided** heart failure.
  - Severe **end organ failure** not expected to improve
  - Metastatic or advanced **Cancer**
  - Inability to tolerate **anticoagulation** with warfarin.
  - **Psychosocial** Limitations
  - Severe **cachexia** or physical limitations

LVAD

Mortality

Short Term Survival for all LVAD

- 78% survival at 1 year
- 62% survival at 2 years



Long Term Life Expectancy

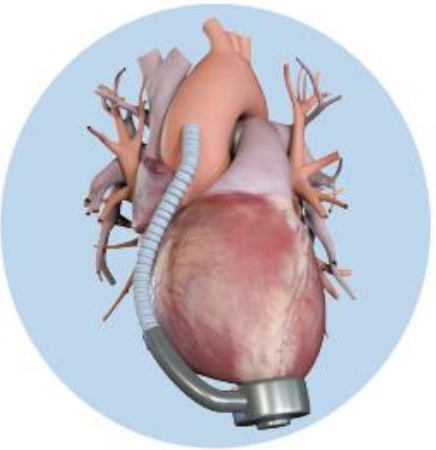
***~ 3.5 years for DT LVAD**

*~ 4.5 years for BTT/BTD

DT LVAD is considered **Aggressive Palliation Therapy**

Cannot wait too long for an LVAD consideration or may not be an option …

DT LVAD ~ Aggressive Palliation
Palliative Care Discussions Pre-Implant

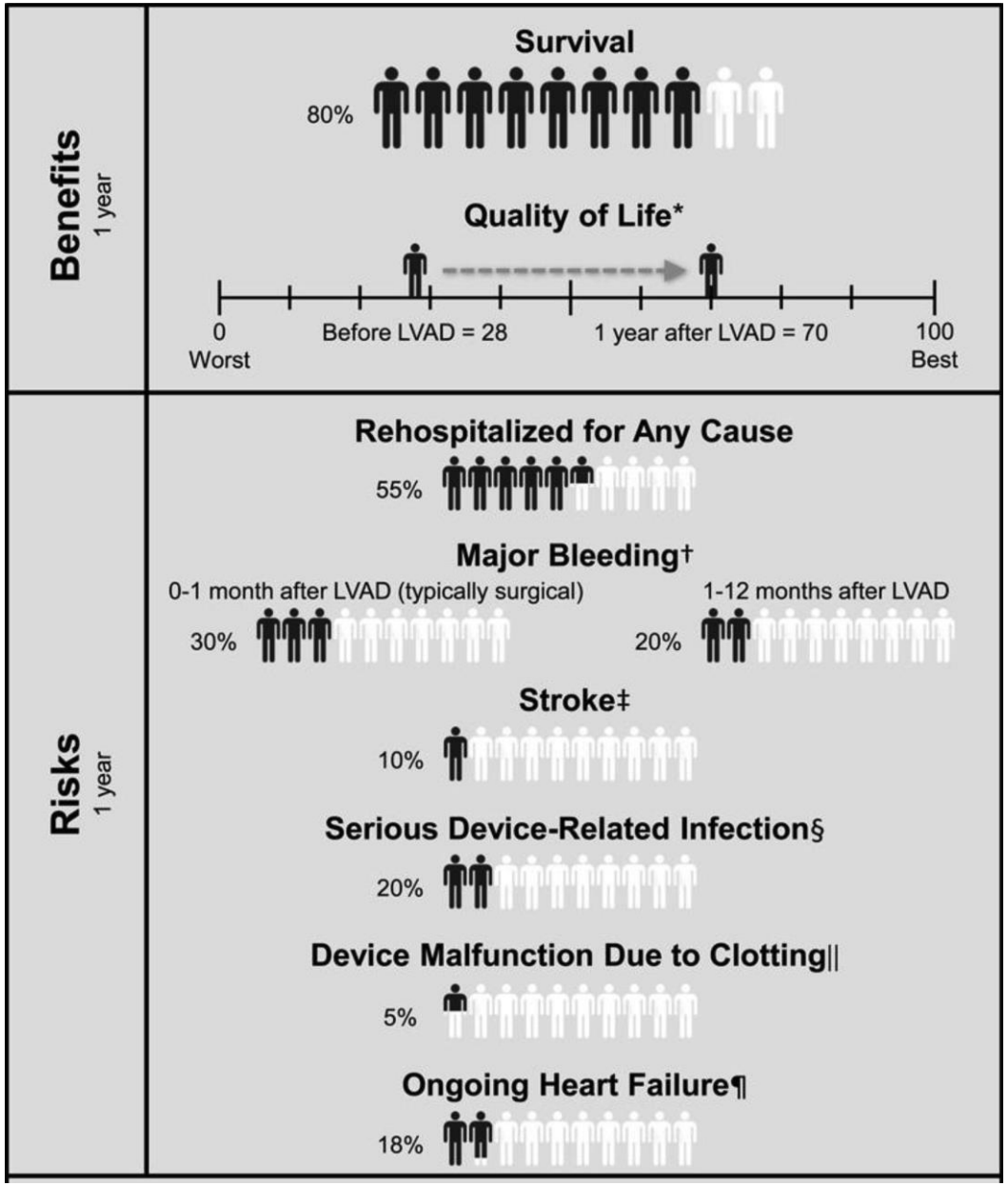


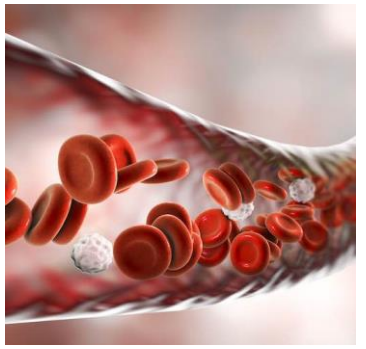
Palliative Care consult pre-implant - Recommended by both the Centers for Medicare and Medicaid Services (MCS) and International Society for Heart and Lung Transplantation (ISHLT) Guidelines

Preparedness Planning- Advanced Care Planning related specifically to Device Concerns

- High Rehospitalization post implant
- Complications post LVAD
- Post DT LVAD quality of life
- Catastrophic Device associated complication
- Progressive Co-Morbid conditions.
- End of Life Options and management

Life With a DT LVAD

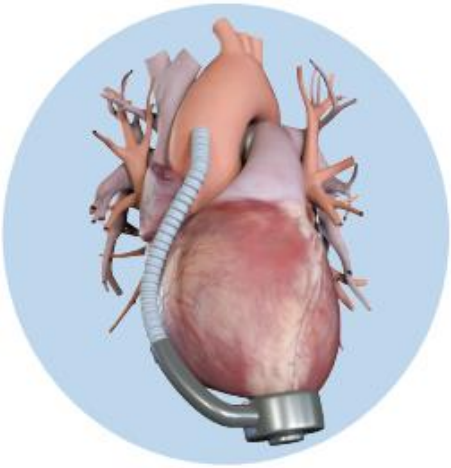




Driveline Site

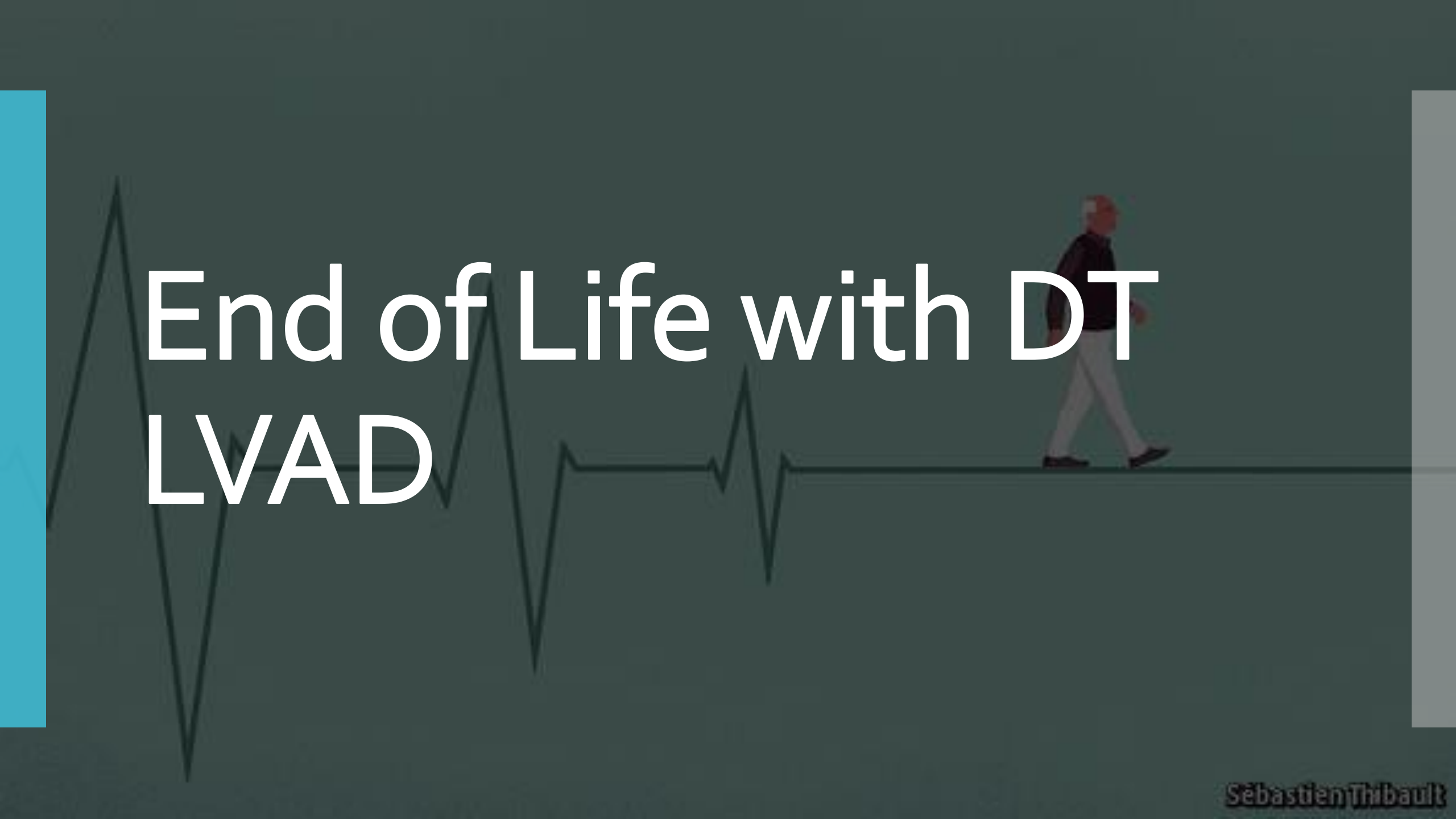
Wordingham, J of Pain and Symptom Management, Vol 54, Issue 4,2017,

Long Term Quality of Life Considerations



- **Re-Hospitalization** and **Complications**
- **Progression of Co Morbid Conditions –** chronic pain, renal disease, frailty, vascular disease.
- **Power Source** availability – must be plugged in at all times. Safe management of device.
- **Carrying Equipment** – additional 3-7 lb for controller and batteries
- **Driveline Care** – daily dressing changes required.
- **Medicines** – anticoagulation, heart failure medications diuretics
- **Water** Precautions – changes to bathing practices, inability to swim or do water sports
- **Sex** – change in sex life. Although sex is safe after recovery
- **Emotions** – both patient and caregiver. Can feel overwhelmed with responsibility or fear of complications

End of Life with DT LVAD



End of Life with LVAD as **Destination Therapy**

End of Life Trajectories

1. **Early Death** – Died very early after LVAD implant, <90 days. **~ 10%**
2. **Persistent** – Continue to struggle with end organ failure from LVAD until Death. **~ 20%**

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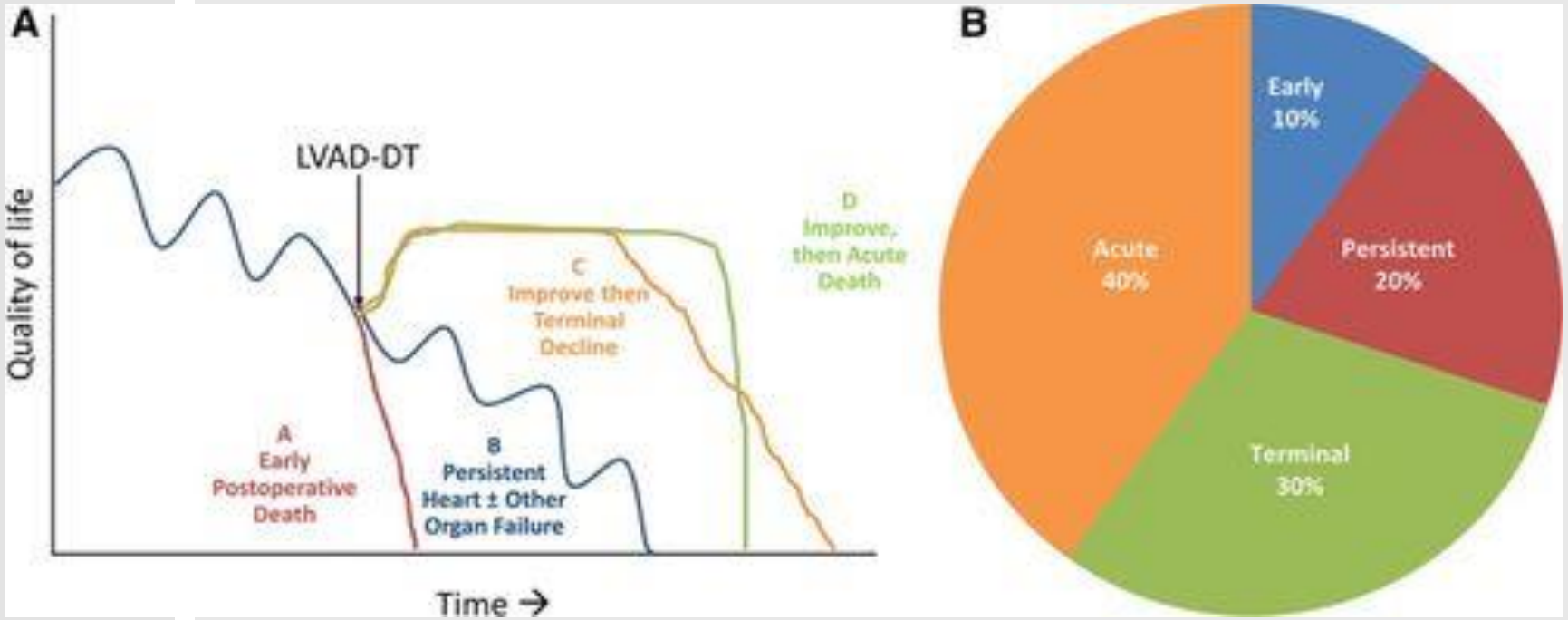
3. **Terminal** – Derived benefit initially from LVAD but later declined due to serious complication or development of a new terminal condition. **~ 30%**
4. **Acute** – Those who experienced an improvement after LVAD therapy, but then suffered an unexpected, acute event that led to an abrupt decline and death within 14 days of event. **~ 40%**

Dunlay, Circ Heart Fail. 2016 Oct;9(10)

Dying with LVAD as **Destination Therapy**

End of Life Trajectories



Cause of Death
25% - multiorgan failure
25% - Hemorrhagic stroke
20% - Heart Failure
30% - cancer, ischemic stroke, infection.

Dunlay, Circ Heart Fail. 2016 Oct;9(10)

Dying with LVAD as **Destination Therapy**

Characteristics Preceding Death

- **~80% died in the hospital**
  - 88% in the ICU.
  - 73% intubated and ventilated
  - 29% received hemodialysis within 48 hours of death.
- **46% saw Palliative care** in hospital before death – median only 9 days before death.
  - 10-15% enrolled in Hospice Care (50% home, 50% inpatient facility)
- **60% LVAD deactivated before death** – 86% of the time decision made by family or loved ones because patient was unconscious or lacked decision making capacity.

Dunlay, Circ Heart Fail. 2016 Oct;9(10)

DT LVAD

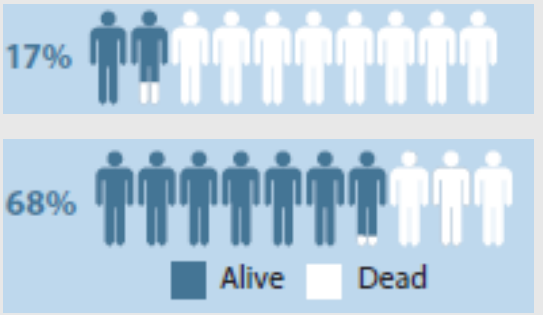
Further Discussion Points

- Ideal timing and incorporation of Palliative Care specialists in the post DT LVAD care is not consistent.
- Patients with DT-LVAD **die differen**tly then those with Heart Failure. Very few can die at home or in hospice.
- **Hospice care** is challenging for patients with LVAD given complex nature of device technology. Is there a way to help these patients pass away more peacefully outside of the hospital?
- Remember - those with **DT-LVADs by definition will die with their device**. Need to recognize decline may be gradual and anticipated or more precipitous - careful advanced care planning and access to palliative care services may be beneficial throughout process.
- **Small percentage of patients** were able to be involved in **EOL decisions** such as LVAD deactivation. Importance of involving family in goals of care and EOL wishes in time of stability is critical.

End of Life without an LVAD?

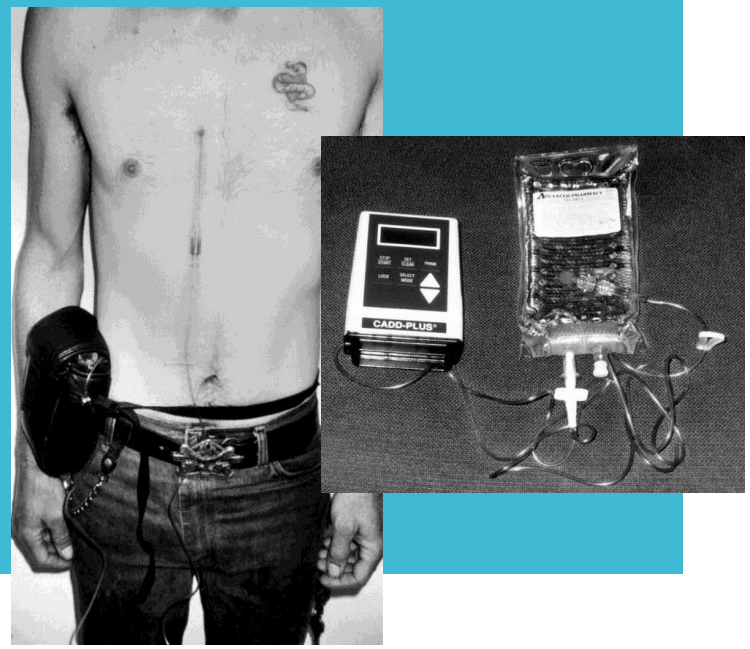
Questions from Patients

- How Long Might I Live?
  - Among the **sickest** patients, about 20% are still alive after 1 year
  - For those **less sick** & able to live at home, about **70%** are alive at 1 year



- What might management be like?
  - Most continued to have symptoms of heart failure
  - Anxiety and shortness of breath can be managed with medications
  - Consideration for Palliative Inotropic Support for symptom management.
  - Able to get home to be with loved ones and spend remaining time with them.

Palliative IV Inotropic Therapy



- IV Milrinone or IV Dobutamine Therapy
  - Similar risk for arrhythmias
  - Use lowest dose needed to treat symptoms.
- Indication
  - Patients with Stage D Heart Failure
  - Improve **QUALITY** (not quantity) of life for the time they have left
- Estimated survival
  - 40-60% at 1 year
  - 15-40% at 2 years
  - Possible longer if able to maintain Heart failure Medications

Long, Circ Heart Fail. 2014;7;470-478

Milrinone = The Whip in the Home Stretch….

End of Life Considerations with Palliative Inotropic Therapy

Estimated Survival – 50% at 1 year.

- Inotropic Therapy does NOT increase length of life.
- Need to be able to live at home
- Discuss turning off ICD Tachy-Therapies due to increased risk of arrythmias or shocks
- Allows patients to spend time at home, be with their loved ones and pass away at home if they desire.

Logistics of Management

- Home Palliative Inotropic therapy with Home Health Management
- **Recurrent admissions** or Progressive sx→ **Consider Hospice transition*.**

  *Limited Availability for hospice with inotropic support.
  - Discussion with patient EOL Goals of Care (home vs. hospital vs. hospice)
  - Can transition **to inpatient hospice** or **Home Hospice** and wean off inotropic support

Goals of Palliative Care Discussion in End Stage Heart Failure

- **Facilitate discussions** to focus on patient goals of care and quality of life.
- **Reduce suffering** through the relief of pain and other distressing symptoms while integrating psychological and spiritual aspects of care.
- **Good HF management** is the cornerstone of symptom palliation, including aggressive **diuretic** management for symptoms relief.
- Soliciting goals of care and focusing on quality of life are appropriate throughout the clinical course of HF, and become **increasingly important as disease progresses.**
- Helping to **guide the transition** from “do everything” to “comfort only/hospice” often through a phase of “quality survival,” during which time patients increasingly weigh the benefits, risks, and burdens of initiating or continuing life-sustaining treatments.


Any
Questions?