

Heart Failure in Older Adults

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1

Goals

- ▶ Report how age is a risk factor for heart failure
- ▶ Identify clinical features of heart failure
- ▶ Explain how to manage heart failure
- ▶ Evaluate health disparities associated with heart failure

2

Quick facts

- ▶ 6.5 M people in US with heart failure
- ▶ Median age 75 years old
- ▶ 13 – 14 % of people > 80 years old have heart failure
- ▶ 3/5's have 5 + chronic conditions
- ▶ 50 % functionally impaired

3

Economic impact of HF

- ▶ \$30B annually and expect to increase \$80B by 2030
- ▶ 50% of costs linked to hospitalization
- ▶ 25% hospital readmission rates
- ▶ High acute care recidivism

4

How does heart failure occur ?

- ▶ Multifactorial etiology
- ▶ Hypertension and coronary artery disease
- ▶ Valvular disease
- ▶ Non ischemic dilated cardiomyopathy
- ▶ Hypertrophic cardiomyopathy
- ▶ Restrictive cardiomyopathy (amyloid or pericarditis)

5

Determine two types of HF

- ▶ HFrEF: heart failure with reduced ejection fraction (<40%)
- ▶ HFpEF: heart failure with preserved ejection fraction

- ▶ Younger than 65 years old = 90% HFrEF
- ▶ Older than 65 years old = 40% men HFpEF and 60% women with HFpEF

6

Drivers of HFpEF

- ▶ Female gender
- ▶ Diabetes and Hypertension
- ▶ Obesity
- ▶ Dyslipidemia
- ▶ Atrial arrhythmias

7

Clinical features

- ▶ Exertional shortness of breath
- ▶ Fatigue
- ▶ Orthopnea
- ▶ Leg edema

8

Atypical presentations of HF

- ▶ Psychomotor slowing
- ▶ Lethargy
- ▶ Confusion
- ▶ Anorexia
- ▶ Irritability
- ▶ Abdominal discomfort
- ▶ Constipation or diarrhea

9

10

Clinical findings

- ▶ Tachycardia (rest or exertional)
- ▶ Narrow pulse pressure
- ▶ JVD
- ▶ HJR
- ▶ S3 gallop
- ▶ Pulmonary crackles
- ▶ Reduced breath sounds at bases
- ▶ Pitting edema

11

Note: older adults may not have classic HF symptoms or their clinical signs are due to something else

- ▶ Basilar crackles due to atelectasis or COPD
- ▶ Edema from venous insufficiency, hepatic or renal disease, hypoalbuminemia, or medications like calcium channel blockers
- ▶ Take home message: high index of suspicion

12

Diagnosis

- ▶ Clinical signs and symptoms
- ▶ CXR
- ▶ ECG for a – fib, LVH, ischemia
- ▶ Blood tests: CBC, TSH, B – type natriuretic peptide (BNP)
- ▶ Echocardiogram

13

BNP levels vary according to age, obesity and renal function

- ▶ BNP < 100 pg / ml excludes diagnosis
- ▶ BNP > 500 pg / ml suggests the diagnosis

14

Additional testing options

- ▶ Cardiac MRI
- ▶ Radionuclide ventriculography
- ▶ Echo or nuclear stress test
- ▶ Coronary angiography

15

Goals of Treatment

- ▶ Reduce symptoms
- ▶ Improve function
- ▶ Avoid acute care
- ▶ Prolong survival

16

General interventions

- ▶ Treat HTN, DM and hyperlipidemia
- ▶ Smoking cessation
- ▶ Avoid NSAIDs
- ▶ Treat CAD
- ▶ B blockers for a – fib (note no difference between rhythm or rate control)
- ▶ Manage anemia and hypothyroidism

17

Non pharmacological interventions

- ▶ Exercise
 - ▶ Resistance
 - ▶ Aerobic
 - ▶ Core balance
- ▶ Salt restriction is controversial
- ▶ Water restriction depends
- ▶ Cardiac rehab if LVEF < 35% (Medicare benefit)

18

Self management

- ▶ Daily weight
- ▶ Establish “dry weight”
- ▶ Notify provider if 2 -3 pound weight gain

19

Other options for management

- ▶ Telehealth
- ▶ HF management program
- ▶ Combined Geri – Cardio clinic

20

Pharmacological treatment of HFrEF

- ▶ ACE / ARBs
- ▶ Aldosterone antagonists
- ▶ B – blockers
- ▶ Combo med: valsartan / sacubitril

21

ACE Inhibitors

- ▶ Start at lowest dose then escalate to maintenance dose
- ▶ Avoid if hyperkalemia, low eGFR, hypotension or allergic reaction

22

ACE inhibitor side effects

- ▶ Cough, duration independent (5 – 10 %)
- ▶ Angioedema (tongue swelling)
- ▶ Transient bump in creatinine
- ▶ Hyperkalemia
- ▶ Hypotension
- ▶ GI distress

23

After ACE inhibitor started

- ▶ Weekly electrolytes and renal function
- ▶ Watch for hyperkalemia

24

ARBs are alternative to ACE inhibitors

- ▶ Same side effect profile

25

Avoid iatrogenic disease

- ▶ Medication induced
- ▶ Hyperkalemia
- ▶ Hypotension (systolic < 80)
- ▶ Renal insufficiency (creatinine clearance < 30 ml / min)

26

B blockers reduce mortality

- ▶ Impact is proportional to HR reduction
- ▶ Caution if
 - ▶ Bronchospasm
 - ▶ PR interval > 240 msec with AV block
 - ▶ Hypotension
 - ▶ Marked bradycardia (HR < 50)

27

B blockers

- ▶ Counteract the sympathetic surge of HF
- ▶ Reduce sudden and non sudden death
- ▶ Improves ventricular heart function
- ▶ Not a class effect, and efficacy only for:
 - ▶ Metoprolol
 - ▶ Carvedilol
 - ▶ Bisoprolol

28

Diuretics

- ▶ Aldosterone antagonists but not diuretics reduce mortality
- ▶ Monitor BNP levels serially if symptoms are equivocal
- ▶ Thiamine deficiency occurs with long term diuretics
- ▶ Furosemide may help the fluid retention caused by B blockers

29

HF patients may be resistant to diuretics

- ▶ Thiazide diuretics for mild HF
- ▶ Loop diuretics for mod – severe HF
- ▶ May need to add metolazone
- ▶ Spironolactone or eplerenone for NYHF class II and IV plus EF of $< 35\%$

30

Avoid Spironolactone or eplerenone if...

- ▶ Creatinine > 2.5 mg / dL
- ▶ K > 5.0 mEq/L
- ▶ Check electrolytes after 3 and 7 days, then monthly x 3M
- ▶ Gynecomastia occurs (painful)

31

Monitor for diuretic side effects

- ▶ Hyponatremia
- ▶ Hypokalemia
- ▶ Hypomagnesemia

32

Alternatives to ACE and ARBs

- ▶ Hydralazine and Isosorbide dinitrate
- ▶ Add this combo to ACE / B – block in Blacks with HF
- ▶ Low dose Digoxin if recurrent hospitalizations

33

Valsartan and sacubitril

- ▶ Unique effect of sacubitril on endogenous vasodilators
- ▶ Lowers mortality and hospitalization rates
- ▶ Same side effect profile as ACE and ARBs
- ▶ Do not give simultaneously with other ACE and ARBs

34

HF patients are at increased risk for thromboembolic events

- ▶ In the absence of a – fib, no evidence that anti – platelet or anti – coagulation makes any difference

35

Pharmacotherapy of HFpEF

- ▶ Multiple clinical trials, no medication reduces mortality
- ▶ Sitaxsentan (endothelial receptor antagonist) improves exercise tolerance
- ▶ ACE / B block may reduce hospitalization rates
- ▶ Diuretics judiciously if salt sensitive HFpEF

36

Implantable cardioverter - defibrillator

- ▶ For HFrEF < 35% with functional life expectancy > 1 year
- ▶ Reduces sudden death from ischemic and non – ischemic HF
- ▶ Less impact on 75 +
- ▶ 10% inappropriate shocks
- ▶ 1+ shocks reduce QOL

37

Cardiac Resynchronization Therapy (CRT)

- ▶ Improves symptoms, exercise tolerance and survival in NYHA III and IV refractory to conventional treatments
- ▶ Biventricular pacemakers

38

Left Ventricular Assist Devices

- ▶ Reduce symptoms, increase survival, increase exercise tolerance, and QOL in young and old patients with severe LV dysfunction
- ▶ Used in both transplant and non – transplant candidates

39

HF impact on acute care costs

- ▶ 20 – 25 % 30 day recidivism
- ▶ 50% 6M recidivism
- ▶ Only one – third of readmissions are due to HF

40

Post Hospitalization interventions

- ▶ One week post – hospitalization
- ▶ Geriatric and / or HF clinic
- ▶ Self management ?
- ▶ Adherence to meds, diet and physical activity

41

Reasons for medication non - adherence

- ▶ Cost
- ▶ Polypharmacy
- ▶ Memory loss
- ▶ Lack of perceived efficacy

42

Reasons for non adherence to diet

- ▶ Salt mindfulness
 - ▶ Altered sense of taste
 - ▶ Dining out
 - ▶ Food deserts
 - ▶ Unaware of salt content in processed foods
- ▶ Someone said to drink lots of water

43

Approach to HF management

- ▶ Team – based is best
- ▶ Identify and engage care giver
- ▶ Better hospital → primary care provider communication
- ▶ RN management of Rx
- ▶ Scheduled rather than “as needed” clinical visits

44

HF Prognosis

- ▶ Systolic HF = two to three year survival
- ▶ Seattle Heart Failure calculator

45

HF prognosis



46

HF Prognosis

- ▶ 50 % heart failure mortality in one year if discharged from hospital to nursing home

47

HF Prognosis

- ▶ Survival rates influenced by
 - ▶ Gender (women live longer than men)
 - ▶ Low BP
 - ▶ Persistently elevated BNP despite maximal therapy
 - ▶ CAD
 - ▶ DM

48

Hospice and Palliative Care

- ▶ Hospitalization is a sentinel event for initiating Advance Care Plan and asking What Matters Most
- ▶ NYHA IV with symptoms despite maximal treatment should be referred to hospice
- ▶ Ask ICD patients when they want their device de-activated to avoid repetitive and painful shocks