ECHO IDAHO

Managing Heart Failure in Primary Care

Heart Failure Diagnosis and Workup

October 2025

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Chris Longenecker, MD reported a financial relationship with Gilead Sciences as being on their Advisory Board on HIV. This relationship was deemed irrelevant in his role as a panelist in this series. None of the other planners or presenters for this educational activity have relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

Spencer Carter, MD, speaker for this educational activity, reported financial relationships as being on the advisory board for Pfizer , BridgBio, and Alnylam. All of the relevant financial relationships listed for these individuals have been mitigated.

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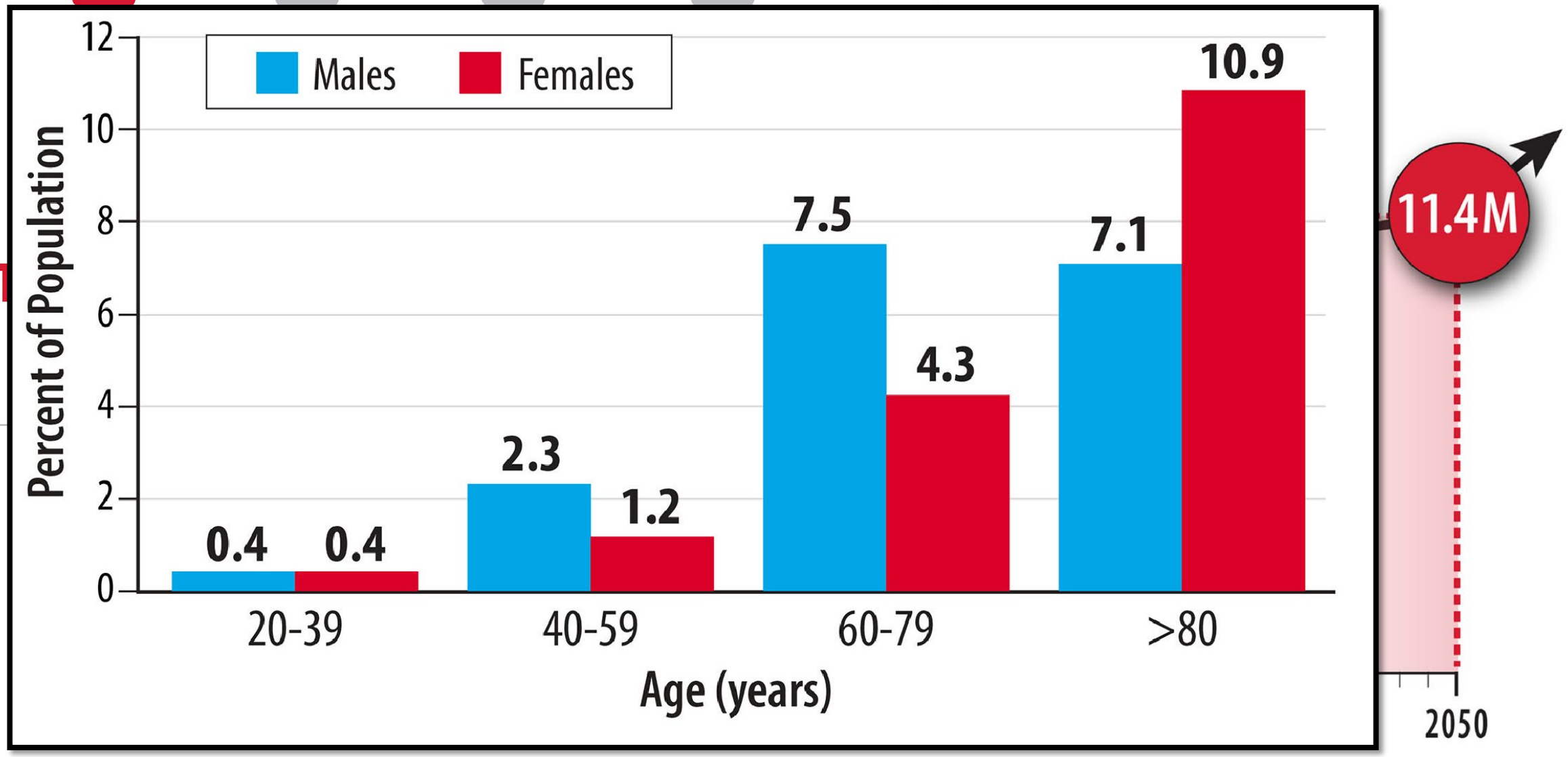
Disclosures

- Medical advisory board- Pfizer, BridgeBio, Alnylam

Learning Objectives

- Diagnosis of Heart Failure
- Heart Failure Schema
- Searching for Etiology



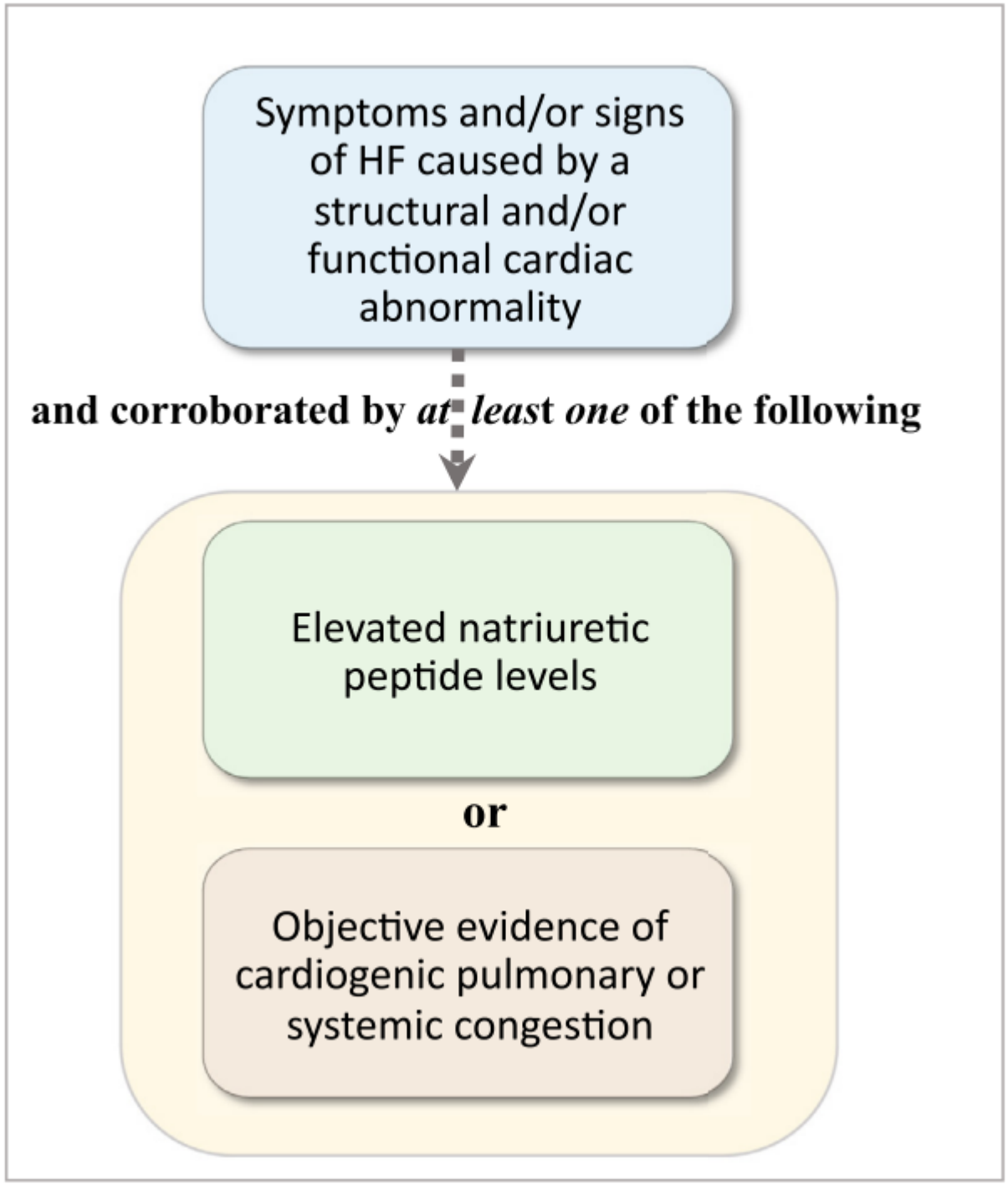
HF Stats. Fonarow, Carter et al. JCF 2025

Heart Failure Diagnosis

- Heart Failure is a clinical syndrome
- 2011 ACC definition

"HF is a complex clinical syndrome that results from any structural or functional impairment of ventricular filling or ejection of blood. The cardinal manifestations of HF are dyspnea and fatigue, which may limit exercise tolerance, and fluid retention, which may lead to pulmonary and/or splanchnic congestion and/or peripheral edema. Some patients have exercise intolerance but little evidence of fluid retention, whereas others complain primarily of edema, dyspnea, or fatigue."

Heart F iversal



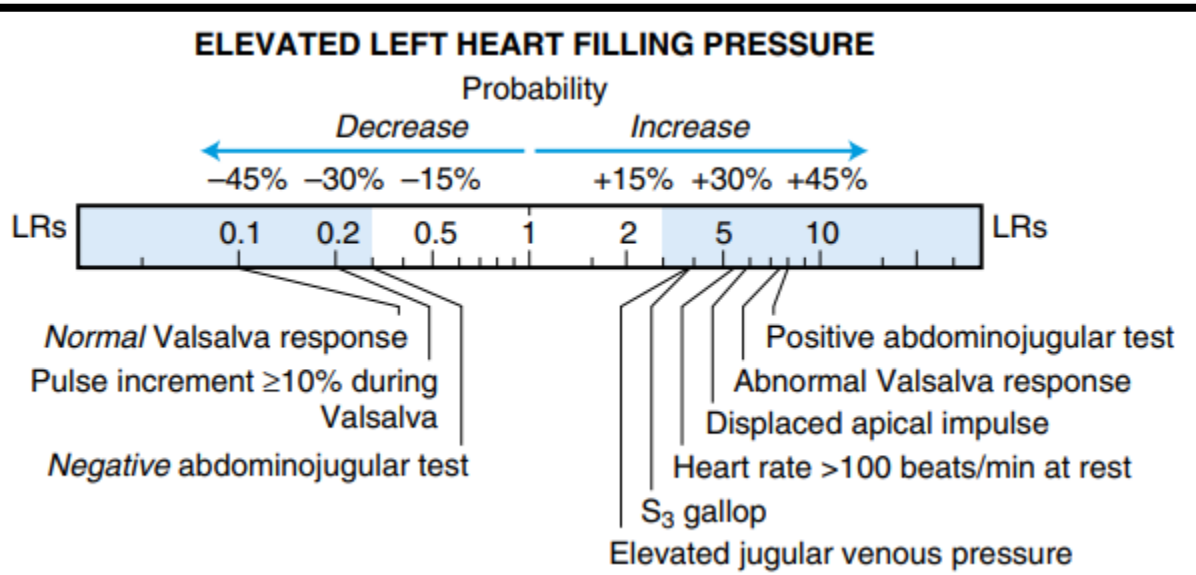
Bozkurt et al. JCF 2021

Heart Failure Symptoms

- Symptoms- dyspnea on exertion, orthopnea, bendopnea, swelling in extremities
- Signs- third heart sound, elevated JVP, displaced PMI
- Less common signs/symptoms- significant edema, rales, pleural effusions, tachycardia, oliguria, narrow PP, cold extremities

EBM BOX 48.1
*Congestive Heart Failure—Elevated Left Heart Filling Pressures**

Finding (Reference)†	*Sensitivity (%)*	*Specificity (%)*	*Likelihood Ratio‡ if Finding Is*	
			Present	*Absent*
Vital Signs				
Heart rate >100 beats/min at rest[15]	6	99	**5.5**	NS
Abnormal Valsalva response[16]	95	88	**7.6**	**0.1**
Pulse increase of ≥10% during Valsalva strain[17]	11	54	**0.2**	1.7
Lung Examination				
Crackles[12,15,18,19]	12-23	88-96	NS	NS
Heart Examination				
Elevated jugular venous pressure[12,15,19]	10-58	96-97	**3.9**	NS
Positive abdominojugular test[19-21]	55-84	83-98	**8.0**	**0.3**
Supine apical impulse lateral to MCL[18]	42	93	**5.8**	NS
S_3 gallop[12,15,18,22]	12-37	85-96	**3.9**	0.8
S_4 gallop[12,23]	35-71	50-70	NS	NS
Other Findings				
Edema[12,15]	10	93-96	NS	NS



McGee, Evidence Based Physical Diagnosis. 2018

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How Helpful is the BNP?

Table 8. Natriuretic Peptide Levels Supporting Definition of HF

	Ambulatory	Hospitalized/ Decompensated
BNP, pg/mL	≥35	≥ 100
NT-proBNP, pg/mL	≥ 125	≥ 300

In the ED

- BNP >100 has a sensitivity of ~95%
- NT-proBNP <300 has a negative likelihood ratio of 0.09

- Specificity is lacking, even at levels in the 1000s
  - PE, PH, ARDS, renal dysfunction

Long et al. WJEM 2019. Bozkurt et al. JCF 2021.

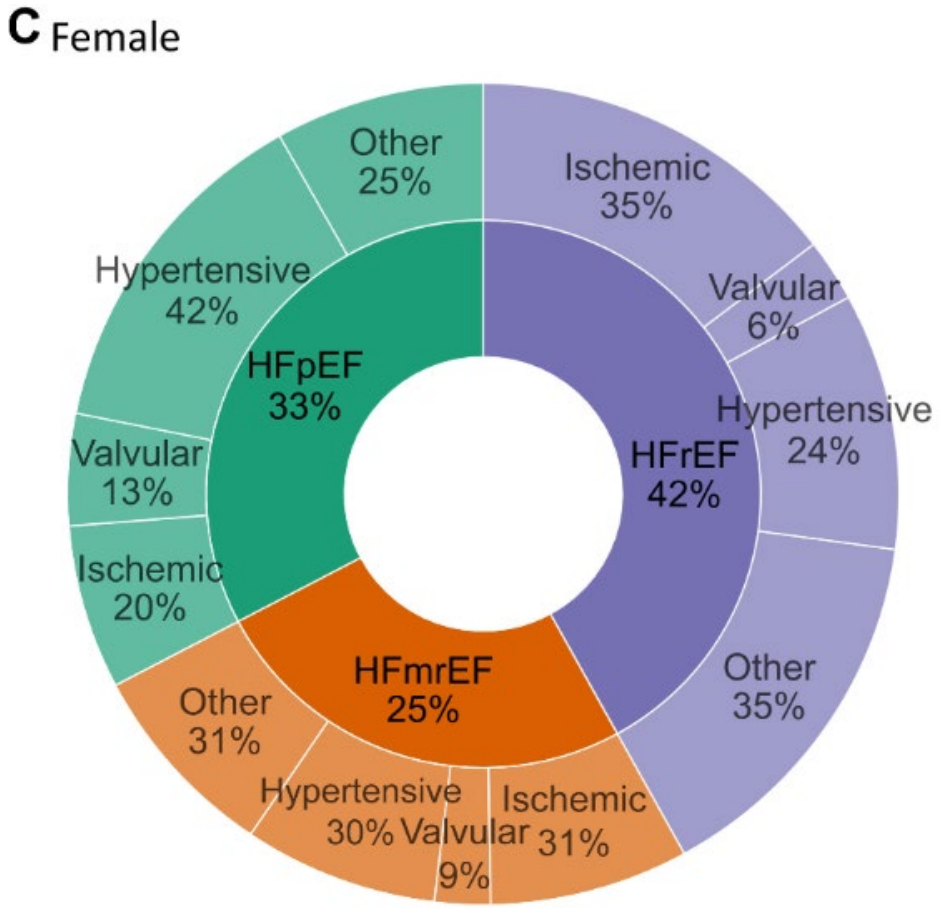
Description

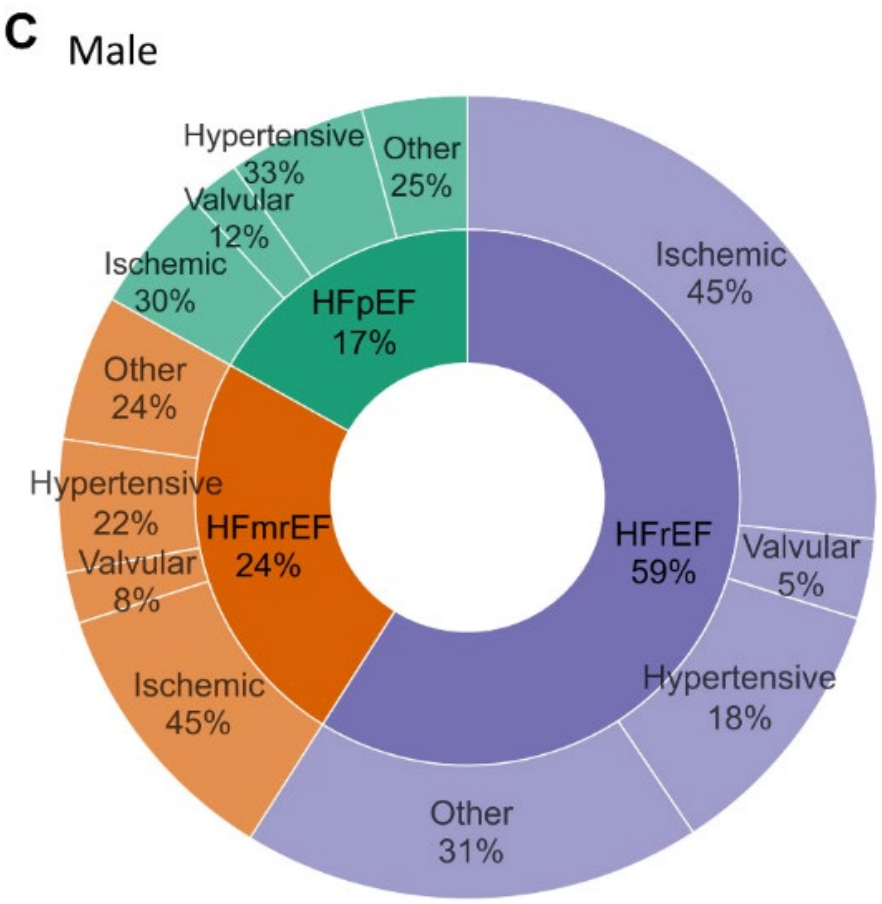
- Stage
  - 1- at risk, 2- pre-HF, 3-classic CHF, 4- advanced HF with sx at rest
- NYHA
  - 1- no sx, 2-mild sx, 3-moderate sx, 4- severe symptoms

Key Points

- Heart failure is a clinical diagnosis supported by physical exam and laboratory work

Workup- Establish Etiology and Guide Therapy





Kozman. JACC HF 2025

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Workup- Goal is to Establish Etiology (and Treatment Plan)

- History- PMH, chest pain, family history, “red flags”, infections, palpitations, pregnancies
- Echocardiogram
  - Ejection fraction- establishes treatment pathway
  - Valvular, ischemic, infiltrative, intra-cardiac filling pressures, pericardial dz
- ECG
  - Potential insight into etiology and treatment (eg LBBB→chagas diagnosis, CRT treatment)
- Labs: CMP, CBC, iron studies, TSH, HIV, Hepatitis, Lipids
- Extras: Genetic testing? Extended rhythm monitoring? Autoimmune?

HF with reduced EF (HFrEF):

- HF with LVEF ≤40%

HF with mildly reduced EF (HFmrEF):

- HF with LVEF 41–49%

HF with preserved EF (HFpEF):

- HF with LVEF ≥50%

HF with improved EF (HFimpEF):

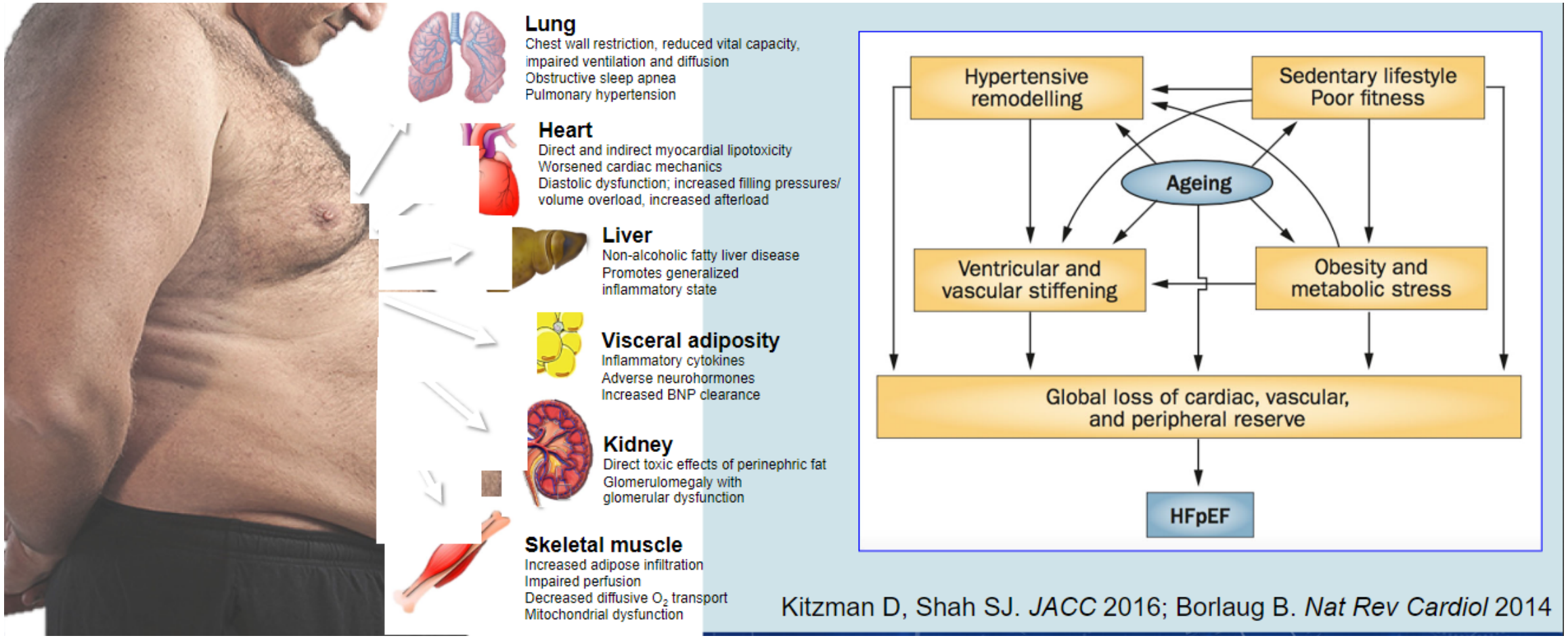
- HF with a baseline LVEF ≤40%, a ≥10 point increase from baseline LVEF, and a second measurement of LVEF >40%

Bozkurt et al. JCF 2021

Ischemic Evaluation- What are the Basics?

- HFrEF/HFmrEF- virtually all patients
- Ischemic evaluation- choice is dependent on pre-test probability and what is available
  - High risk features→ left heart cath
    - Typical anginal symptoms, heavy smoking/DM2, older age
  - Low to moderate risk (young, no risk factors)→ non-invasive
    - Stress cMRI can help establish non-ischemic etiology. CTA coronary, PET generally good sensitivity/specificity
    - SPECT, dobutamine stress echo, stress ecg not adequate
- HFpEF- testing if moderate to high test probability (common given co-morbidities)

HFpEF Pathophysiology



Kitzman D, Shah SJ. *JACC* 2016; Borlaug B. *Nat Rev Cardiol* 2014

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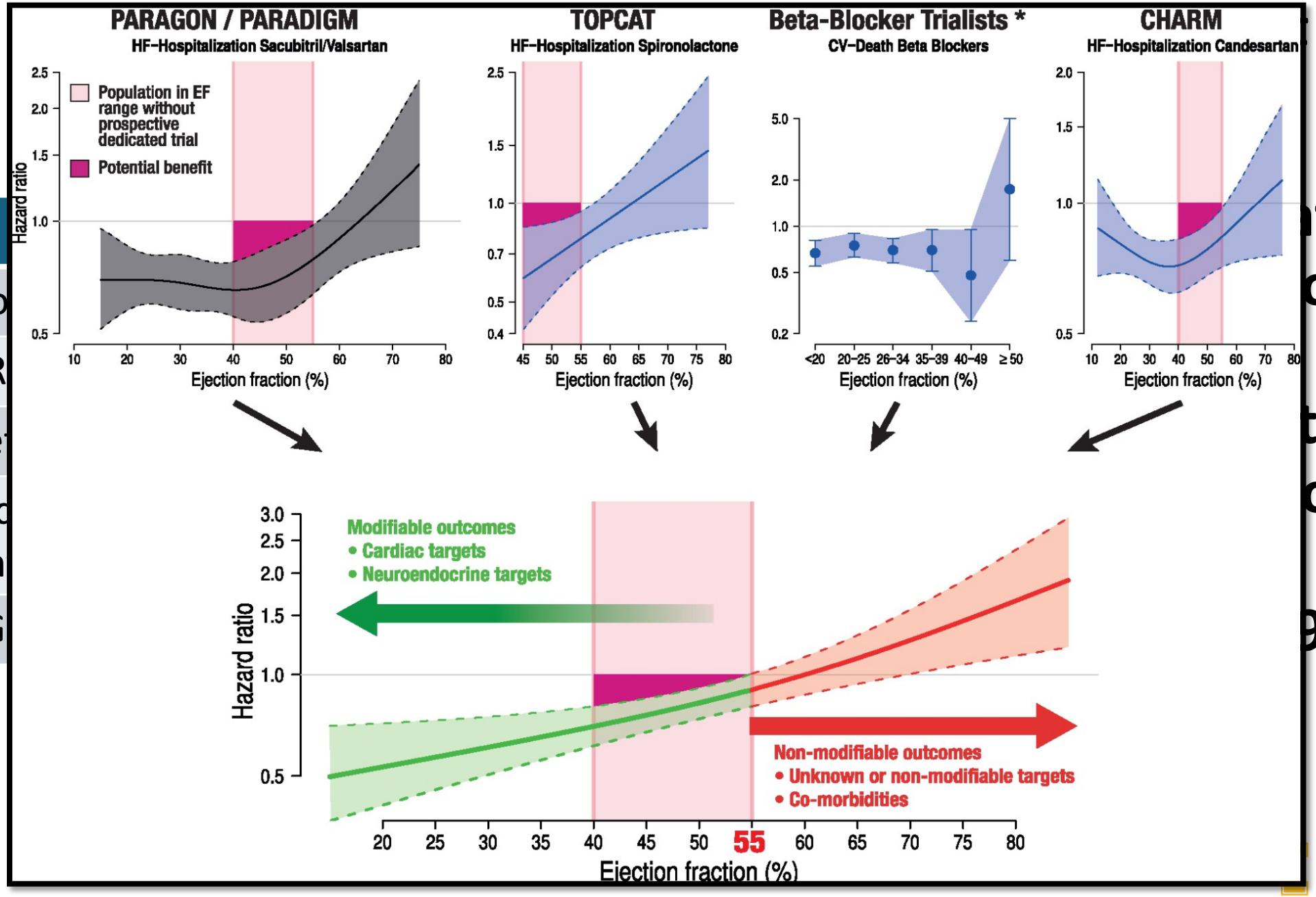

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on 72.9%

te risk
on 25.5%

9

Description

- Stage
  - A- at risk, B- pre-HF, C-classic CHF, D- advanced HF with sx at rest
- NYHA
  - 1- no sx, 2-mild sx, 3-moderate sx, 4- severe symptoms
- Ejection Fraction
  - HFrEF, HFmrEF, HFpEF, HFimpEF
- Etiology

“this is a 44yo male from Idaho with HFrEF (EF 25% 2/2025 cMRI), NICM (noCAD LHC 2022) 2/2 myocarditis and underlying TTN mutation. Stage C, NYHA 2, compensated on exam”

When to Refer for Advanced Care Quickly

I	Need for **inotropes**
N	**New** York Heart Association Class IV
E	Worsening **end-organ** dysfunction
E	**Ejection fraction** <20%
D	**Defibrillator** shocks for ventricular arrhythmias
H	Recurrent **HF** hospitalizations
E	**Escalating** diuretic dose
L	**Low blood pressure**
P	**Progressive** intolerance of GDMT

Questions?