

# Beyond the Basics: Cardiac Cases in the Hospice Setting

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# The Case of Col. Mustard

- 71 yo male veteran with HTN, hi-lipids, DM
- NSTEMI 2-07 after emergent chole + hemihepatectomy for abscess
- Cathed 10-07 for dyspnea and chest pain walking 50 ft.: LM 90, LAD 90, CX 90, RCA 100
- ECHO: preserved LV function

# **CHF – Clinical Toll for all Specialties**

- **Incidence: 10/1000  
Age > 65**
- **5 Million Americans**
- **5 yr Mortality : 50%**
- **1979-1998**
  - **Death due to CHF ^  
135%**
  - **Hospitalizations ^  
159%**
- **2001 – 21 Billion \$**
  - **Direct and Indirect  
Costs of CHF**
- **Each CHF Admit:  
\$5,501**
  - **\$1742 / Month  
maintain patient**
- **Highest DRG  
Readmission Rate**

# Case 76 Yr Old Male

- 1977 NTMI
- Cath: Diffuse 3 Vessel CAD: “Inoperable”
- RX: HTN, Hyperlipidemia, Angina
- 2001: “I want TMR”
- Cath: Lt Main 50%, 100% RCA&LAD, 95% Origin of Dom CFX EF 15% LVEDP 27
- 2001- CABG: Lima to LAD, SVG’s to RCA and CFX
- 2001 VT/VF on Treadmill at New Heart received AICD
- 2001-6 Fairly Functional
- 2007 worsening CHF, Hypotension, Renal Insuff
- Consider CRT

# Heart Failure

- **Impairment of Heart to Fill or Eject Blood.**
- **Sx: Fatigue or Dyspnea**
- **Leads to Pulm Congestion and Edema**

# Conclusion

- Hospice Suggested
- He never gave up
- He had beaten the odds many times
- He underwent CRT Therapy with a new device and leads
- He never left the hospital and expired 3 days post implant from intractable arrhythmias

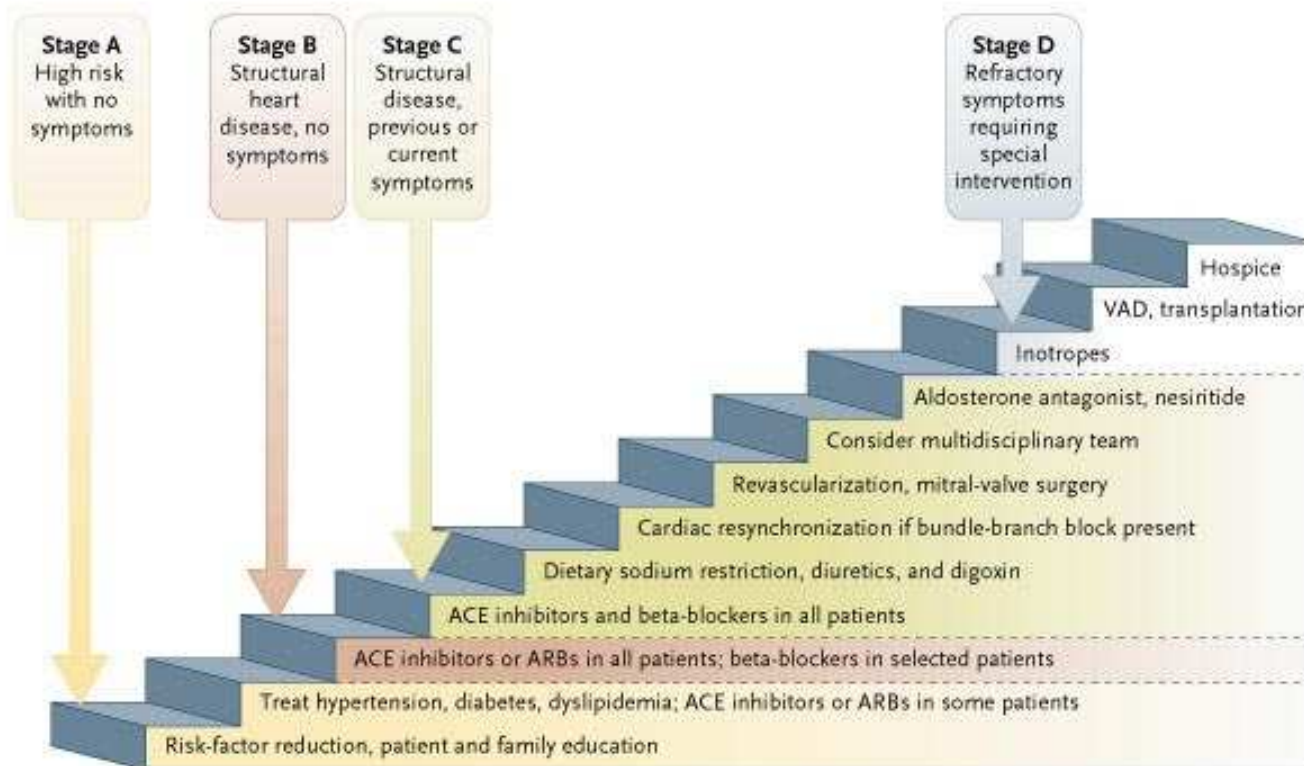
# HF Etiology

- **CAD, Htn, Dil Cardiomyopathy account for majority of cases in Western World**
- **30% of Dil Cardiomyopathy may have a Genetic Predisposition**
- **Valvular Heart Disease still contributes to the development of HF**

# **LV Remodeling**

## **Impacted of Neurohumoral Activation**

- **Norepinephrine**
- **Angiotensin II**
- **Aldosterone**
- **Endothelin**
- **Vasopressin**
- **Cytokines**
- **Na<sup>+</sup> Retention**
- **Peripheral  
Vasoconstriction**
- **Myocardial  
Fibrosis**
- **Adverse  
Remodeling**



# Pillars of HF Therapy

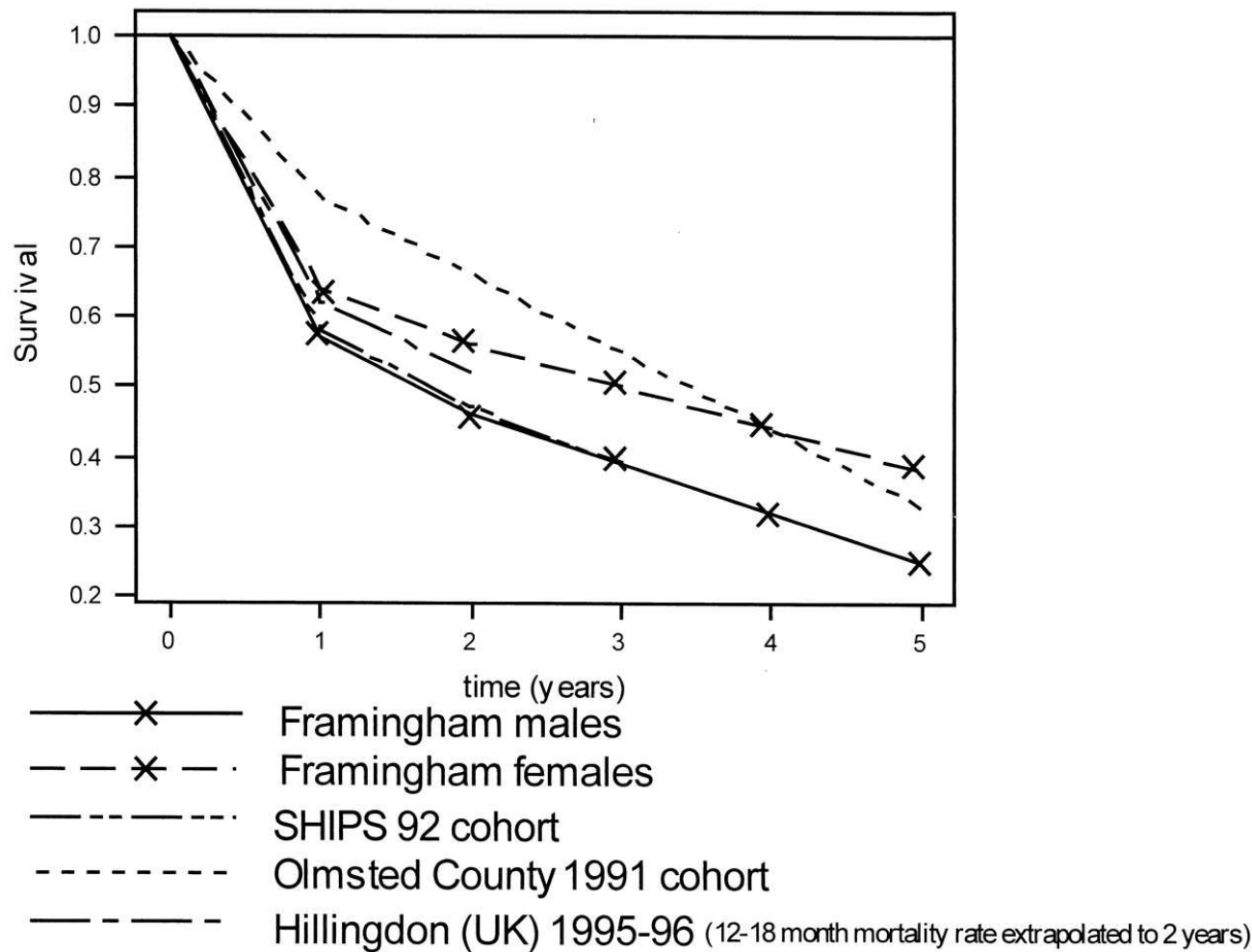
- **Diuretics**
- **ACE or ARB  
Rx**
- **Beta Blockers**



# CHF Management Beyond Medications

- AICD's for Pts with EF's < 30
- Cardiac Resynchronization Therapy (CRT)
- Extracorporeal Counter pulsation (EECP)
- **\$ increase dramatically**
- **Diminishing Benefit**

# Survival following the diagnosis of heart failure



Khand, A. et al. J Am Coll Cardiol 2000;36:2284-2286

# Failed Medical Therapies

## Class 3

- **Combination Rx of ACE, ARB and Aldosterone Inhibition**
- **Nutritional Supplements**
- **Calcium Channel Blockers**
- **Hormonal Therapy other than replacement**
- **Infusion of Inotropes**



# Stage D Therapy

## Discussion of Options for End-of-Life Care



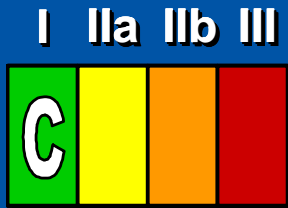
Options for end-of-life care should be discussed with the patient and family when severe symptoms in patients with refractory end-stage HF persist despite application of all recommended therapies.



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# Stage D Therapy

## Inform on option to inactivate defibrillation



Patients with refractory end-stage HF and implantable defibrillators should receive information about the option to inactivate defibrillation.



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# Hospice Referral

- **Optimum Timing**
  - **Art of Management**
- **Refractory to Medications**
- **Spiraling Course**

# Col. Mustard

- Heart docs offer CABG to “prolong life” and reliably relieve cardiac symptoms
- Family uniformly declines surgery because “he has been more confused since his last surgery” and lacks capacity for decision
- Sent home “to his TV and dog” on ASA, Atorvastatin 80mg, Metoprolol 75mg bid, Nitro patch .6mg/hr

# Col. Mustard

- Admitted to hospice at home
- Hospice RN notes that within 3 weeks, more NTG is used with less effect for CP
- MD home visit made: no JVD or edema, no murmurs, clear lungs, HR 54, BP100/55
- How can patient's symptoms be improved?

# Col. Mustard's Course

- Felodipine 5mg daily added
- At night, hospice visit nurse calls that NTG x3 ineffective, CP ongoing for one hour and “patient getting congested quicker than I’ve ever seen before”
- Advice for nurse and orders for patient?

# Col. Mustard's Course

- Treatment for pulmonary edema due to acute LV dysfunction secondary to global ischemia
- Roxanol 20mg q30 min for pain and pulmonary artery dilation
- Furosemide 80mg po now
- Lorazepam 1mg prn unrelieved anxiety

# Col. Mustard's Death

- Pulmonary edema episode resolves within hours, meds now available in home
- Out of town family visits
- 3 weeks later another episode of nitrate resistant CP occurs with onset of dyspnea
- Night visit nurse assists family with same meds, symptoms relieved, patient walks to bedroom and dies in his sleep hours later

# The Case of Mr. Green

- 84 yo retired butcher with STEMI 7-07
- Syncope, 3<sup>rd</sup> degree heart block, pacer 10-07
- Hospital admission 11-07, pulmonary edema & obstructive urosepsis, BUN 41, Cr 2.9
- Referral to home hospice 12-07, full code

# Mr. Green's Medicine Chest

- Discharge meds: Albuterol & Fluticasone/salmeterol MDI's; Amoxicillin; ASA; Calcium/Vit B12; Finasteride 5mg daily; Furosemide 40mg daily; potassium 10meq; Hydralazine 20mg q8h; Lisinopril 10mg daily; Metoprolol 25mg q12h; NTG patch .6mg for 12 hrs; NTG tabs prn; Simvastatin 80mg qhs; low cholesterol/salt diet

# Analysis of Mr. Green's Meds

- Why pulmonary meds?
- Antibiotics and prostate meds
- Nitrates, beta blockers
- Vasodilators, ACE inhibitors
- Cholesterol reducer
- Diuretics and potassium
- Vitamins for pernicious anemia

# Mr. Green's Home Visit

- Subjective: weak, dizzy, poor appetite, SOB sitting or being dressed
- Objective: supine BP 100/60, HR 61; standing briefly BP 84/56, HR 65  
RA SO2 90%, heart regular, no murmur  
no JVD, trace ankle edema  
hepatomegaly 2cm edge palpable  
foot pulses palpable, pale nailbeds

# Mr. Green's Home Visit

- Assessment: euvolemic, probably a bit too dry; orthostatic; no clinical evidence of mitral or tricuspid regurgite
- Consider anemia as adjunct to weakness
- Very debilitated from cardiac but also septic episode
- Never a smoker or an asthmatic
- Worrisome renal insufficiency

# Mr. Green's Plan

- Stop hydralazine, simvastatin (add cookie)
- Stop MDI's, use nebs prn
- Change NTG patch application to night
- Reduce Lasix to 20mg daily and hold KCl until BMP 7 checked
- Reduce lisinopril to 5mg daily
- Check Hgb

# Mr. Green's Progress in 2 weeks

- Hbg 11.9 Hct 36%
- Na 136, K 4.9, BUN 56, Cr 2.5
- Dizziness is gone, patient can sit in chair one hour per day
- What other changes should be considered? When should labs be redrawn?

# Mr. Green's Current Status

- Uses walker for 15 feet ambulation to living room chair
- Wife pleased “He fixed his bed!”
- No further rest angina or lightheadedness
- Is it likely this patient still has a longevity of 6 months or less?

# The Case of Mrs. White

- 82 yo lady first admitted to hospice 9-2003 following an open/close sternotomy for inoperable aortic stenosis with “porcelain aorta”
- Patient had symptoms of angina with minimal exertion, flash pulmonary edema, weakness, and dizziness

# Mrs. White's Cardiac Tests

- ECHO: LVEF 70%; AVA 0.8 cm squared; peak gradient 90 mm Hg
- Angiogram: mid-LAD 90% with calcium; RCA 80%
- Is it likely that her longevity is less than 6 months “if the disease follows its normal course”?

# Mrs. White's Meds

- Lisinopril 10mg daily
- Diltiazem 180 mg daily
- Lasix 40 mg daily
- KCl 10 meq daily
- Crestor 10 mg daily
- (allergies include atenolol, unknown reaction)

# Mrs. White's Meds

- Why were these categories of drugs selected?
- Which drugs should be avoided with aortic stenosis and why?
- Would you consider another trial of beta blockers despite the “allergy” with undocumented effect?
- How best to gauge the dosage of diuretic?

# Mrs. White

- Anxiety was prominent symptom “I was told I could die suddenly” and could trigger SOB or pain.
- Patient used lorazepam, supplemental O2, roxanol, and a rocking recliner for “episodes”
- RN, MSW became close psychological support “favorite patient status”

# Mrs. White's Course

- Patient became able to drive 1 mile to church or grocery store. Able to control “attacks” by slowing pace & activity. Compliant with medical regimen.
- Ineligible for hospice services after following 13 months with no change in symptom pattern and no adjustments by cardiologist

# Mrs. White's Return

- Referral from oncologist 10-2006 (2 years after initial discharge from hospice) for small lymphocytic lymphoma, S/P laparotomy for resection of bowel obstructed by tumor; mesenteric tumor unresected
- What was status of aortic stenosis?  
Patient developed pulmonary edema on POD 1:  
Cardiac index 2.4; SVR 2600; wedge 20

# Mrs. White's Course

- Patient declined offers of chemo
- Function improved at home, regained 5 of 20 pounds lost in 2 months

# Mrs. White's Course

- Returned to Heart Hospital for pulmonary edema “I called 911 because I felt like I was drowning.”
- ECHO: LV 65%; AVA 0.7cm squared; peak aortic gradient 111mm Hg
- Rescue with IV Lasix and then delicate balance of outpatient diuretics to avoid both dizziness and lung fluid

# Mrs. White's Course

- Within 3 months of re-admission to hospice, “battle of the morbidities” lymphoma vs. valvular/ischemic disease
- More nocturnal and postprandial angina, more SOB
- More weakness, fatigue, and anorexia; refused further abdominal CAT scans to track disease “prep is too hard”

# Mrs. White's Course

- Admitted from home to hospice inpatient unit when too weak to care for self (MSW's best efforts were earlier rebuffed)
- Thrush and candida esophagitis treated with nystatin then diflucan, able to swallow nectar texture

# Mrs. White's Exit

- Admitted to small shelter care “I don't want to burden my family...I have had a hard fight with a short stick.”
- Respiratory secretions escalated, patient weakened over 3 weeks
- Final episode of dyspnea relieved by increased dosage of Roxanol, expires sleeping