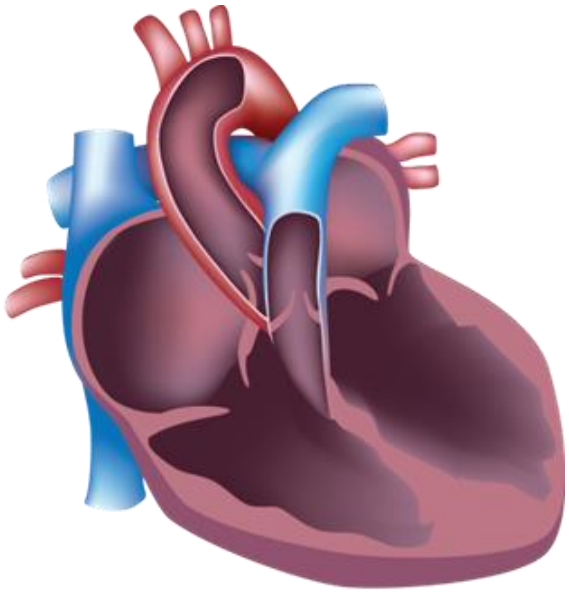
Case Study 3

DECOMPENSATED CHRONIC HEART FAILURE (HFrEF)



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CASE STUDY

- Mr AB, 54 year old male – blue collar worker
- Metabolic syndrome – hypertensive, dyslipidaemia and type 2 diabetic (central obesity)
- Life style & dietary management
- Presents with a 6 week history of worsening shortness of breath on exertion
- Finds great difficulty walking up 2 flights of stairs

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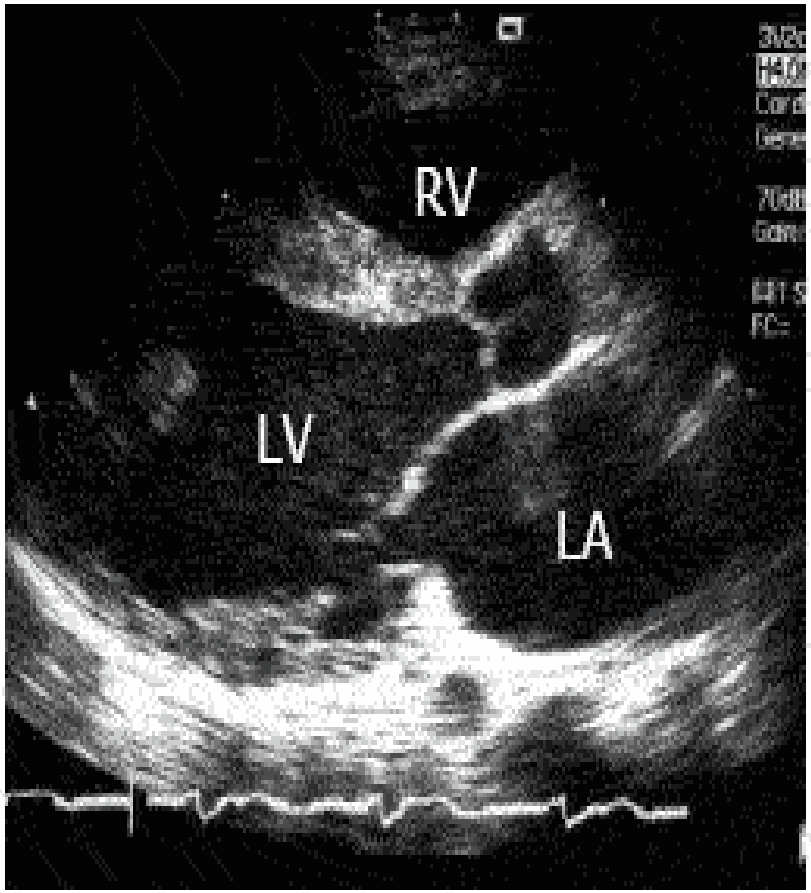
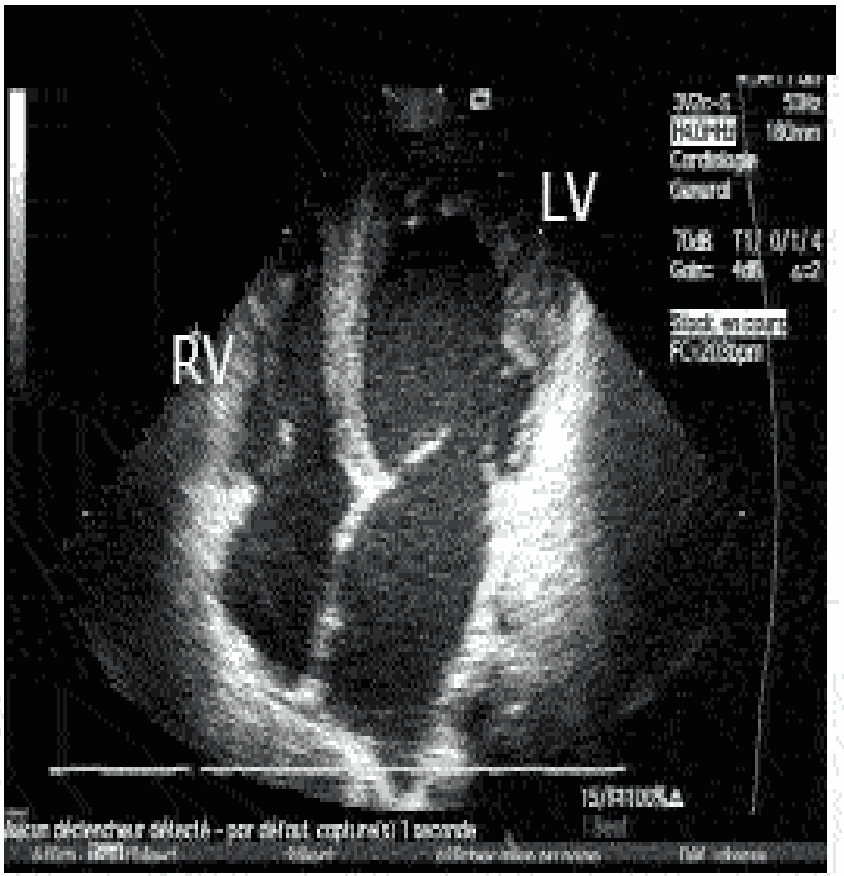
CLINICAL EXAMINATION

- Body mass index – 34kg/m2
- Blood pressure – 167/98 mmHg at rest
- Pulse rate 88 beats/min
- Respiratory rate of 22 breaths/min at rest
- Bilateral Grade 3 peripheral oedema
- Raised jugular venous pressure
- Congested tender hepatomegaly

ECHOCARDIOGRAPHY FINDINGS





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CHEST X - RAY

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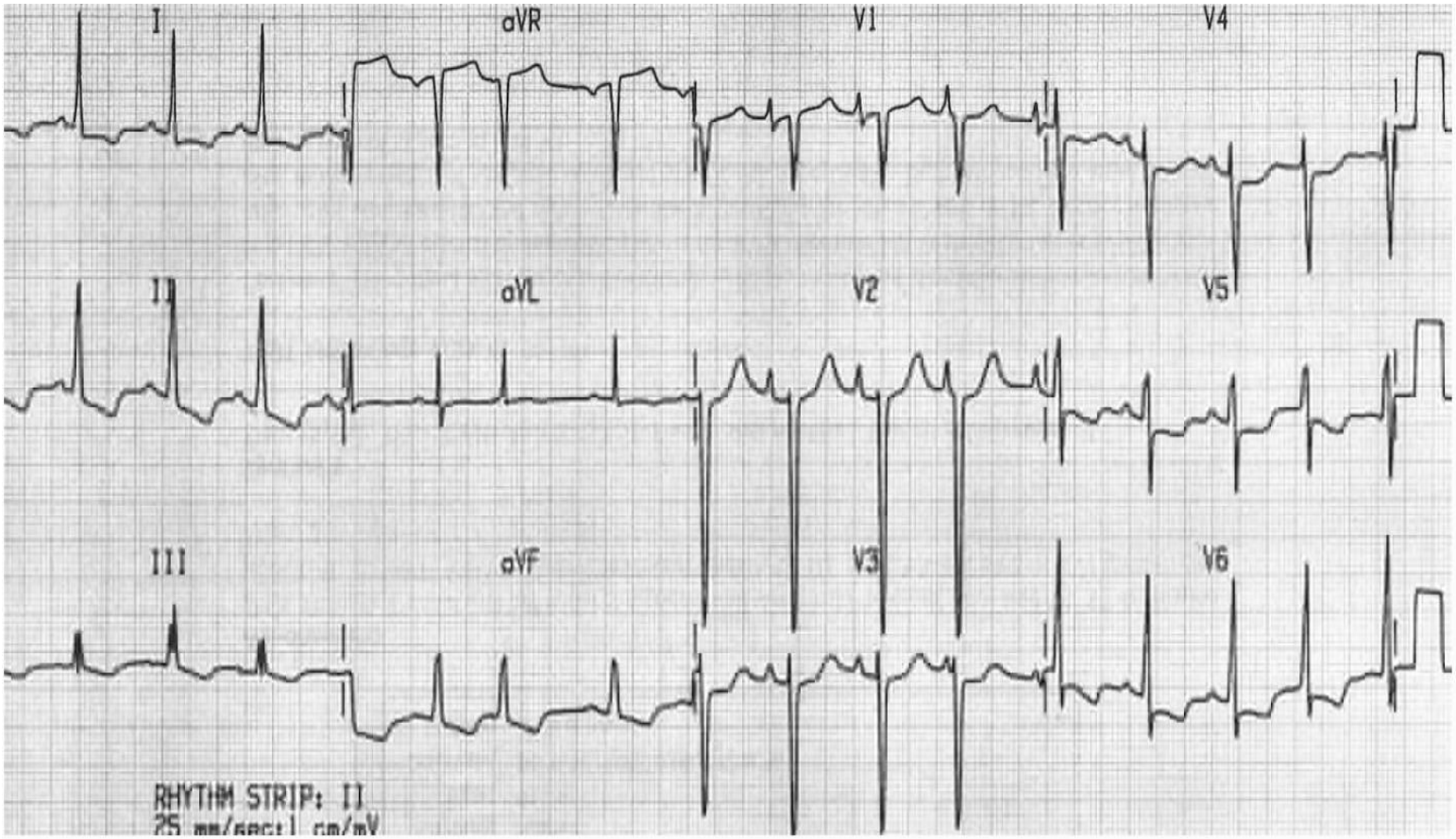
ELECTROCARDIOGRAPHY



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DIAGNOSIS

Type of HF		HFrEF	HFmrEF	HFpEF
CRITERIA	1	Symptoms ± Signs[a]	Symptoms ± Signs[a]	Symptoms ± Signs[a]
	2	LVEF <40%	LVEF 40–49%	LVEF ≥50%
	3	–	1. Elevated levels of natriuretic peptides[b]; 2. At least one additional criterion: a. relevant structural heart disease (LVH and/or LAE), b. diastolic dysfunction (for details see Section 4.3.2).	1. Elevated levels of natriuretic peptides[b]; 2. At least one additional criterion: a. relevant structural heart disease (LVH and/or LAE), b. diastolic dysfunction (for details see Section 4.3.2).

Ponikowski P, et al.Eur Heart J. 2016;37(27):2129-200

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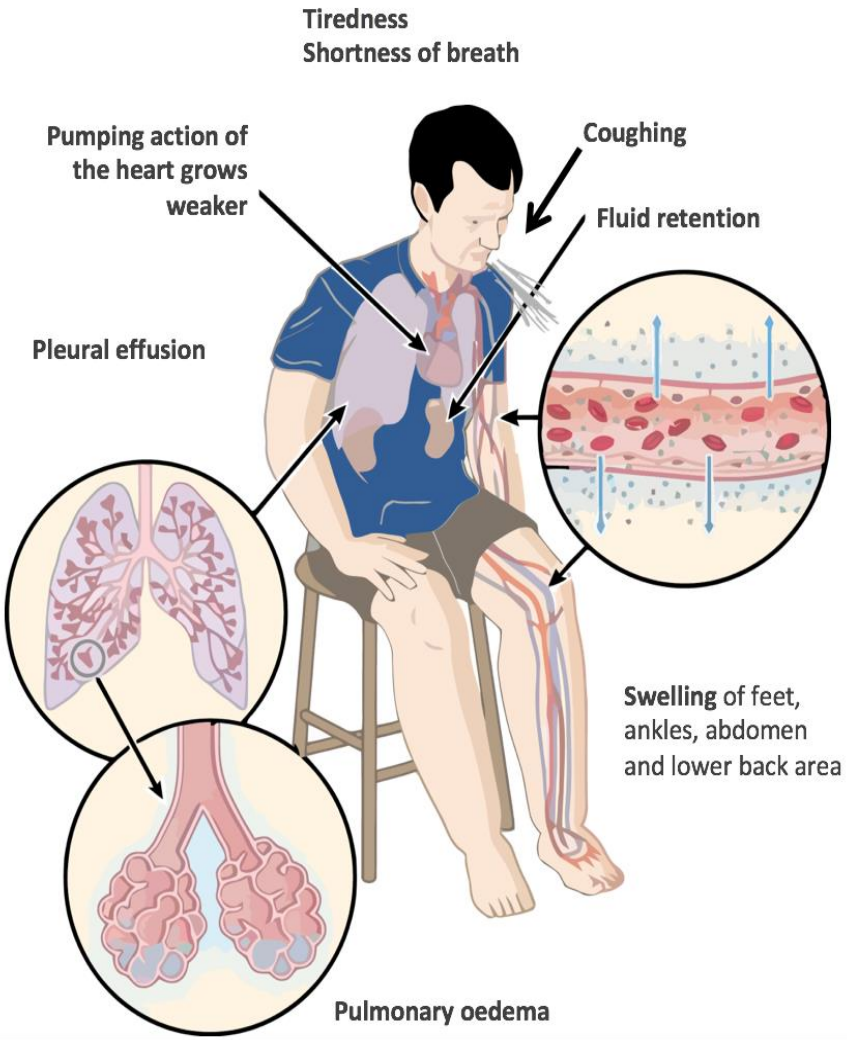
TYPICAL SIGNS AND SYMPTOMS

Main symptoms

- Breathlessness
- Orthopnea
- Paroxysmal Nocturnal Dyspnea
- Reduced exercise tolerance
- Fatigue
- Ankle swelling

Main signs

- Elevated jugular venous pressure
- Hepato-jugular reflux
- Third heart sound
- Laterally displaced apical impulse
- Cardiac murmur



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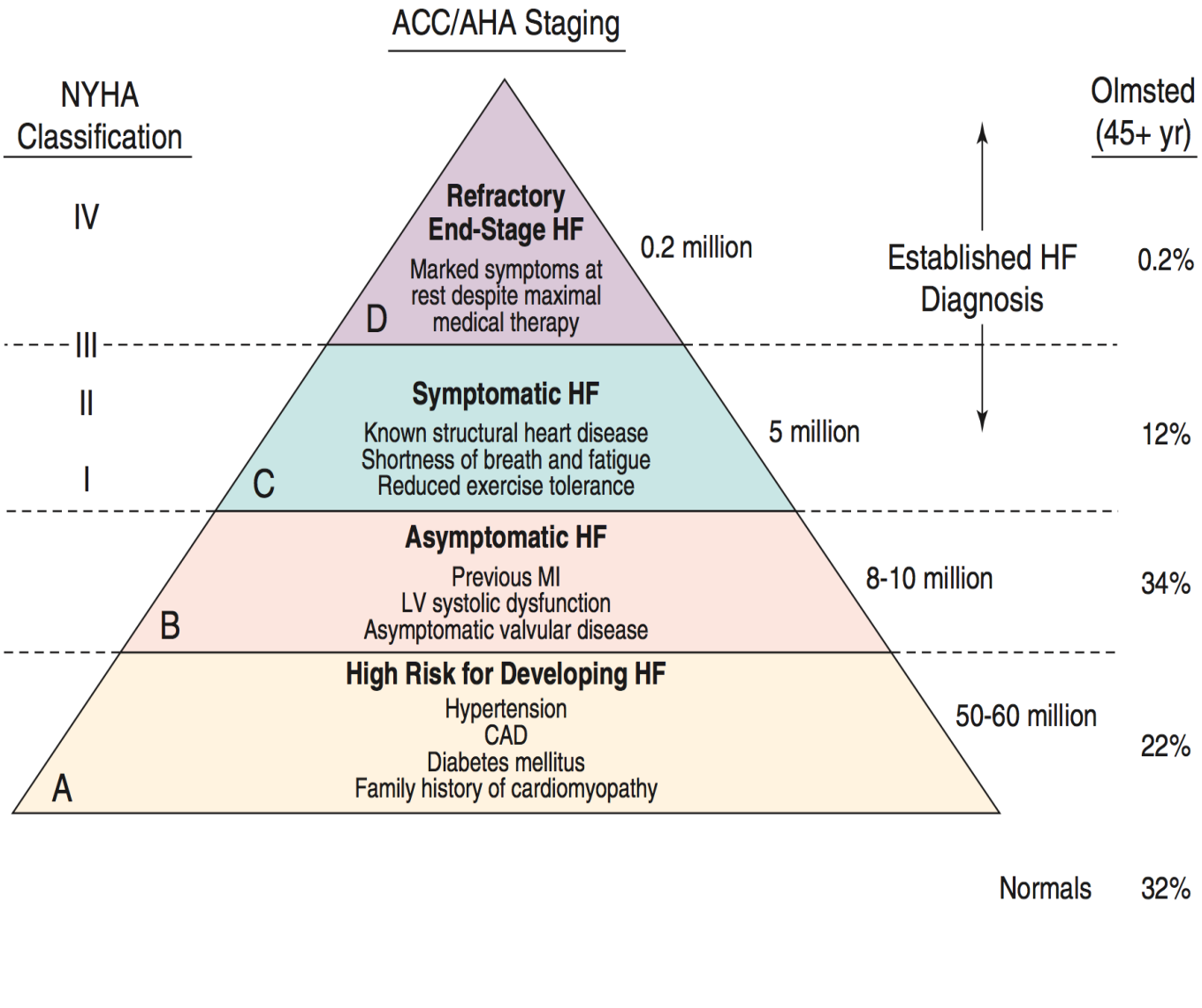
McMurray et al. Eur Heart J 2012;33:1787–847

EPIDEMIOLOGY OF HEART FAILURE



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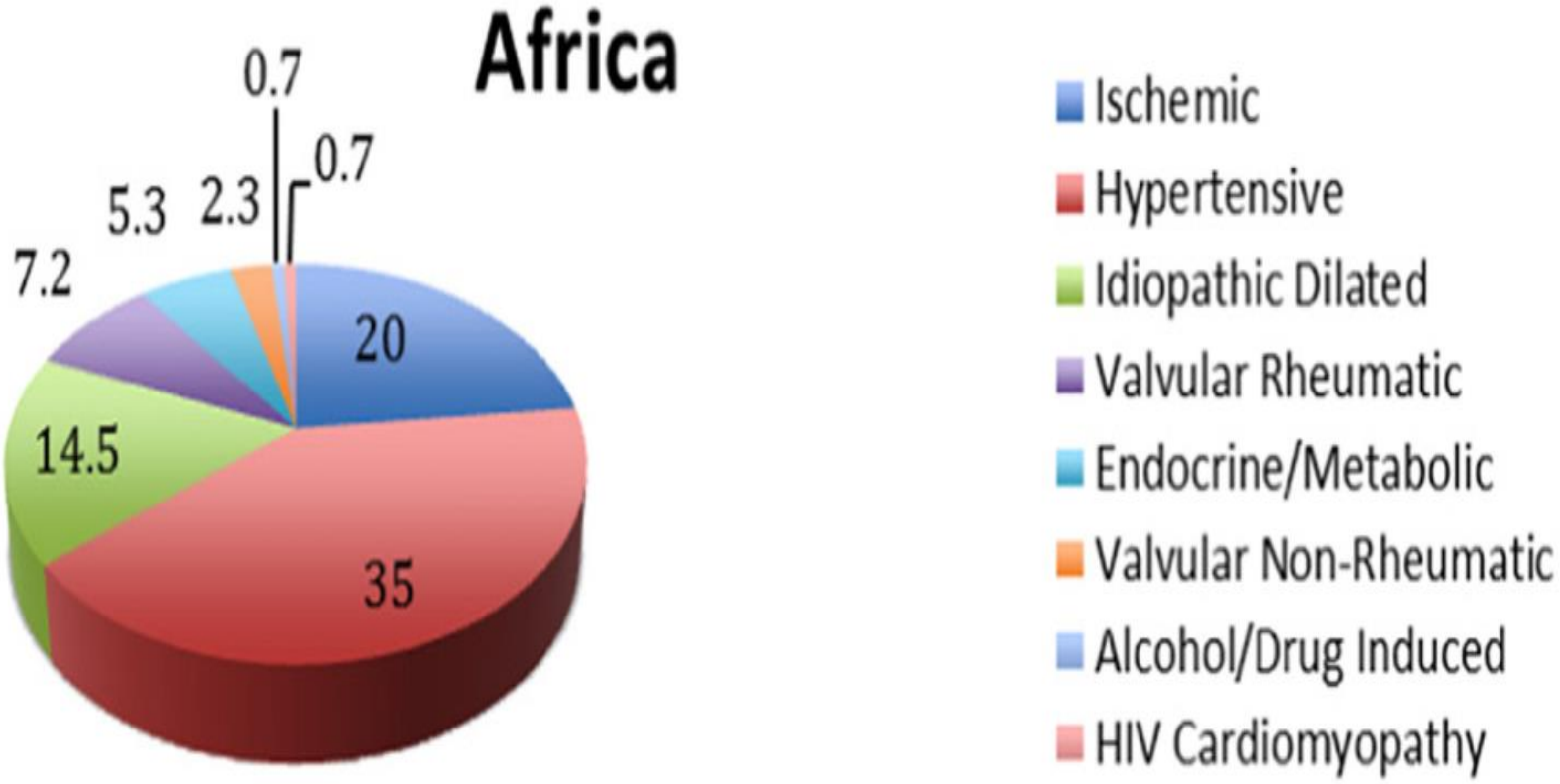
WHAT IS THE COMMONEST CAUSE OF HFrEF in AFRICA?

HFrEF AETIOLOGY



Dokainish H, et al. Heart Failure in Africa, Asia, the Middle East and South America: The INTER-CHF study. Int J Cardiol. 2016;204:133-41.

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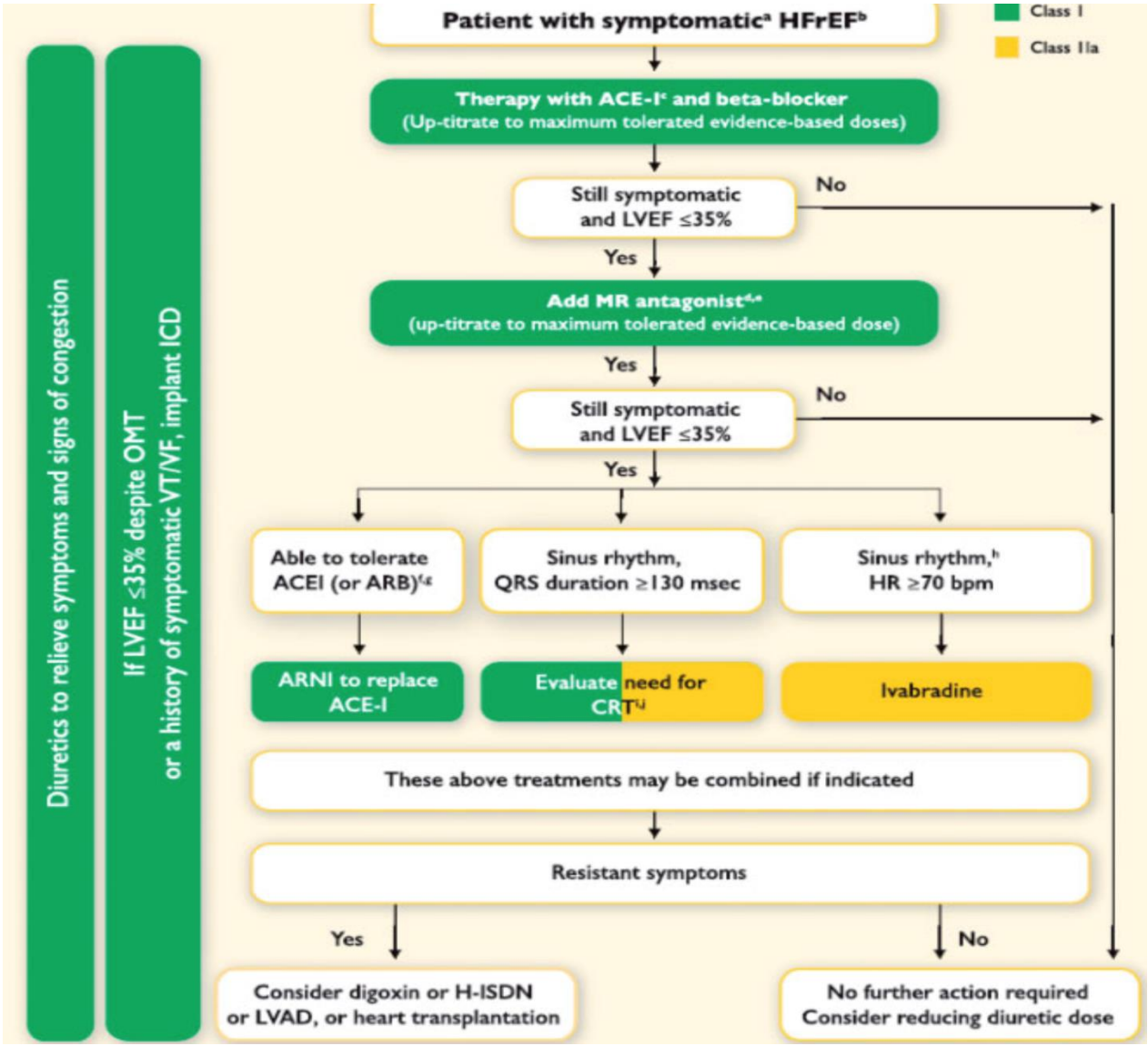
MEDICAL THERAPY



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MANAGEMENT STRATEGY ON FOLLOW-UP

- 6 weeks later the patient presents to your rooms for follow-up
- He is in NYHA II
- He has grade 1 peripheral oedema
- He reports “feeling much better”
- **Medication**: Metformin 850mg BD, Furosemide 40mg BD, Slow K 600mg dly, Enalapril 5mg BD, Carvedilol 6.25mg BD, Aldactone 12,5mg dly.

WHAT TO DO NEXT?

TARGET DOSES

	Starting dose (mg)	Target dose (mg)
ACE-I		
Captopril[a]	6.25 *t.i.d.*	50 *t.i.d.*
Enalapril	2.5 *b.i.d.*	10–20 *b.i.d.*
Lisinopril[b]	2.5–5.0 *o.d.*	20–35 *o.d.*
Ramipril	2.5 o.d.	10 *o.d.*
Trandolapril[a]	0.5 *o.d.*	4 *o.d.*
Beta-blockers		
Bisoprolol	1.25 *o.d.*	10 *o.d.*
Carvedilol	3.125 *b.i.d.*	25 *b.i.d.*[d]
Metoprolol succinate (CR/XL)	12.5–25 *o.d.*	200 o.d.
Nebivolol[c]	1.25 *o.d.*	10 *o.d.*

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TARGET DOSES

	Starting dose (mg)	Target dose (mg)
ARBs		
Candesartan	4–8 *o.d.*	32 *o.d.*
Valsartan	40 *b.i.d.*	160 *b.i.d.*
Losartan[b,c]	50 *o.d.*	150 *o.d.*
MRAs		
Eplerenone	25 *o.d.*	50 *o.d.*
Spironolactone	25 *o.d.*	50 *o.d.*
ARNI		
Sacubitril/valsartan	49/51 *b.i.d.*	97/103 *b.i.d.*
If-channel blocker		
Ivabradine	5 *b.i.d.*	7.5 *b.i.d.*

Ponikowski P, et al.Eur Heart J. 2016;37(27):2129-200

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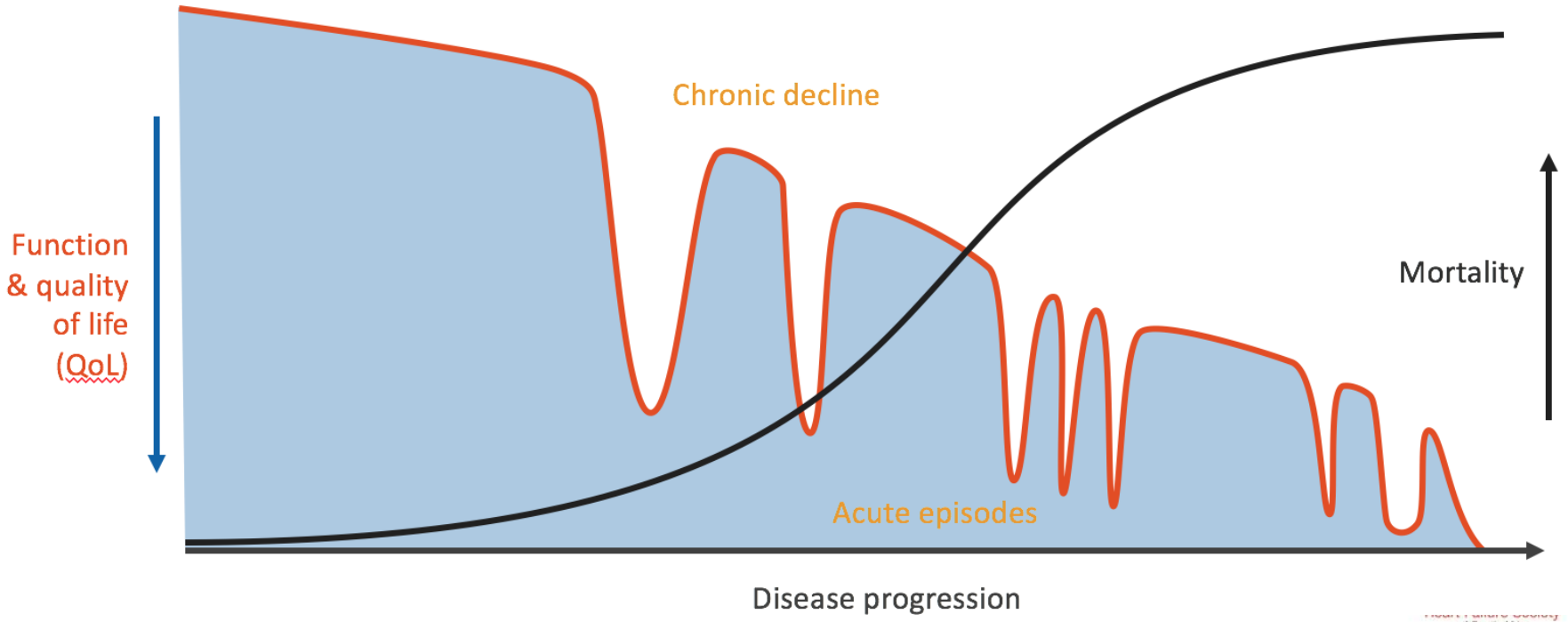
9 MONTHS FUP

- Mr AB admitted to hospital for worsening signs and symptoms
- On Enalapril 10mg po bd, Carvedilol 25mg po bd, Aldactone 25mg po dly, Lasix 40mg po dly, Slow K 600mg po dly and Metformin 850mg po bd.
- He reports no viral prodromal illness,
- He reports excellent compliance
- His Echocardiogram shows an EF of 38%

HFrEF NATURAL HISTORY

- Increasing frequency of acute events with disease progression leads to high rates of hospitalization and increased risk of mortality
- With each acute event, myocardial injury may contribute to progressive LV dysfunction



LV: left ventricular

Gheorghiade et al. Am J Cardiol 2005;96:11G–17G; Gheorghiade & Pang. J Am Coll Cardiol 2009;53:557–73

ROLE FOR THE ARNI?

PARADIGM HF TRIAL

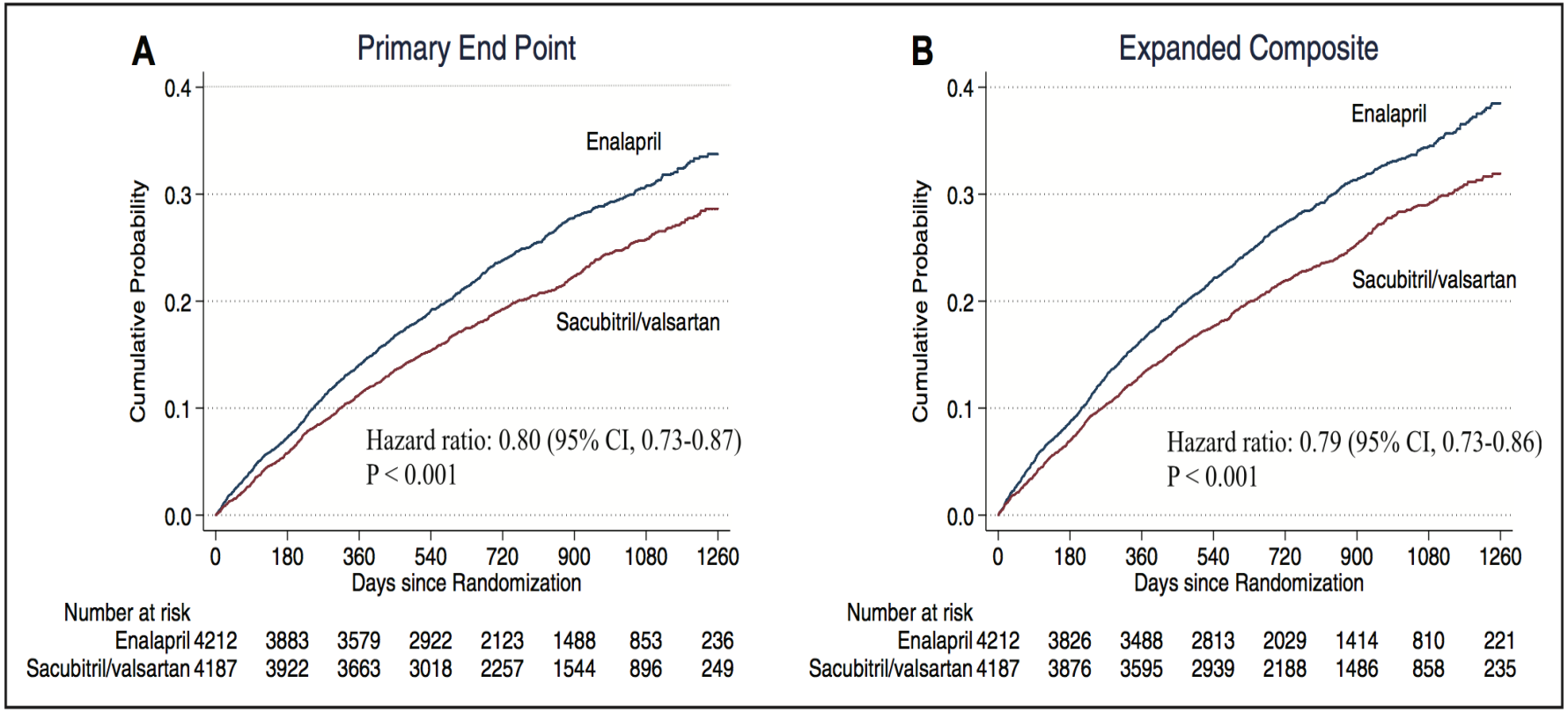


Figure 3. Kaplan–Meier curves for primary end point (**A**) and expanded composite (**B**), according to treatment group. (HR and corresponding *P* value are from the Cox model adjusted for region). CI indicates confidence interval; and HR, hazard ratio.

*McMurray JJ, et al. Angiotensin-neprilysin inhibition versus enalapril in heart failure. N Engl J Med 2014; **371**(11): 993-1004*

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PARADIGM HF TRIAL

ARNI					
PARADIGM-HF[167]	Sacubitril/valsartan (n = 4187) vs enalapril (n = 4212).	NYHA II–IV, LVEF ≤40% (amended to LVEF ≤35%), BNP ≥150 pg/mL or NT-proBNP ≥600 pg/mL, or if HF hospitalization within recent 12 months BNP ≥100 pg/mL or NT-proBNP ≥400 pg/mL.	2.3 y	Composite of death from cardiovascular causes or a first HF hospitalization reduced by 20% (22% vs 27%, P < 0.001).	Reduction in all-cause mortality by 16% (P < 0.001) and cardiovascular mortality by 20% (P < 0.001). Reduction in HF hospitalization rate by 21% (P < 0.001).

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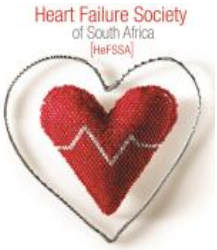
TAKE HOME MESSAGES

- HF is a life threatening disease!
- Prognosis is guarded with therapy!
- Adherence to guideline therapy recommendations improves outcomes – includes up-titrating to target dosage of therapy

QUESTIONS ON MANAGEMENT STRATEGIES

- How soon should you follow-up patients once a diagnosis of HF is made?
- How rapidly should you up titrate to target doses?
- When should you refer your patients for specialist care?
- What information do you tell your patients about HF?
- Which therapies are symptom relieving?
- Which therapies are life prolonging?



THANK YOU

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