HEART FAILURE:

DIAGNOSIS,MANAGEMENT AND FOLLOW UP.

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Abuja, FCT, Nigeria.

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8th Abuja Cardiovascular Symposium 2024

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OUTLINE

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- Introduction
- Definition
- Classification
- Pathophysiology
- Clinical features
- Diagnosis
- Management
- Follow up

How massive a problem is Heart Failure & why should we care?

Introduction

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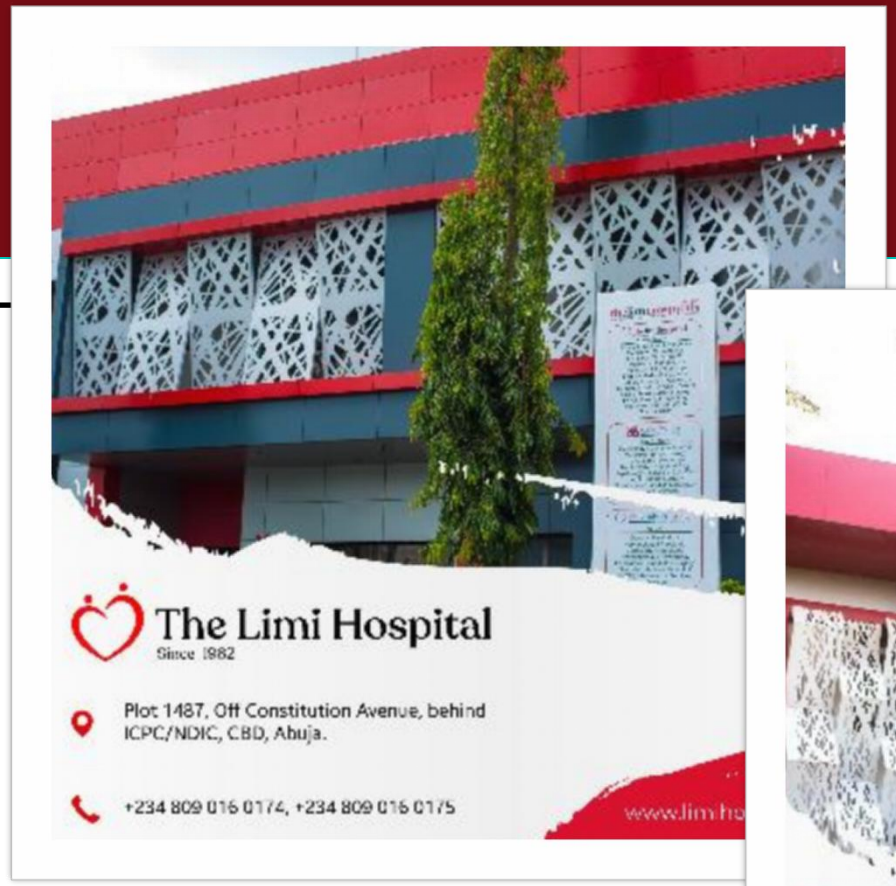
- Heart failure (HF) is a major growing health problem worldwide.
- Affects about 64.3 million persons globally,
- Epidemiology varies widely within and between countries
- The INTERnational Congestive Heart Failure Study (INTER-CHF)
  - **Hypertensive heart disease (HD)** was the most common etiology in Nigeria, Uganda, Mozambique and overall,
  - **Ischemic HD** was the most common in South Africa and Sudan.



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INTER CHF Study

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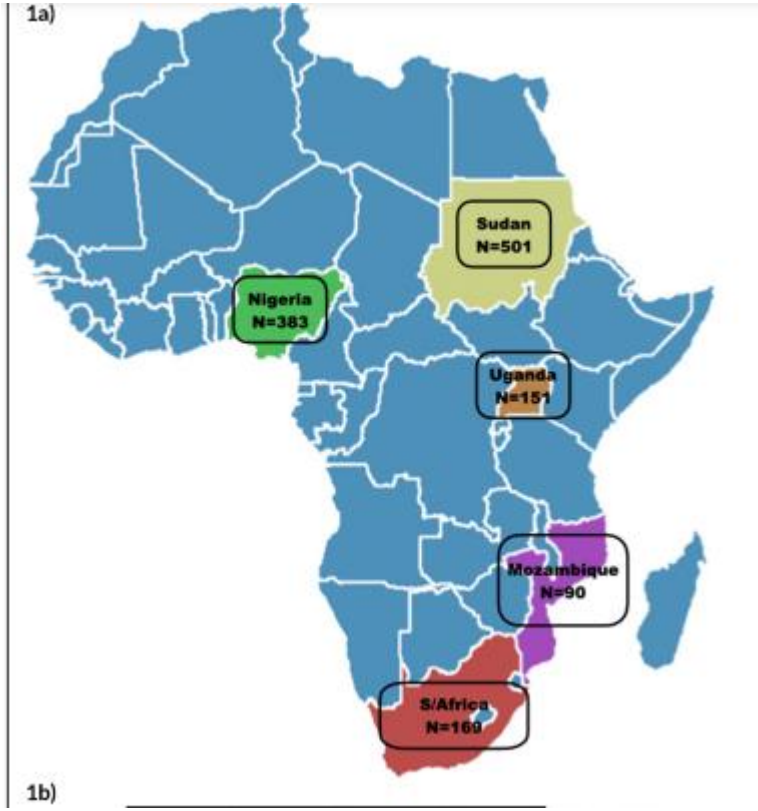

Table 2: Etiologies of Heart Failure.

Variables	Africa Overall N = 1294	Nigeria N = 383	South Africa N = 169	Sudan N = 501	Uganda N = 151	Mozambique N = 90
Hypertensive HD	35	65.1	13.6	11.7	46.9	24.7
Ischemic HD	20	3.01	44.9	25.3	1.09	1.27
Idiopathic – DCM	14.1	10.6	8.61	20.9	22.2	18.3
Rheumatic HD	7.2	5.3	3.3	16.8	13	19.3
Valvular Non-Rheumatic HD	2.3	2.0	2.2	1.3	7.8	2.4
HIV Cardiomyopathy	0.7	0.2	3.3	0	0.83	3.8
Alcohol/Drug induced CMP	0.66	0.68	1.1	0.43	0	2.4
EMF	0.26	0	0.45	0	1.8	2.2
PPCM	0.14	0.58	0.60	0.17	0	0.38
Post Chemotherapy HD	0.12	0	0.69	0	0	0
Tuberculosis related HD	0.09	0	0.51	0	0	0.82
Congenital HD	0.08	0.26	0	0.17	0.58	0
Endocrine/Metabolic	5.4	0.73	3.5	11	1.9	0.9
Other causes	13.3	11.6	16.2	11.4	3.9	23.5
Unknown etiology	0.6	0	1.1	0.87	0	0

Key: HD, heart disease; DCM, dilated cardiomyopathy; HIV, human immunodeficiency virus; CMP, cardiomyopathy; EMF, endomyocardial fibrosis; PPCM, peripartum cardiomyopathy. Values are expressed as proportions in percentages.

Introduction

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- The overall prevalence of HF in the adult population in developed countries is 2%.
- HF prevalence follows an exponential pattern, rising with age,
- Affects **6–10% of people aged >65**.
- Relative incidence of HF is **lower in women than in men**
- Risk of developing HF is approximately **one in five for a 40-year-old**.
- **Rheumatic heart disease** remains a major cause of HF in Africa and Asia, especially in the young.
- **Hypertension is an important cause of HF** in the African and African-American populations.
- **Chagas' disease** is still a major cause of HF in South America

Who is Cardiocare M cialty Hospital?

Northern Nigeria's **pioneer standalone Institution** wholly dedicated to comprehensive **Cardiovascular and Internal Medicine**.

Received Multiple **Awards for Excellence in Service.**

We are a **Support Hospital** for your practice in Nigeria through our **specialized services, training, and research in collaboration with you.**

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HEART FAILURE;A Global Burden

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- **1-2% of adults** are heart failure patients worldwide
- Admission rate is **at least once a year**
- **HFrEF** is the commonest phenotypes worldwide(50-60% of cases)
- 74% of heart failure patients suffering from **at least one comorbidity**
- Heart failure is **a progressive disease** with an **annual mortality rate of about 10%**
- The main causes of death are **sudden cardiac death (>50%) or organ dysfunction due to hypoperfusion**

HEART FAILURE ; A GLOBAL BURDEN

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- **30–40% of patients die** within 1 year of diagnosis
- **60–70% die within 5 years**, mainly from worsening HF or as a sudden event
- Patients with (New York Heart Association [NYHA] class IV) have a **30–70% annual mortality rate**
- Patients with NYHA class II have an annual mortality rate of **5–10%.**
- Functional status is an important predictor of patient outcome

What is Heart Failure?

Abuja Cardiovascular Symposia- Five (8) so far.

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- Over 750 participants from over 30
- Trained in **PRIMARY CARDIOVASCU**
  - ECG interpretation,
  - Basic Management of Diabetes, Hyperte
  - Basic Life Support
- **10 CME points & Certificate**

Definition Of Heart Failure (1)

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- The current American College of Cardiology Foundation (ACCF)/American Heart Association (AHA) guidelines defines:
  - Heart Failure as a complex clinical syndrome that
  - results from structural or functional impairment of ventricular filling or ejection of blood,
  - which in turn leads to the cardinal clinical symptoms of dyspnea and fatigue and signs of HF, namely edema and rales.

Definition Of Heart Failure (2)

- **According to European Society of Cardiology (ESC)**
- Heart failure is not a single pathological diagnosis, but
- a clinical syndrome consisting of
    - Cardinal symptoms (e.g. breathlessness, ankle swelling, and fatigue) that may be accompanied by
    - Signs (e.g. elevated jugular venous pressure, pulmonary crackles, and peripheral oedema).
- It is due to a structural and/or functional abnormality of the heart that results in elevated intracardiac pressures and/or inadequate cardiac output at rest and/or during exercise.

Why Consider Cardiocare Multispecialty Hospital?

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1. Team of consultants & residents
2. **Detailed back-referral medical reports** when indicated/requested
3. Opportunity to **discuss & collaborate** with team on referred cases
4. **24/7 emergencies** and **same-day/next-day appointments**
5. Over **400 successful cathlab cases** for:
   - Pacemakers, CRTs, Coronary & Peripheral revascularization with stents, IVC filters, etc. while awake with no scars for vascular interventions.
6. **Ultramodern world-class equipment** & fully computerized Systems

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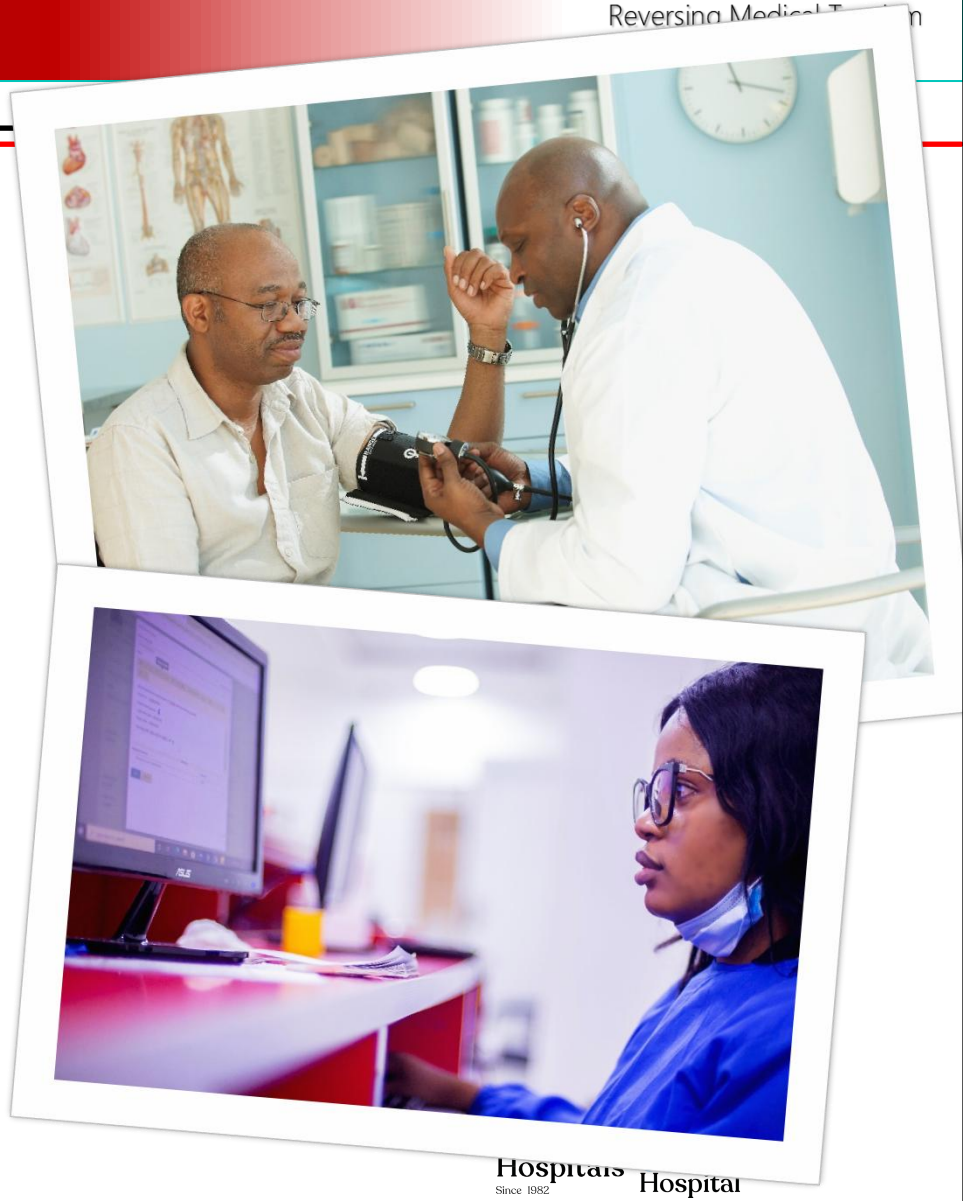

Definition Of Heart Failure (3)

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- **a chronic, progressive, neurohumoral syndrome perpetuating cardiac dysfunction** characterized during stress and/or at rest by:

  a. Dyspnoea, and

  b. Pulmonary and systemic venous congestion and/or

  c. Inadequate peripheral oxygen delivery,

  d. Shortened life expectancy.

Our Experience

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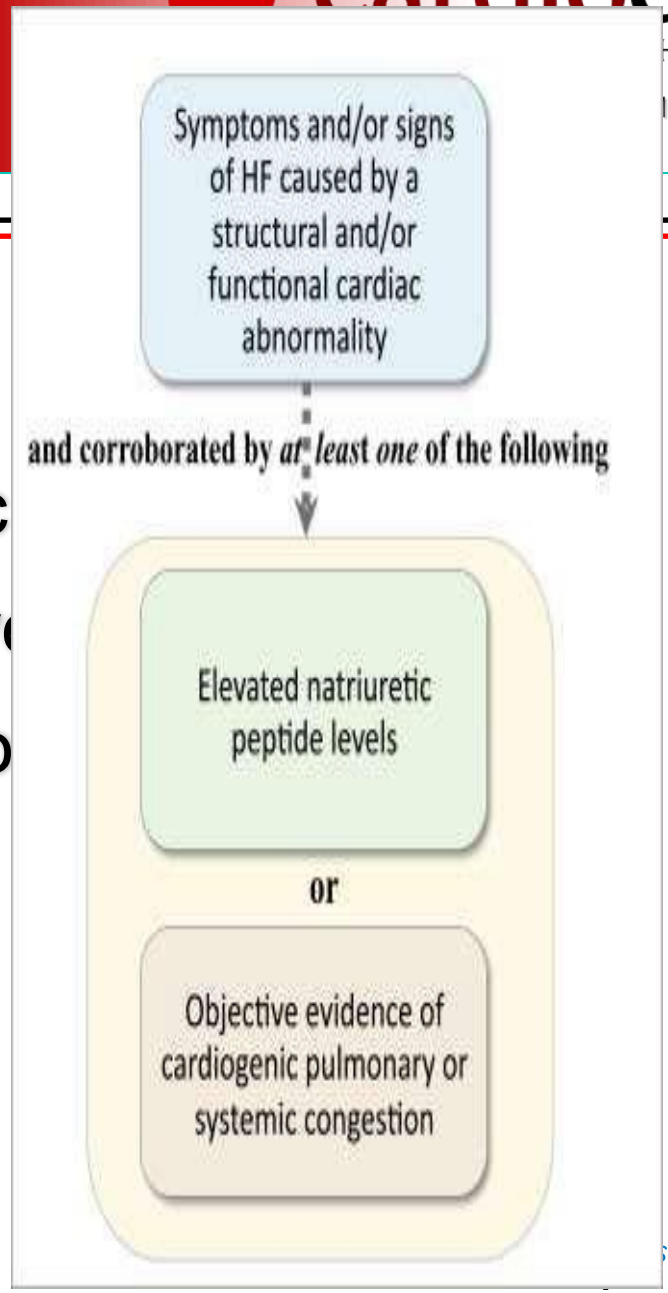
- A total of 1000 **procedures** were carried out on 847 patients over the last 5 years
- Male to female ratio of **4.4:1**,
- Mean age of **59.0 (+/- 12.4)** years
- Of the patients,
  - 32 (10.6%) were partially financed through discounts, sponsorships, and donations from:
    - Cardiocare/Limi Hospitals
    - Nigerian Cardiovascular Education Foundation

Universal Definition

- HF is clinical syndrome
- with symptoms and/or signs
- caused by a structural and/or functional cardiac
- corroborated by elevated natriuretic peptide leve
- objective evidence of pulmonary or systemic co



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How does Heart Failure result?

Pathophysiology

Neurohumoral System

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- An imbalance occurs in **Three Key Neurohumoral Systems**:
  1. The renin–angiotensin–aldosterone system **RAA**
  2. The sympathetic nervous system **SNS**
  3. The natriuretic peptide system **NP**

- The natriuretic peptide system has a protective function, which can counterbalance these detrimental effects.

Activation of Sympathetic Nervous System

- One of the most important adaptations caused by a drop in CO and occurs early in the course of HF
- Activation of SNS in HF is accompanied by concomitant withdrawal of parasympathetic tone
- Activation of SNS provides short-term support that has the potential to become maladaptive over the long term
- In patients with advanced HF, circulating levels of NE at rest are 2-3 times those found in normal persons
- Plasma levels of NE predict mortality in patients with HF

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Coronary Angiography

& Percutaneous Coronary Intervention

For Heart Attacks/Myocardial Infarction, Angina, Ischemic Heart Disease/Failure-
Stents, Balloon Angioplasty, & Chronic Total Occlusions (CTO) of Heart Vessels

Heart Failure is a Progressive Vicious Cycle!!!

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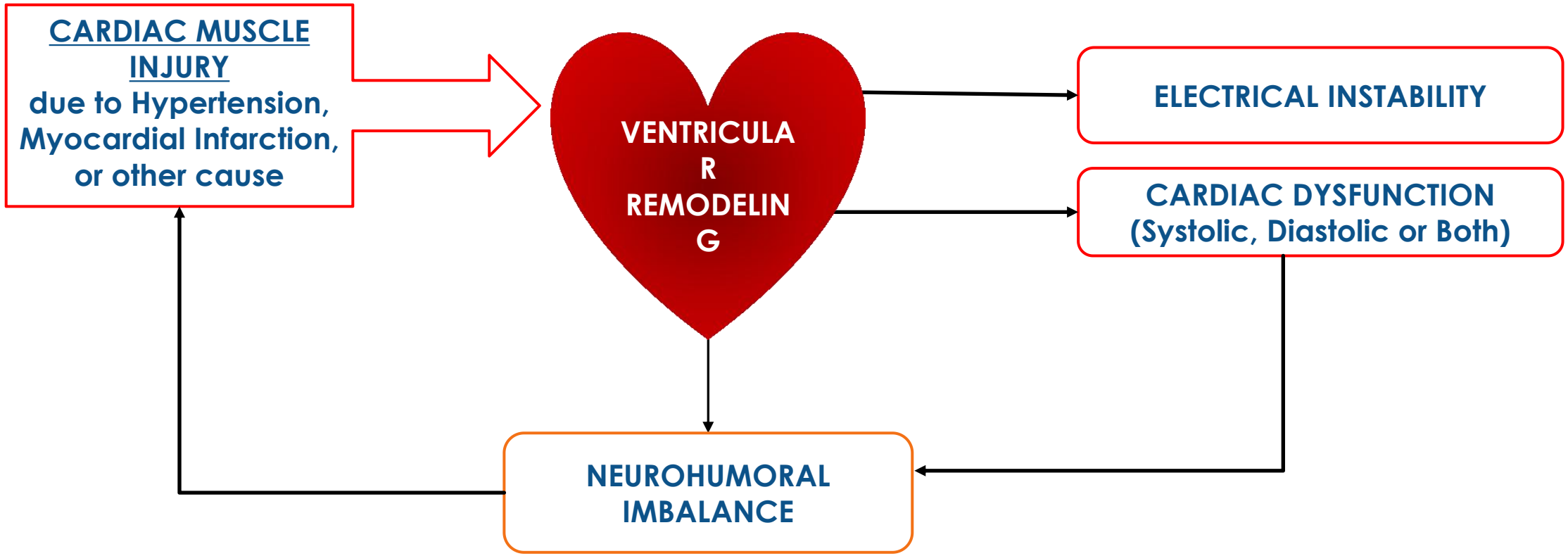
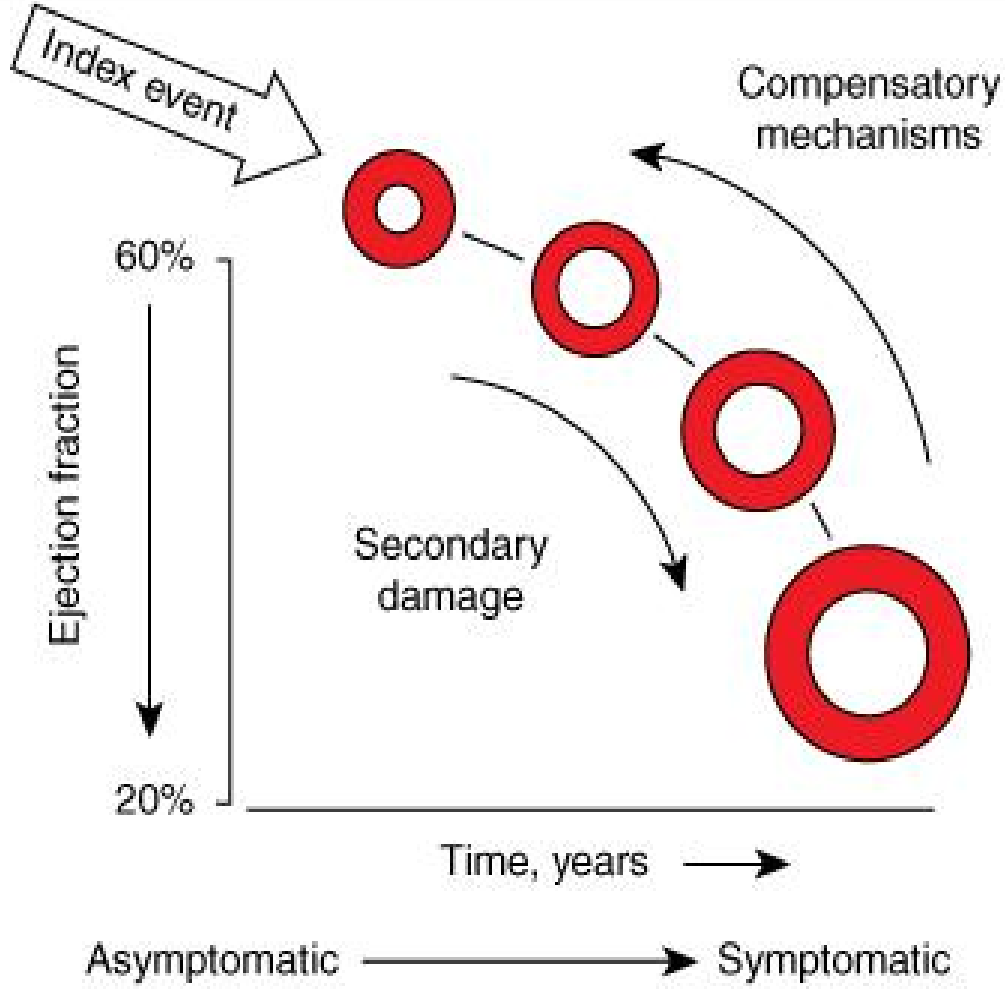


1. McMurray JJ. N Engl J Med 2010;362:228–238
2. Shah AM. Lancet 2011;378:704–712

Pathogenesis

- Heart failure is as a progressive diso
  index event that causes damage to
  either
  - Loss of functioning cardiac myocytes
  - Disruption of the ability of myocardium
- Index event may be;
  - Abrupt onset (MI, PE)
  - Gradual or insidious (pressure or volun
  - Hereditary (genetic cardiomyopathies)



What causes Heart failure?

Aetiology- Epidemiology

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- Clinical Practice from unpublished data in CardioCare Hospital Abuja in order of prevalence:
  1. **Hypertension**
  2. **Cardiomyopathy**
  3. **Coronary artery disease**
  4. Valvular Heart Disease
- SSA Survey of HF ?Ischaemic Heart Disease
  - **Hypertension (43.9%),**
  - Dilated cardiomyopathy (DCM) (19.5%), and

Aetiology

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HEART FAILURE

VALVULAR HEART DISEASE
- Mitral
- Aortic
- Trisuspid
- Pulmonary

MYOCARDIAL DISEASE
- Coronary artery disease
- Hypertension
- Cardiomyopathy

PERICARDIAL DISEASE
- Constrictive pericarditis
- Pericardial effusion

ENDOCARDIAL DISEASE
- With/without hypereosinophilia
- Endocardial fibroelastosis

HIGH OUTPUT STATES
- Anaemia
- Sepsis
- Thyrotoxicosis
- Paget's disease
- Arteriovenous fistula

ARRHYTHMIA
- Tachyarrhythmia
- Atrial
- Ventricular
- Bradyarrhythmia
- Sinus node dysfunction

CONDUCTION DISORDERS
- Atrioventricular block

VOLUME OVERLOAD
- Renal failure
- Iatrogenic (e.g. post-operative fluid infusion

CONGENITAL HEART DISEASE

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

AETIOLOGY- INTER-HEART

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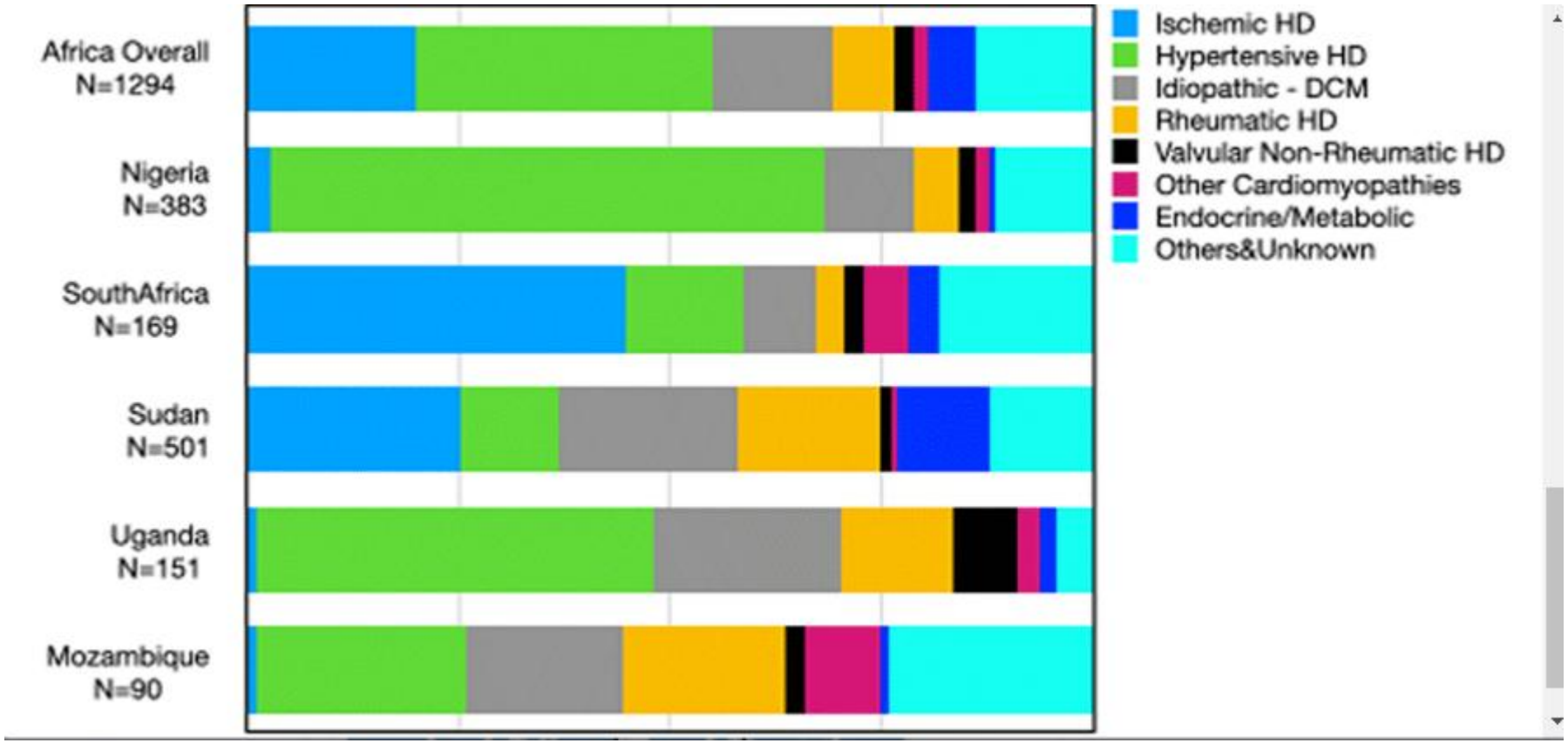

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How do we classify Heart Failure?

Classification of heart failure

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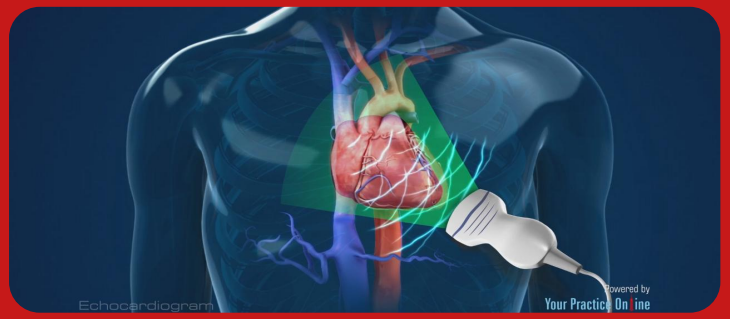

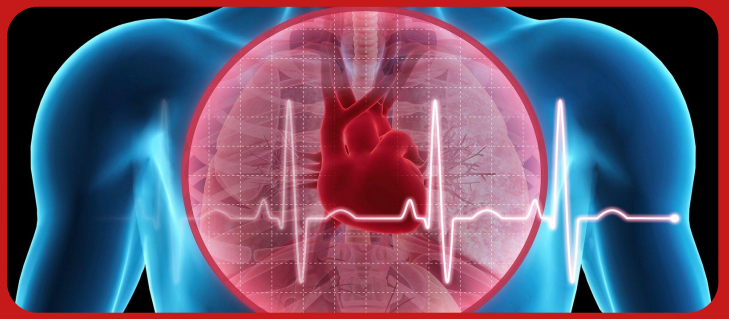

1.1. Based on ECHO-Ejection Fraction

- HFrEF- Reduced EF
- HFpEF- Preserved EF

2. Based on Dyspnoea Severity

- NYHA Classification *(I - IV)*

3. Based on Cardiac Dysfunction Course

- ACC/AHA Staging (A-D)

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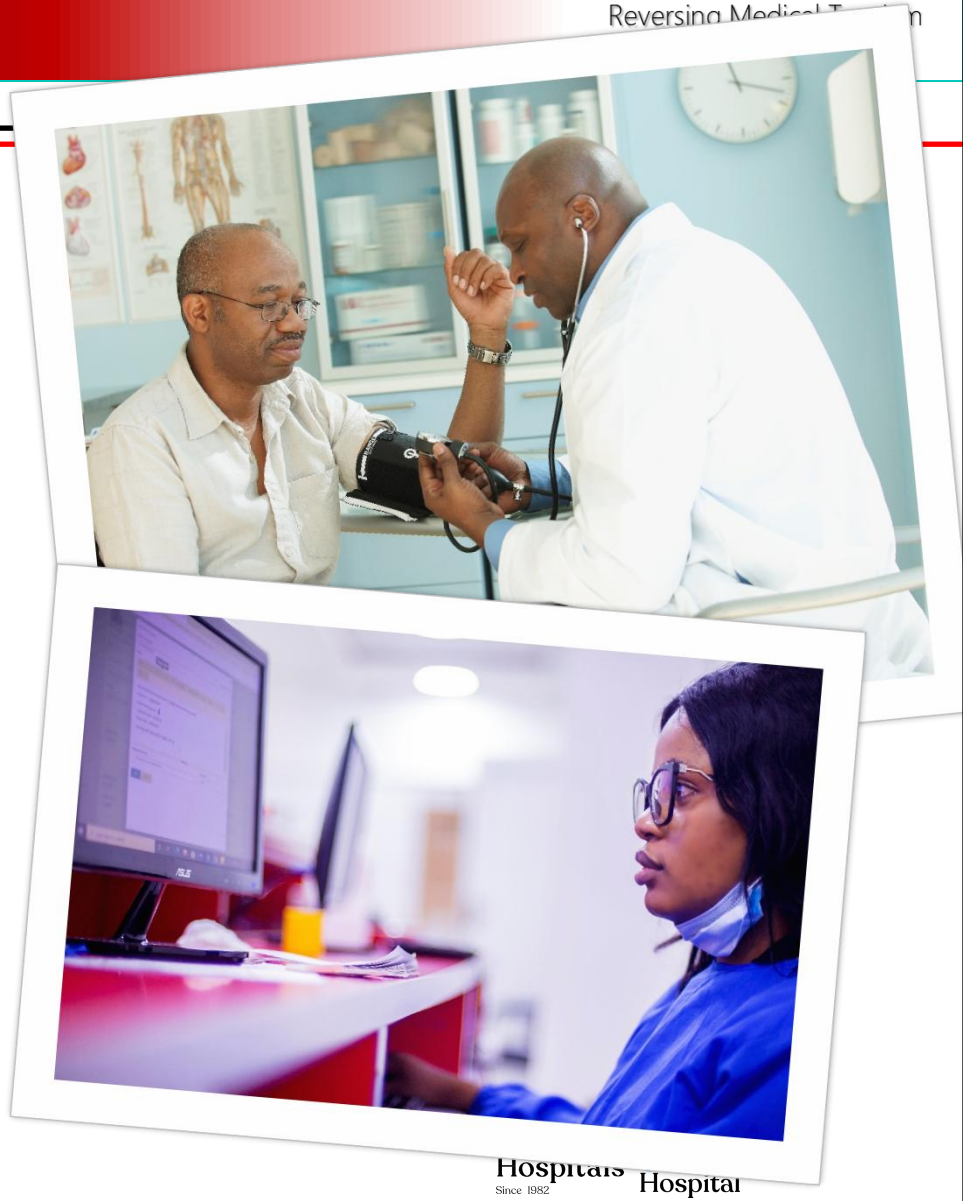

Stages & Functional classification of HF

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ACCF/AHA Stages of HF		NYHA Functional Classification	
A	At high risk for HF but **without structural heart disease or symptoms of HF**	**None**	
B	Structural heart disease but **without signs or symptoms of HF**	**I**	No limitation of physical activity. **Ordinary physical activity does not cause symptoms of HF**.
C	Structural heart disease with **prior or current symptoms of HF**	**II**	Slight limitation of physical activity. Comfortable at rest, but **ordinary physical activity results in symptoms of HF**.
		III	Marked limitation of physical activity. Comfortable at rest, but **less than ordinary activity causes symptoms of HF**.
D	Refractory HF **requiring specialized interventions**	**IV**	Unable to carry on any physical activity without symptoms of HF, or **symptoms of HF at rest**.

Yancy CW et al. 2013 ACCF/AHA Guideline for the Management of Heart Failure. A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Circulation*. 2013;128:e240-e327

How do we recognize and diagnose Heart Failure in our practice?

SYMPTOMS OF HEART FAILURE

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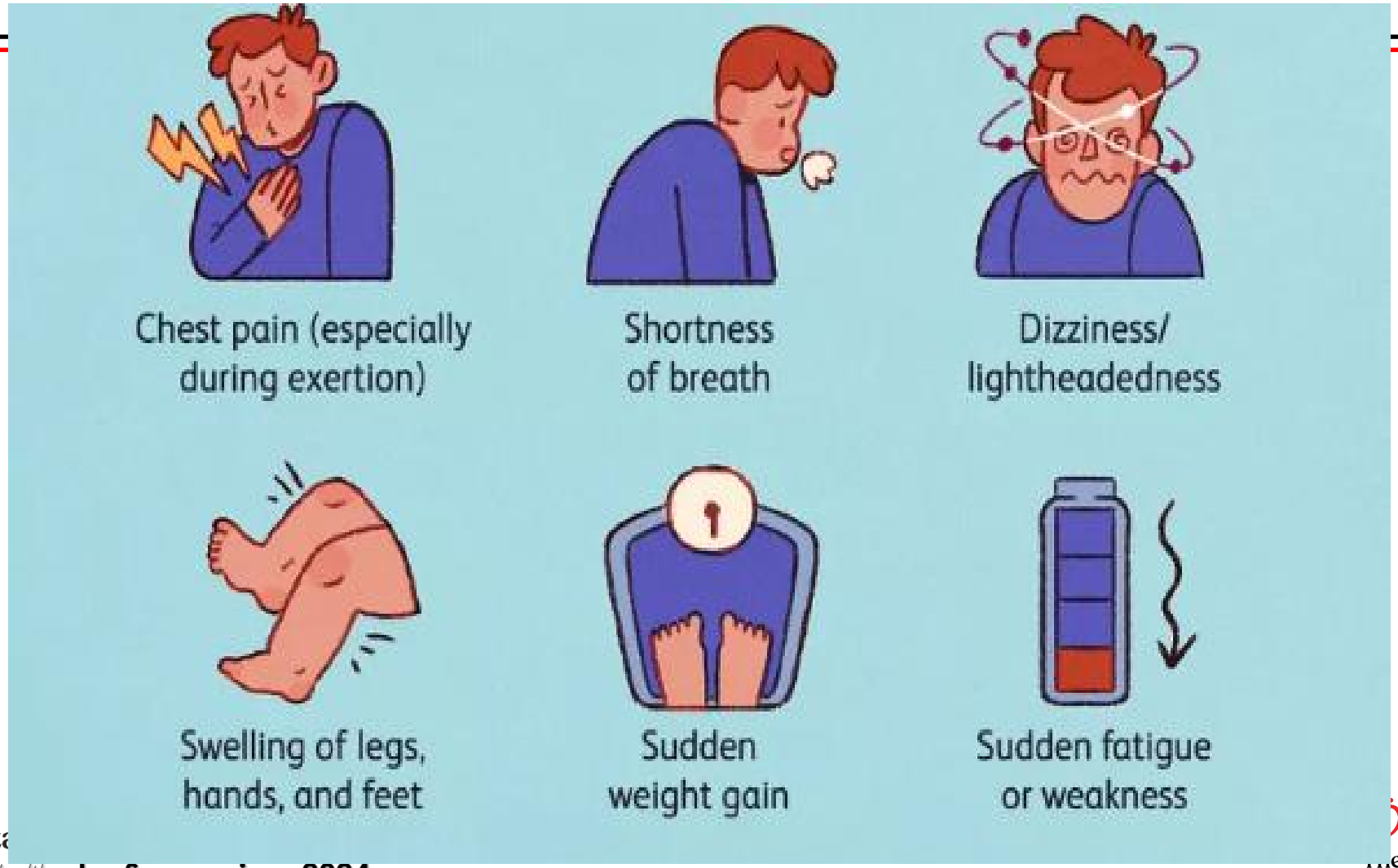

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Clinical Manifestations

- **Dyspnea (varying levels of exertion occurring progressively)**
- **Orthopnea**
- **Paroxysmal nocturnal dyspnea**
- Weakness/fatigue
- Cough
- Reduced Urine output
- **Tachycardia**

- **Crepitati**
- **Edema**
- Jaundice
- Alternati
- Cool, col
- **Jugular v**
- Cyanosis
- Third hea

Other History to Elicit

- **History Suggestive of Causes**
  - Cardiovascular Risk- Hypertension, Diabetes
  - Alcohol
  - Chronic Pulmonary Disease
  - Structural pathology (e.g. valve stenosis or valve regurgitation
  - Congenital heart disease
  - Ischemic Heart Disease- eg Angina, previous MI
  - Inflammatory conditions (e.g. pericarditis or myocarditis)
- **History Suggestive of Precipitants**
  - Myocardial Infarction
  - Acute infection
  - Electrolyte imbalances (e.g. hypokalaemia or hyponatraemia)
  - Pulmonary embolism
  - Thyrotoxicosis or hypothyroidism
  - Medications eg Thyroxine, NSAIDs
  - Dietary Indiscretion

How do we investigate Heart Failure

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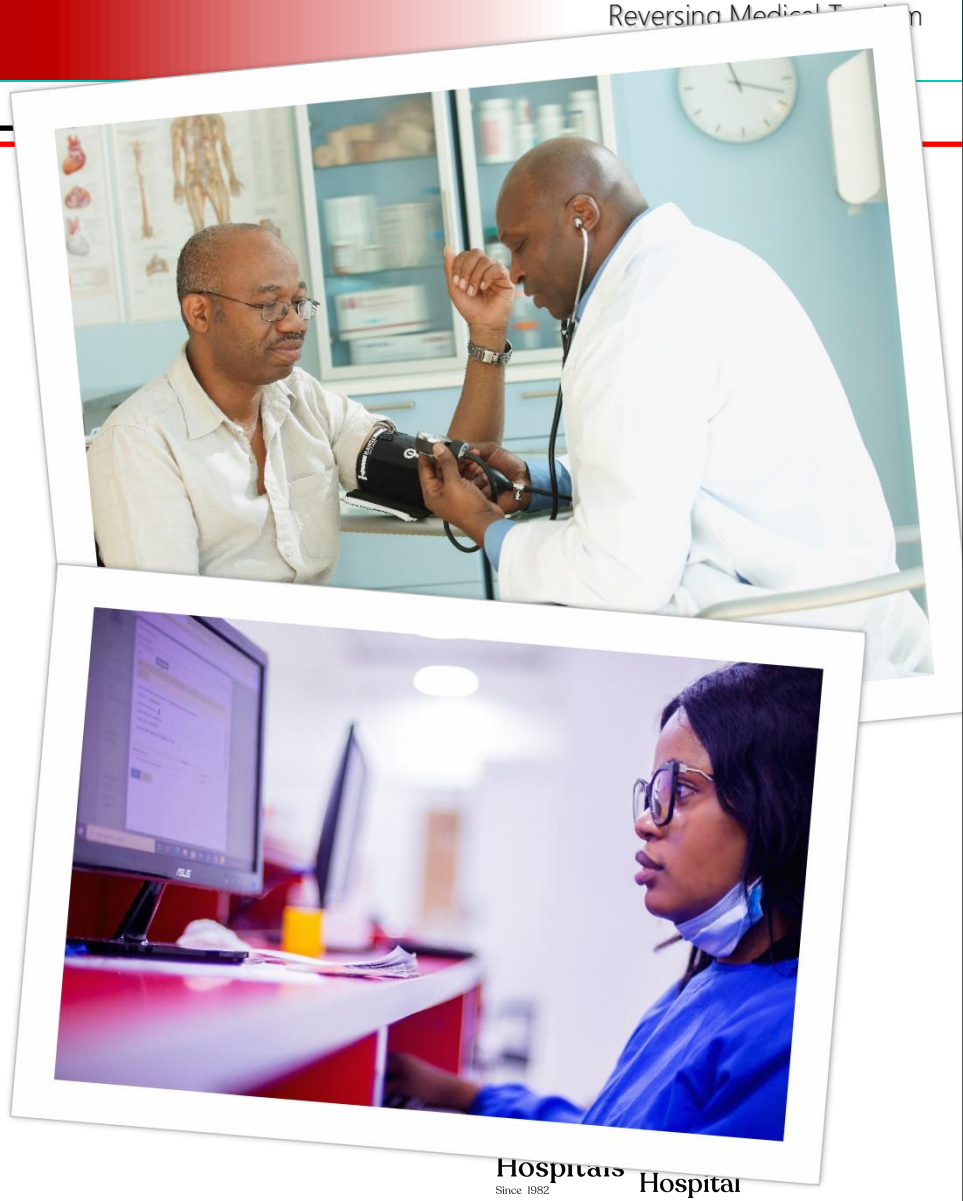

Investigating Heart Failure

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- NT-ProBNP can help diagnosis when unsure and can be used to follow up
- ECG to check for abnormalities that could have caused, worsened or complicated heart failure- a completely normal ECG is possible but rare. **MANDATORY**
- E/U/Cr- complications of disease or of treatment, co-existing renal dysfunction
- FBC- Infections/Anaemia that may worsen HF
- Chest X-ray- exclude pneumonia, fluid collection and other diagnoses

XRAY FEATURES OF HEART FAILURE

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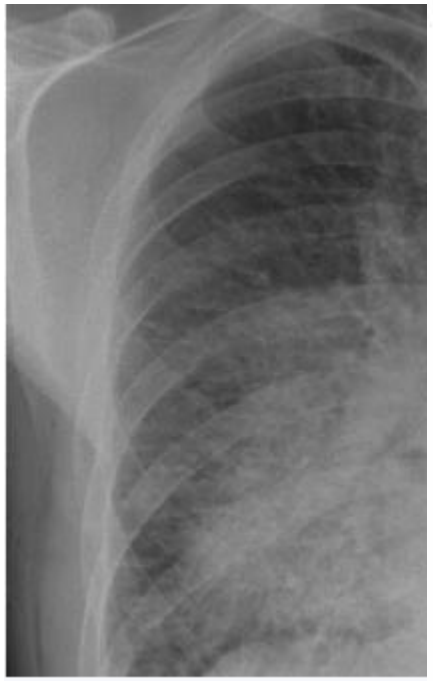

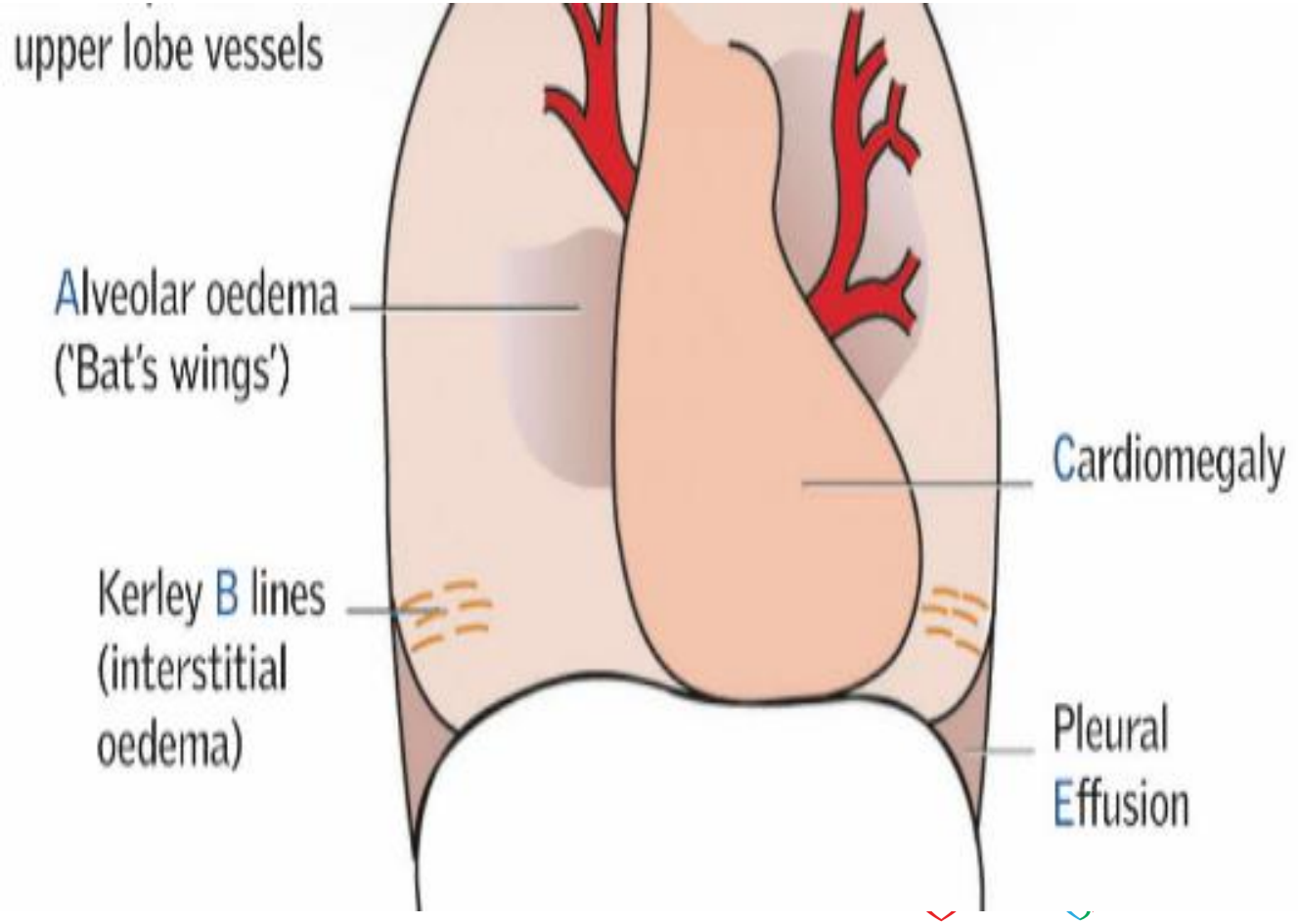

Investigating Heart Failure

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- Thyroid function tests in all cases of Heart Failure is recommended
- Lipids
- Glycemic Profile- Fasting/Random Blood Sugar, HBA1c
- Holter ECG- 24-48hour
- Other Tests-
  - D-Dimer,
  - Troponins,
  - COVID PCR,
  - PT/INR, etc

Investigating Heart Failure- Echocardiography

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- Transthoracic and/or Transesophageal Echocardiography is invaluable and mandatory.
- The following should particularly be looked out for:
  - **Chamber Sizes-** Left Ventricular Internal Diameter in diastole, LV Mass index
  - **Valve function**
  - **Ejection Fraction (EF)** -
  - **E/E'** a measure that can correlate well with pulmonary capillary wedge pressure: typically >15 in acute cases
  - **Wall Motion abnormalities**
  - **Speckle Tracking Doppler (GLSS)**

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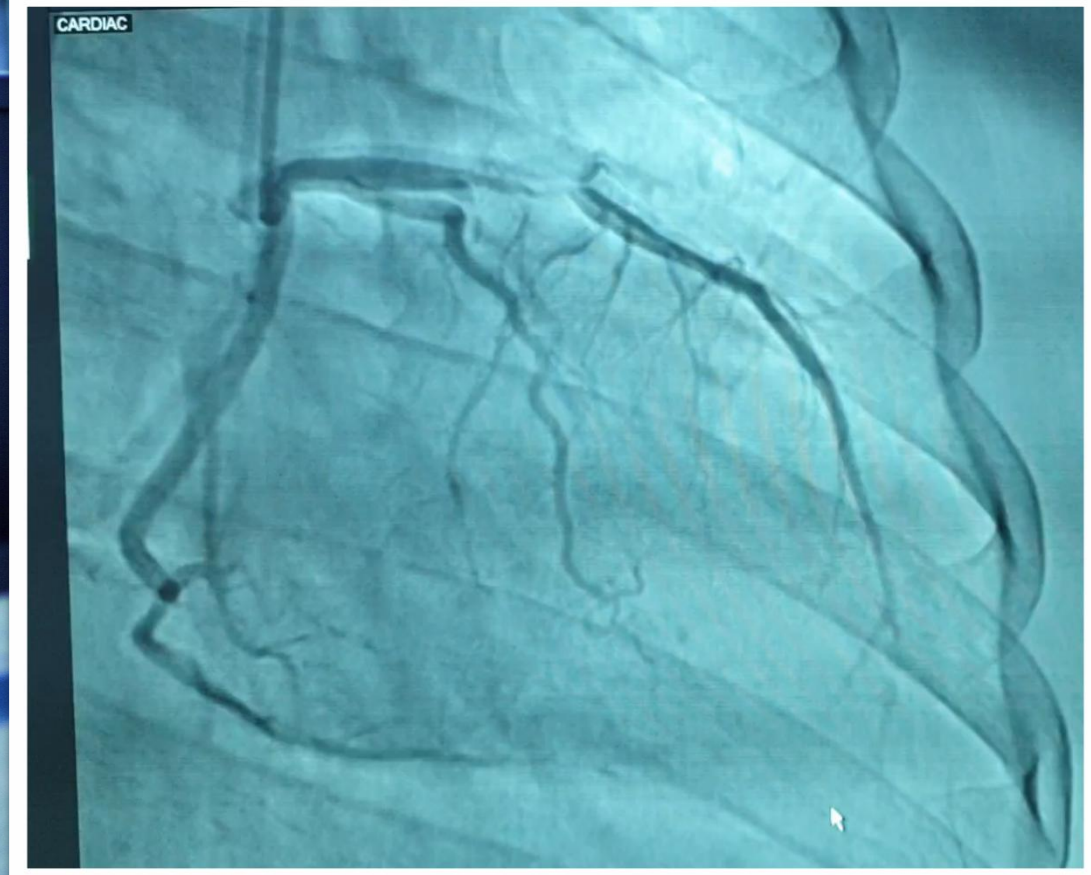

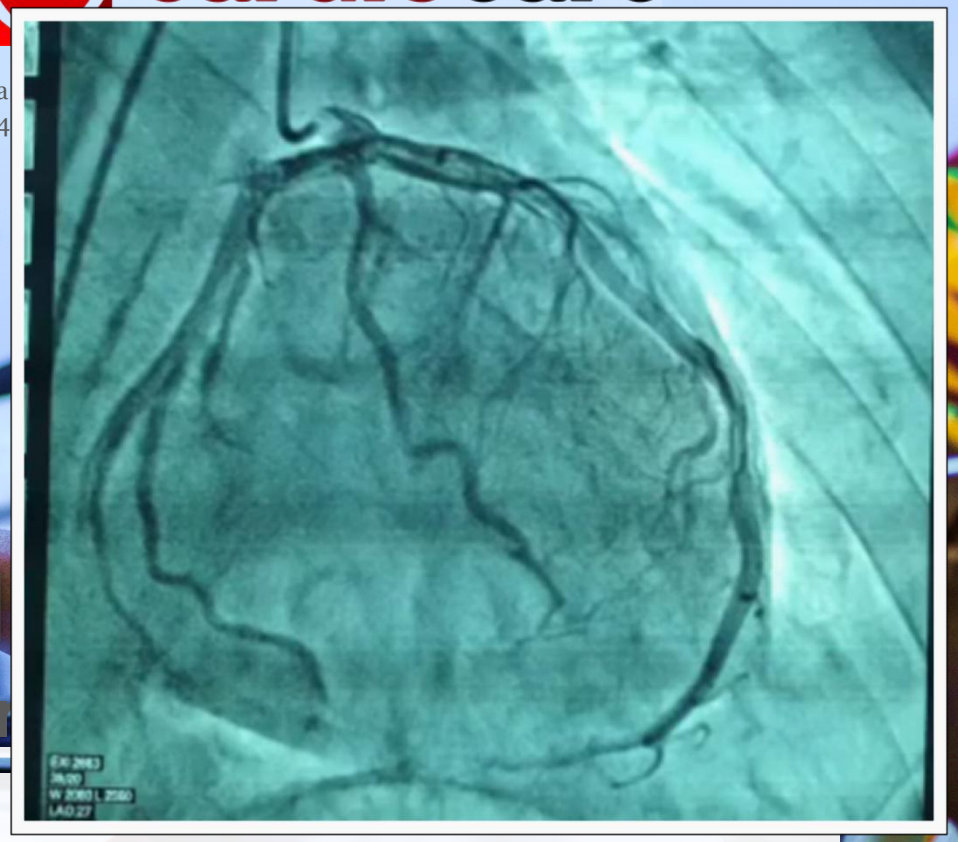

For Heart Attacks/Myocardial Infarction, Angina, Ischemic Heart Disease/Failure-

Stents, Balloon Angioplasty, & Chronic Total Occlusions (CTO) of Heart Vessels

DIAGNOSTIC CRITERIA

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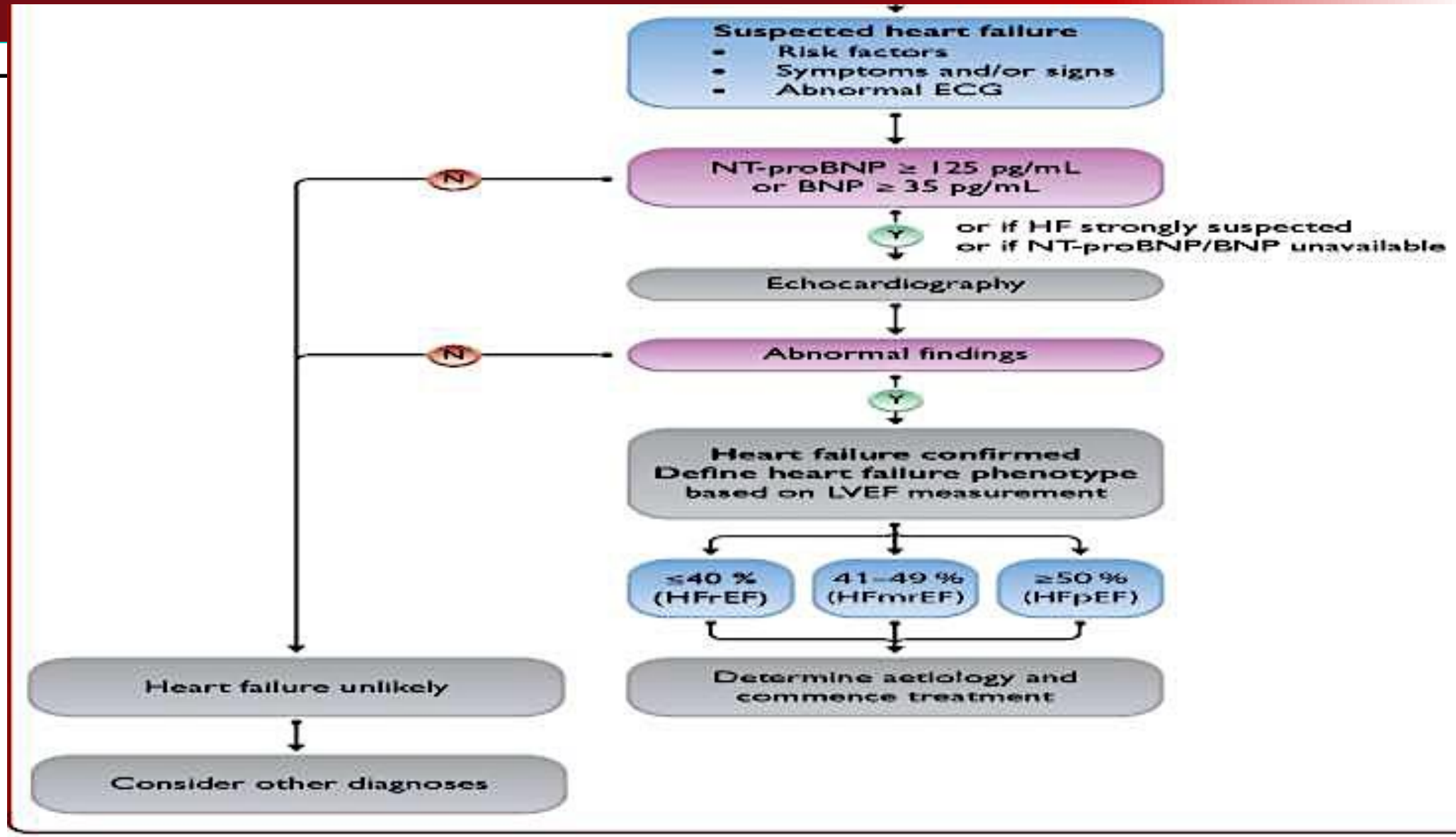
Table 6. Framingham Diagnostic Criteria for Heart Failure*

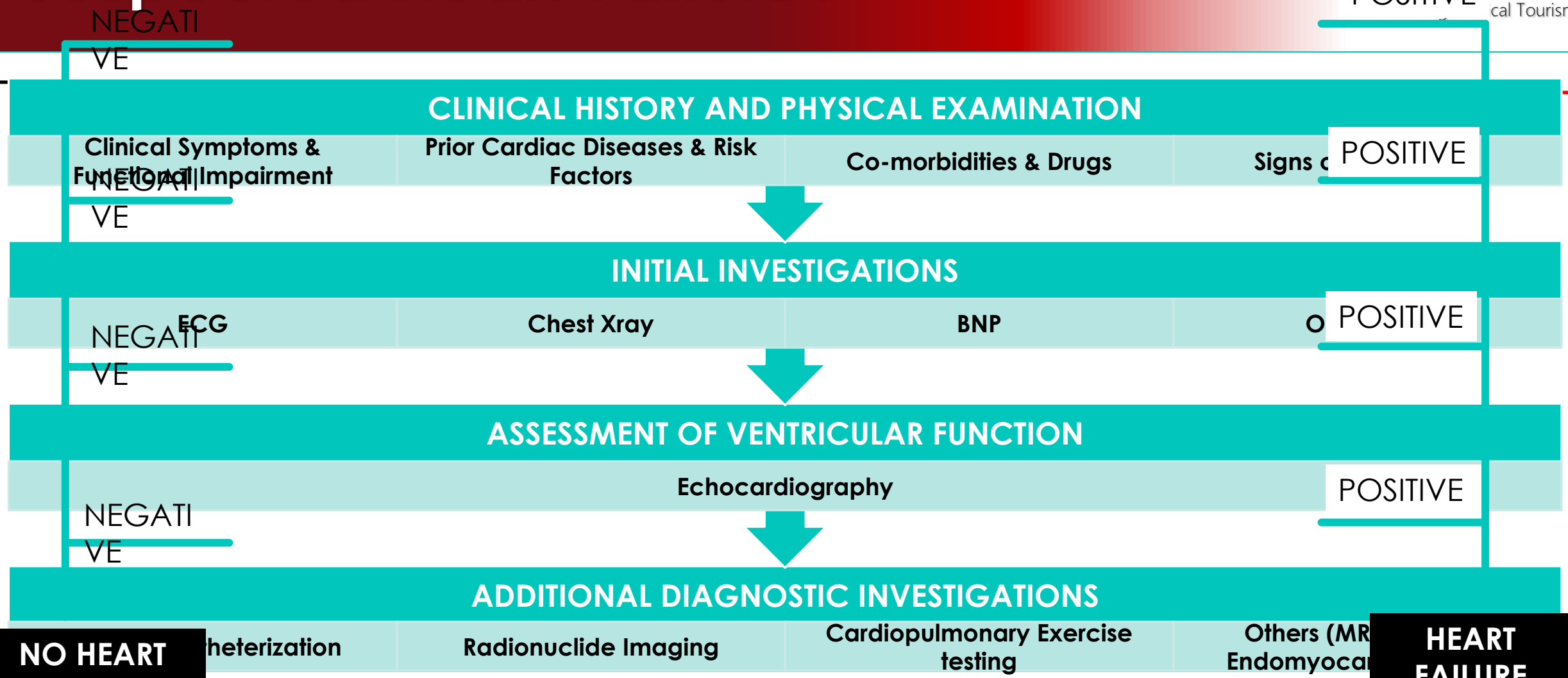
Major criteria	Minor criteria
Acute pulmonary edema	Ankle edema
Cardiomegaly	Dyspnea on exertion
Hepatojugular reflex	Hepatomegaly
Neck vein distension	Nocturnal cough
Paroxysmal nocturnal dyspnea or orthopnea	Pleural effusion
Rales	Tachycardia (> 120 beats per minute)
Third heart sound gallop	

—Heart failure is diagnosed when two major criteria or one major and two minor criteria are met.

Diagnostic algorithm for heart failure



Suspected Heart Failure?



Our Experience- Coronary

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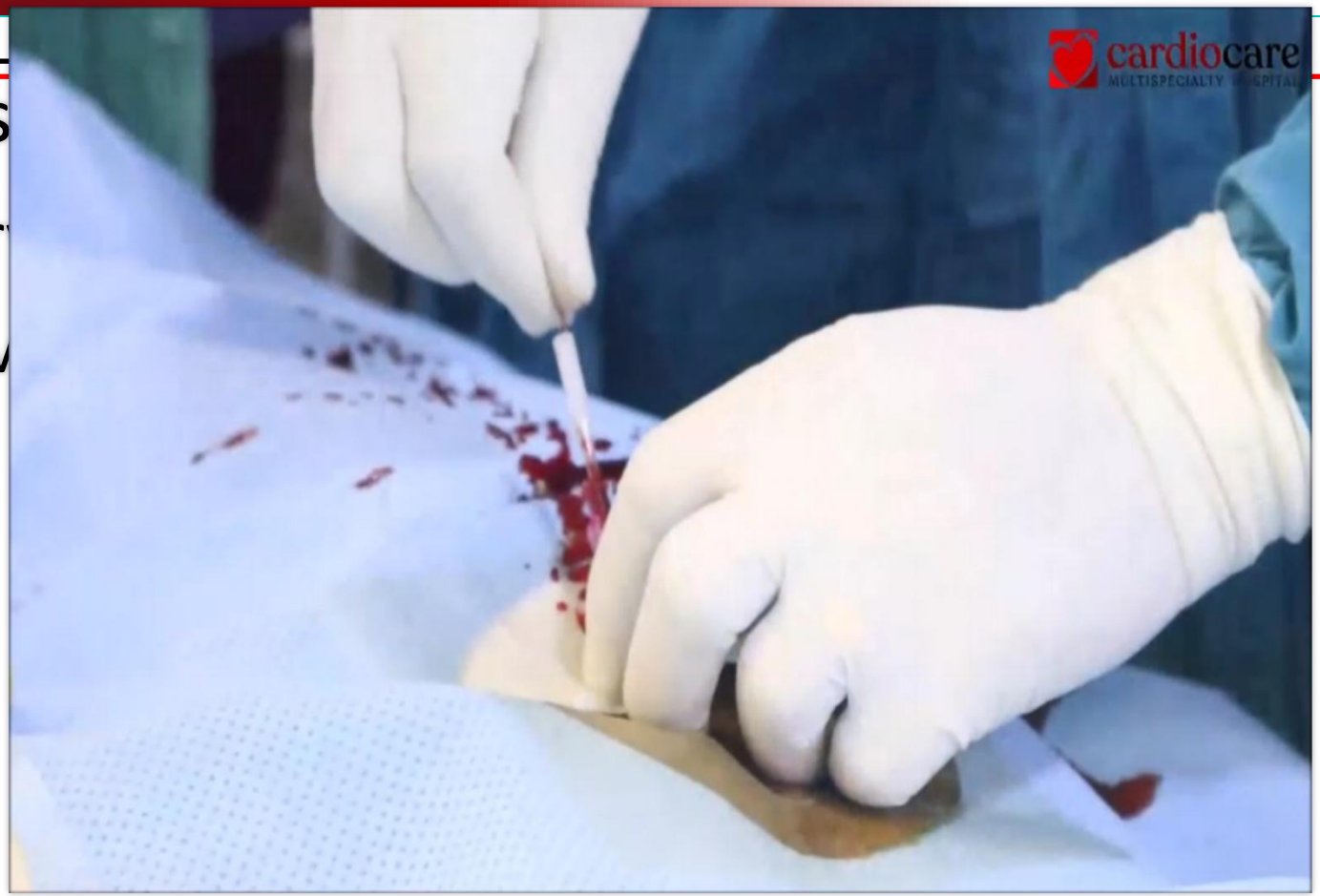
- The predominant procedures
  - 233 (51.3%) diagnostic coronar
  - 90 (19.8%) percutaneous interv



What Must a Heart Failure Diagnosis contain?

Diagnosis

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- Heart Failure is predominantly a **clinical** diagnosis.
- A complete heart failure diagnosis **MUST** have **five (5) components**
  1. Heart Failure Syndrome (with EF classification if known)
  2. Aetiology
  3. NYHA Class and ACC Stage
  4. Precipitant (if Acute presentation)
  5. Co-Morbidities (where present)
- "Heart Failure with Reduced Ejection Fraction (HFrEF) secondary to Hypertensive Heart Disease, NYHA class 4/ACC Stage 3, precipitated by New onset Atrial Flutter and Chest Infection. Co-morbid Gouty Arthritis"

Peripheral Angioplasty and Intervention

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For Peripheral Arterial Disease- to reduce tissue loss and gangrene especially lower limb

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Case Definition

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1. Heart Failure Syndrome
   - *Framingham Criteria*

2. +/- Laboratory
   - *BNP or NT-BNP*

3. +/- Echocardiography
   - *Ejection Fraction,*
   - *E/E'*

Case 1

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- **52yr old Newly appointed Minister**
- Noticed **palpitations at rest**, and **inability to complete his usual golf game**, and **poor sleep** but attributes it to stress of the new office.
- His brother died last week in his sleep.
- **Never been told to have hypertension or diabetes.** Had a **checkup abroad 8 months ago** and nothing significant found.
- On examination, looks well, **not breathless**, leg does not look swollen but mild dimple after pressing for 5-10secs after removing his tight shoes.
- **P- 102/min**, regular, **BP- 138/98mmhg**, JVP and HS- not checked

Poll 1: What do you think?

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A. Lifestyle Modifications needed and review again in 2 weeks

B. He has HYPERTENSION- needs antihypertensives

C. He has ANXIETY from NEW POST and BROTHER's DEMISE- give some anxiolytics and review again later after the burial

D. All of the above

E. I don't know jare, I need to evaluate further

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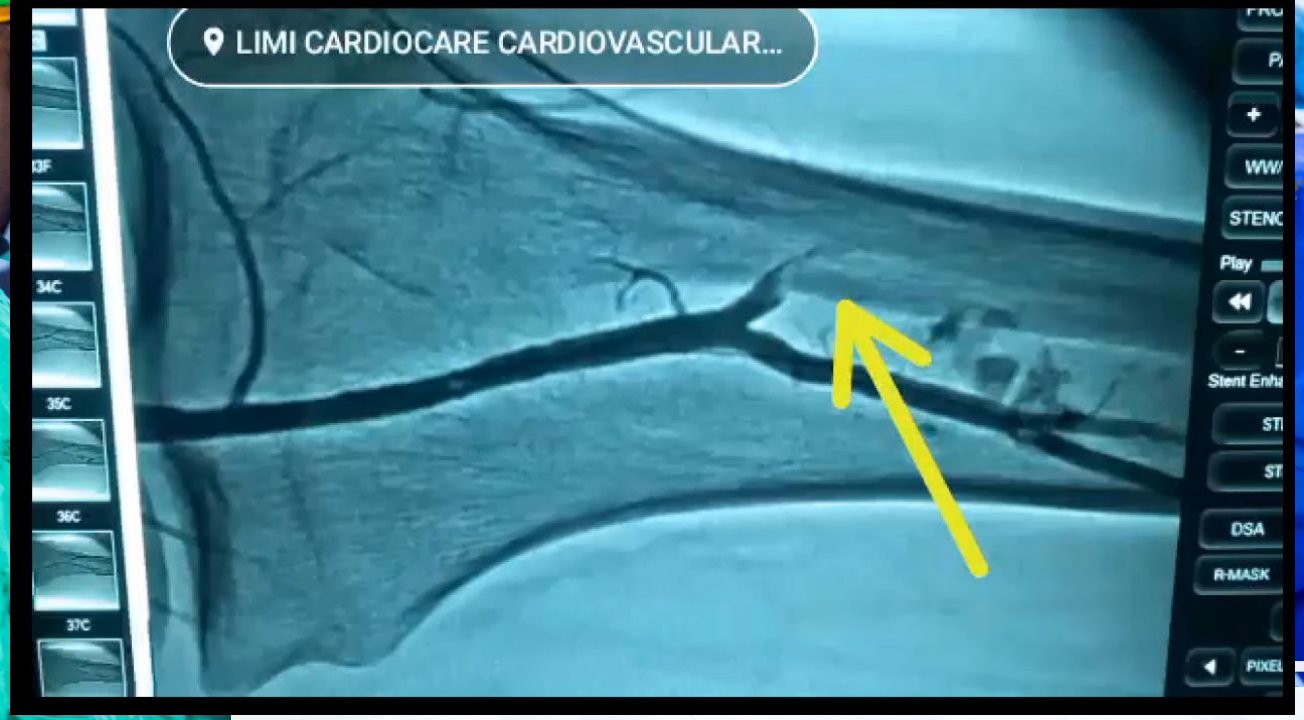

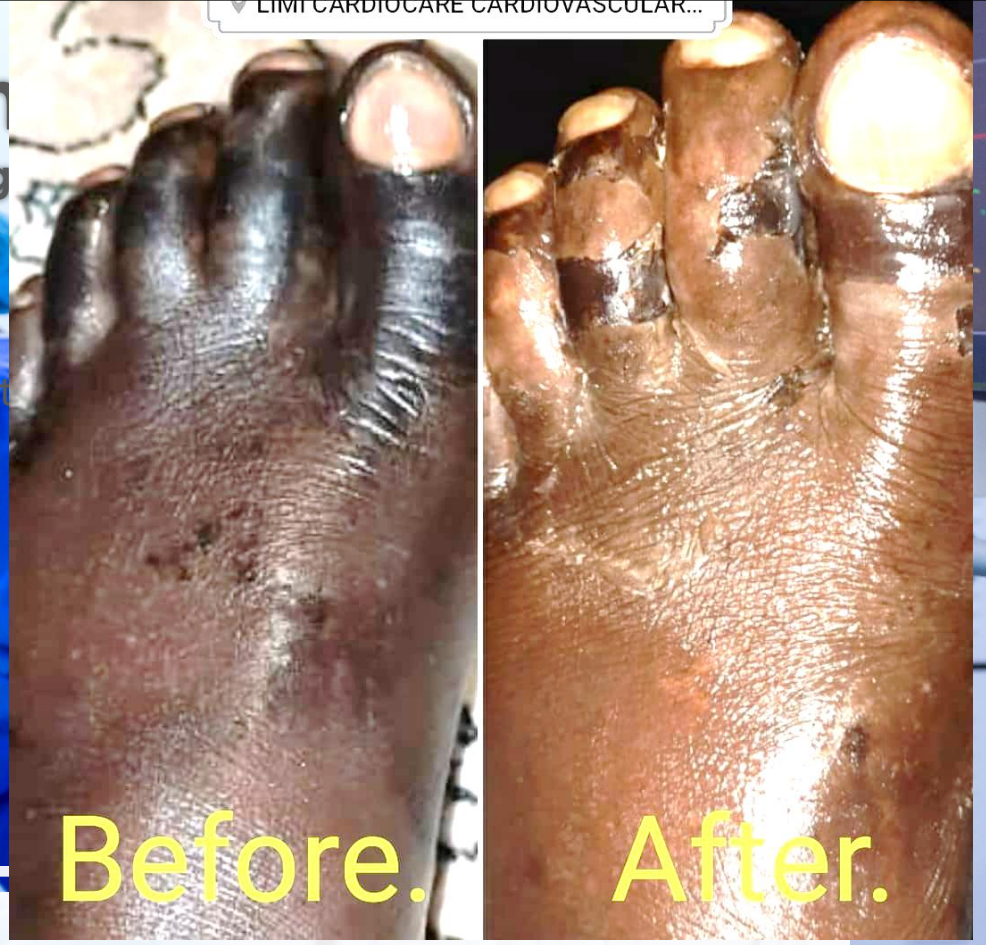

Poll 2: Is it Possible that he has Heart Failure?

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A. Yes

B. No

C. I dont know

Let's Discuss this case…

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CASE 2

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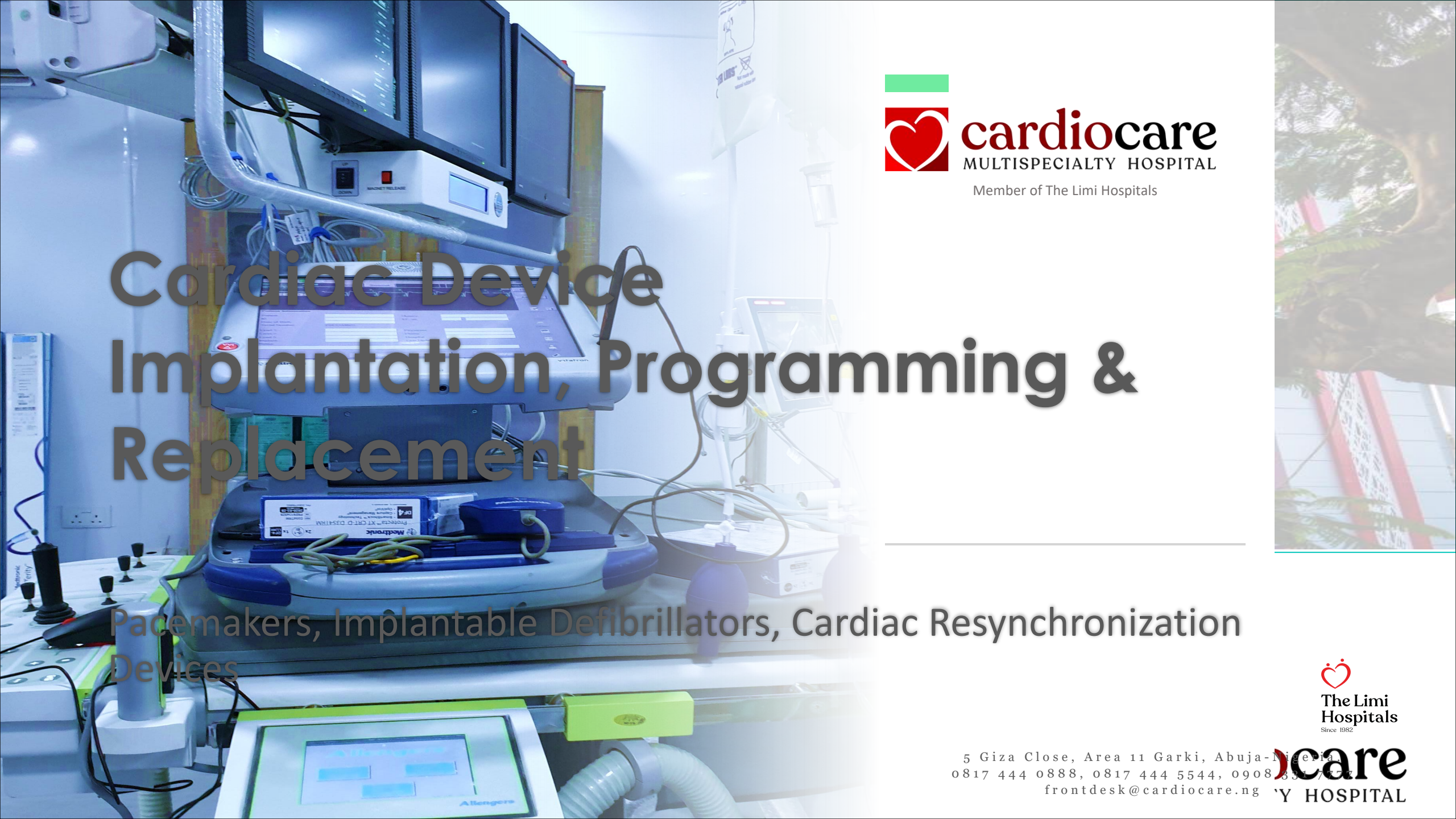
- Mr U.C is a 75-year-old man who presents to the emergency department with worsening shortness of breath, fatigue, and swelling in her legs over the past few days
- He has a history of hypertension, diabetes and previous stroke .
  On examination
  - Blood pressure: 140/96 mmHg,Heart rate: 110 bpm
  - Respiratory rate: 24 breaths/min, Oxygen saturation: 88% on room air
  Jugular venous distension
  - Lung exam: Fine crepiations
  - Cardiac exam: S3 gallop, murmur of mitral regurgitation
  - Extremities: Bilateral pitting edema in both legs up to the mid leg



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POLL 1

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A. He should be reassured and review in 2 weeks

B. His problems are only HYPERTENSION and Diabetes and should be given medications

C. He should be admitted,investigated and treatment to be commenced immediately-

D. What he need is rest,he will be fine

E. All of the above

Poll 2: Is it Possible that he has Heart Failure?

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A. Yes

B. No

C. Not sure

POLL 3;

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A Echocardiography is necessary in this patient

B Brain natriuretic peptide (BNP) is not necessary in this patient

C No need to investigate him

D Only A is correct

E- None of the above

Our Experience- Cardiac Devices

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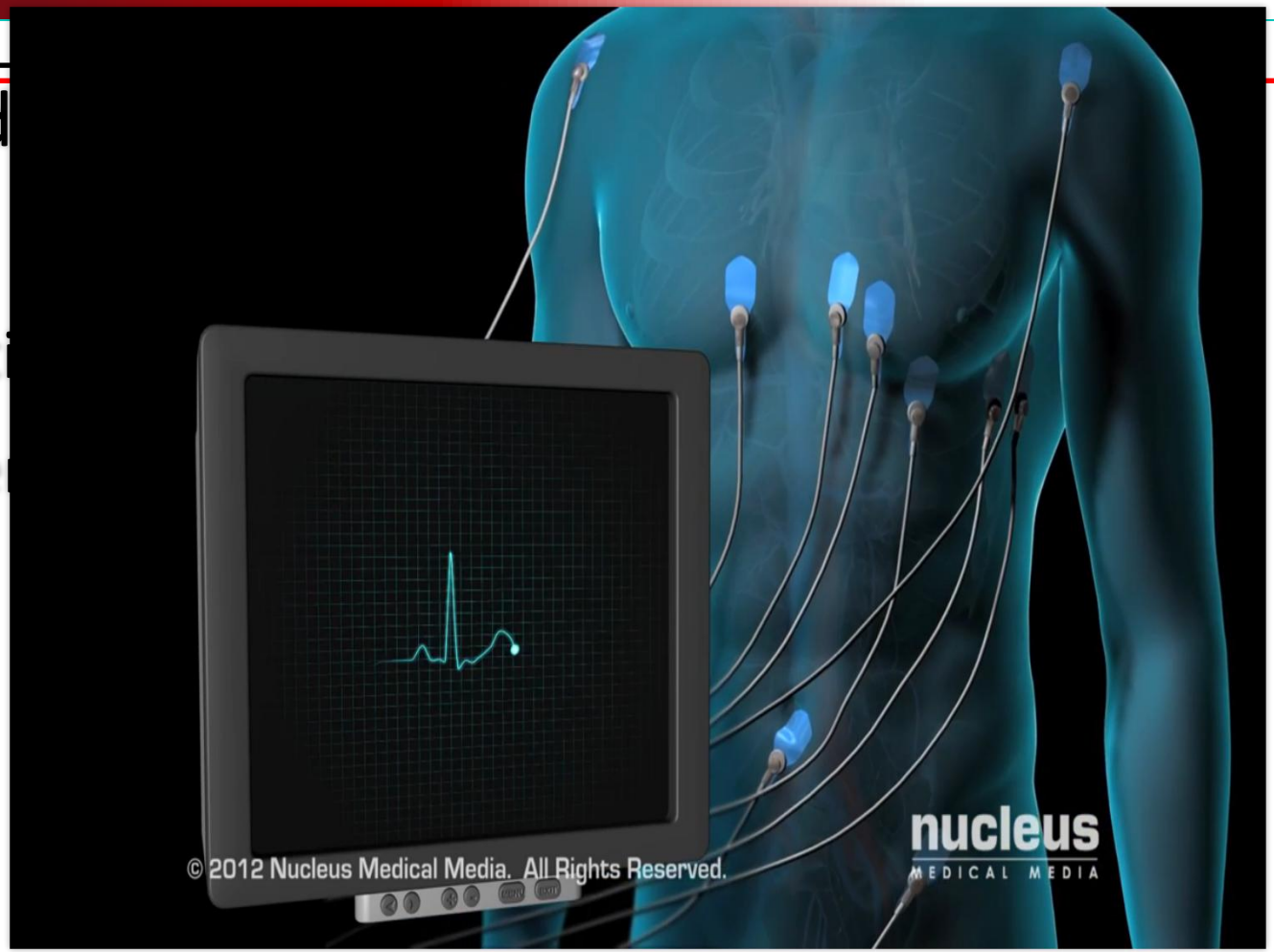
- 43 (9.5%) permanent cardiac d
  - 20 (4.4%) Pacemakers,
  - 14 (3.1%) Cardiac resynchronizati
  - 9 (2.0%) implantable cardioverte



Let's Discuss this case…

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How do we Treat Heart Failure?

1. Counsel Patient and Family continuously

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- Disease nature
- Adherence to therapy and Follow up
- Follow up
- Specialist review
- Support Groups
- Diet and Lifestyle
- Need for Procedures

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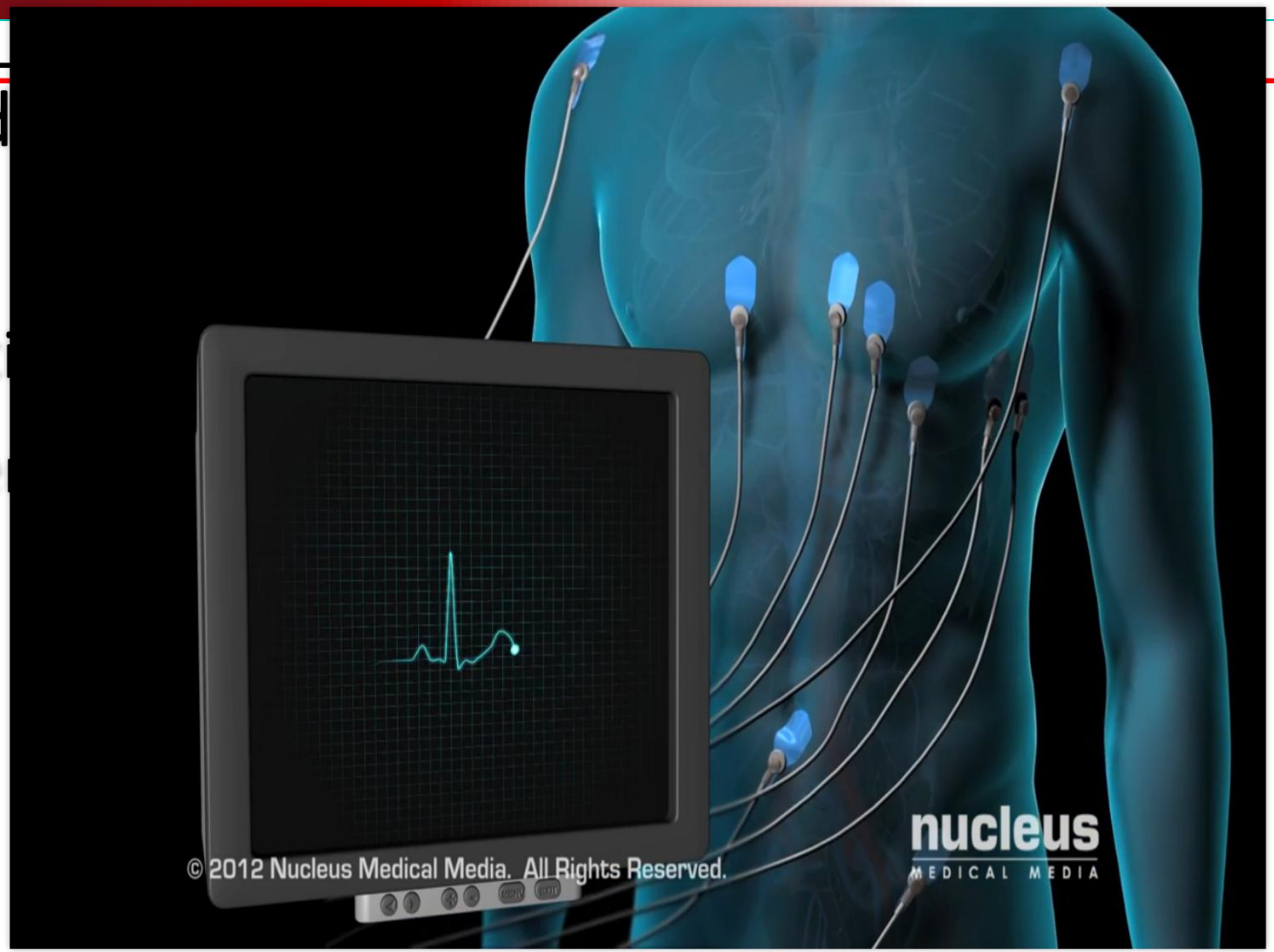

Patient and Relative Education

- Teach patients **rationale for medications** (doses, times, adverse reactions)
- Teach patient to **limit fluid to 2 liters per day**
- Teach patient to follow **a low-sodium diet**
- Teach patient to **weigh daily** and to notify healthcare provider of an increase in weight of 1 kg or more
- Be aware of patient's **psychological needs** and how to **cope with illness and medications**
- **Teach patient alarm signs, concurrent drug use**

2. Reduce Preload/ Afterload

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- Use Diuretics cautiously to achieve:
  - 0.5-1kg weight loss per day initially, then
  - Later to maintain symptom-free
- Frusemide 40mg bd, (or IV 20-40mg 8hrly on admission)
- Torsemide 10mg bd (or IV 10-20mg 8hrly on admission)
- Metolazone 1.25-2.5mg od (if refractory edema and good bp and normal sodium)

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3. Treat Neurohormonal abnormalities (1)

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1. ARB (*Valsartan, Candersartan, Losartan*)

OR

ACEi (*Ramipril, Perindopril*)

OR

ARNI (Sacubutril-Vasartan)

- ARNI is Preferred but ensure 36-48hr washout if changing from ACEi, and 24hr for ARB
- Never combine these drugs

3. Treat Neurohormonal abnormalities (2)

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2. Mineralocorticoid Receptor Antagonist (MRA) -

Spironolactone or Eplerenone 25mg dly,

AND

3. Beta blockers-

Bisoprolol, Carvedilol or Metoprolol succinate

AND

4. SGLT2 inhibitors

e.g. Empaglifozin, Dapagliflozin

- OTHERS that may be considered:
  - Isosorbide-Hydrallazine

Cont...

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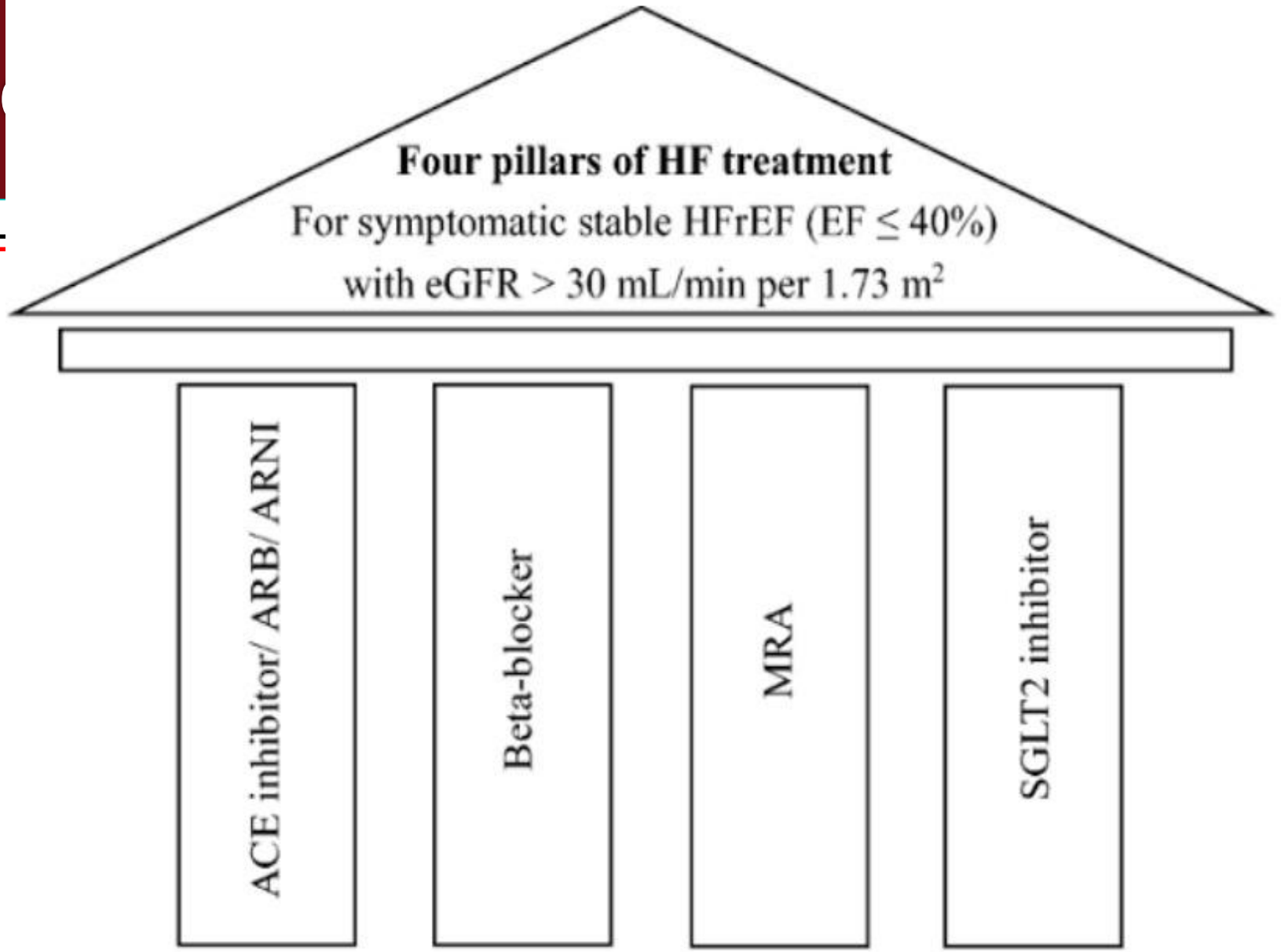

Pharmacotherapy

Indications for permanent pacing

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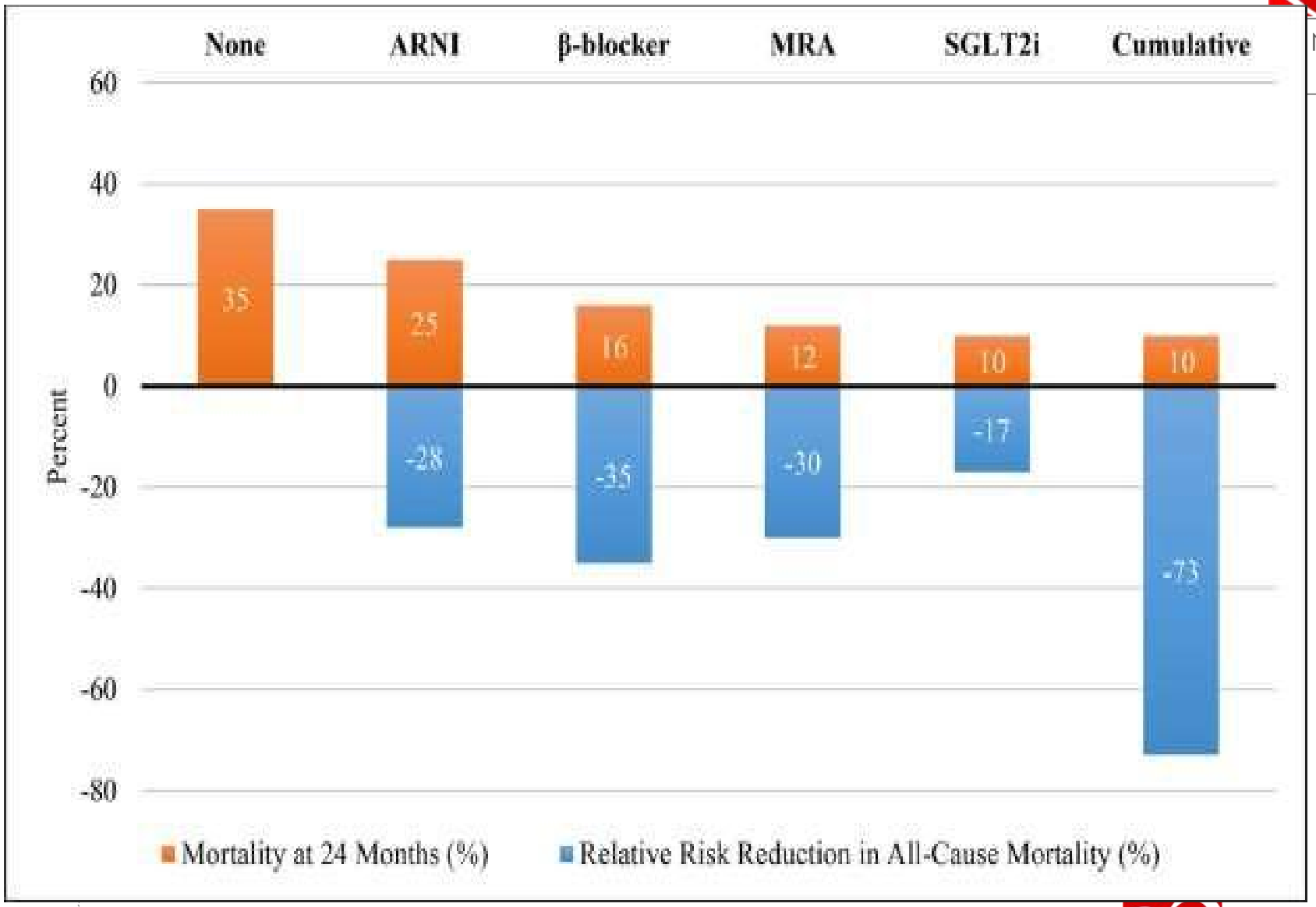
- In bradycardia caused by reversible etiologies, permanent pacing is not warranted.
- The **indication for pacing is based on the severity of bradycardia** rather than its etiology.
- Symptomatic sinus bradycardia as a result of medical therapy is an indication for permanent pacing if there are no alternative treatment options.
- Typically from:
  1. **Sinus Node Dysfunction**
  2. **AV Block**


None
ARNI
β-blocker
MRA
SGLT2i
Cumulative
60
40
20
0
-20
-40
-60
-80
Percent
35
25
16
12
10
10
-28
-35
-30
-17
-73
Mortality at 24 Months (%)
Relative Risk Reduction in All-Cause Mortality (%)

HF treatment contd

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Hydralazine and isosorbide dinitrate may be considered in patients with symptomatic HFrEF who cannot tolerate any of an ACE-I, an ARB, or ARNI (or they are contraindicated) to reduce the risk of death.[143]	IIb	B
Digoxin		
Digoxin may be considered in patients with symptomatic HFrEF in sinus rhythm despite treatment with an ACE-I (or ARNI), a beta-blocker and an MRA, to reduce the risk of hospitalization (both all-cause and HF hospitalizations).[144]	IIb	B

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Classes of recommendations

	Definition	Wording to use
Class I	Evidence and/or general agreement that a given treatment or procedure is beneficial, useful, effective.	Is recommended or is indicated
Class II	Conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of the given treatment or procedure.	
Class IIa	Weight of evidence/opinion is in favour of usefulness/efficacy.	Should be considered
Class IIb	Usefulness/efficacy is less well established by evidence/opinion.	May be considered
Class III	Evidence or general agreement that the given treatment or procedure is not useful/effective, and in some cases may be harmful.	Is not recommended

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4. Treat Aetiology

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- Hypertension- use same drugs for heart failure as much as possible
- Ischemic Heart Disease- beta blockers, PCI
- Valvular Heart Disease- surgery
- etc

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5. Find and Treat Precipitant (especially if Acute presentation)

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- Arrhythmias
- Infection
- Fluid Overload
- Electrolyte derangements
- Uncontrolled Hypertension
- etc

6. Optimize other cardiovascular risk factors

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- Blood pressure
- Blood Cholesterol
- Blood Sugar
- Uric Acid
- Proteinuria
- etc

7. Diet & Lifestyle Modification

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- Low Salt
- Water Moderation
- Weight Optimization
- Smoking Cessation
- Alcohol Cessation

Our Experience- Cardiac Devices

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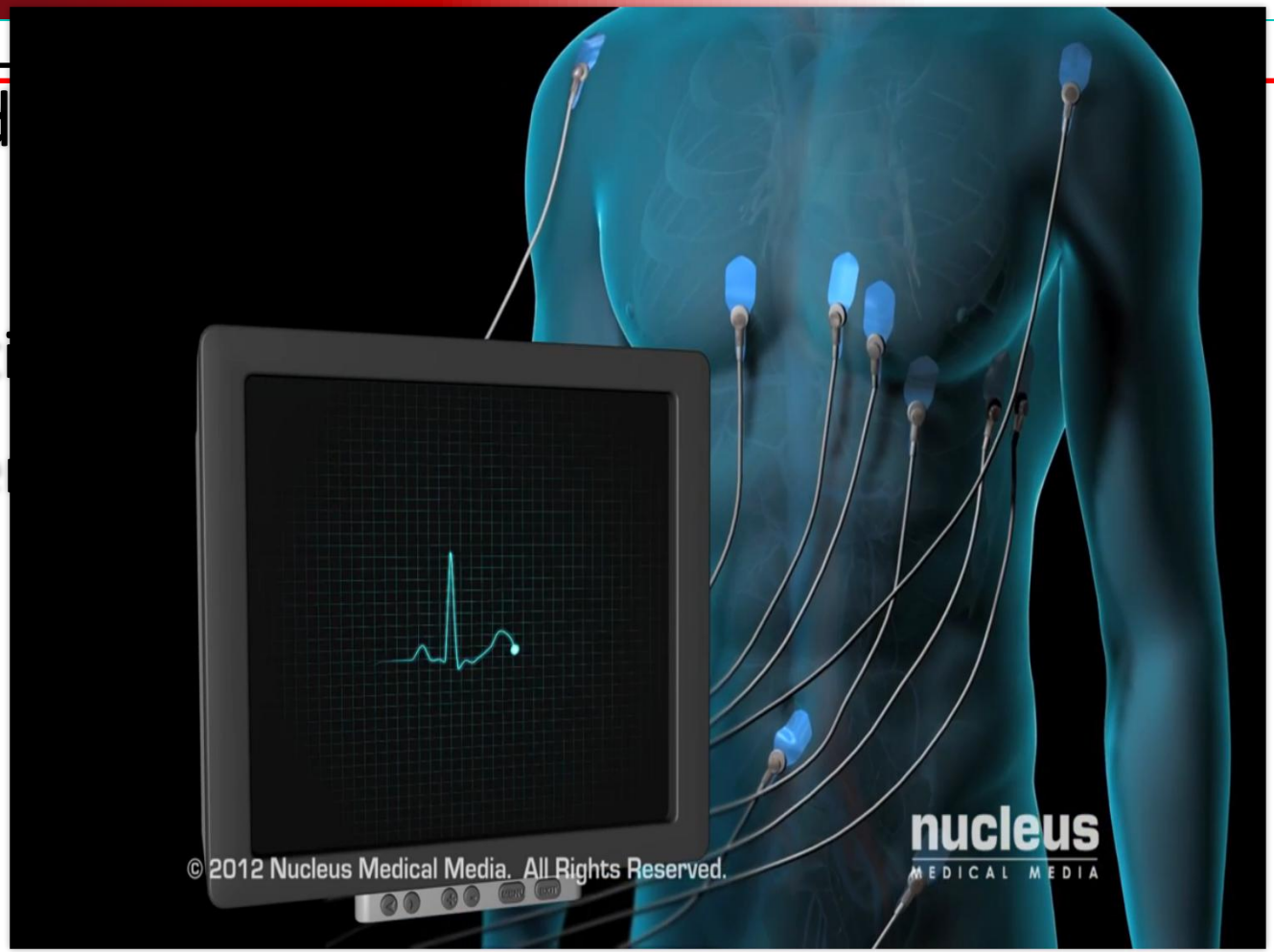

8. Treat Co-Morbidities (where present)

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- COPD
- CKD,
- etc

9. Assess for the Need for Device Therapy

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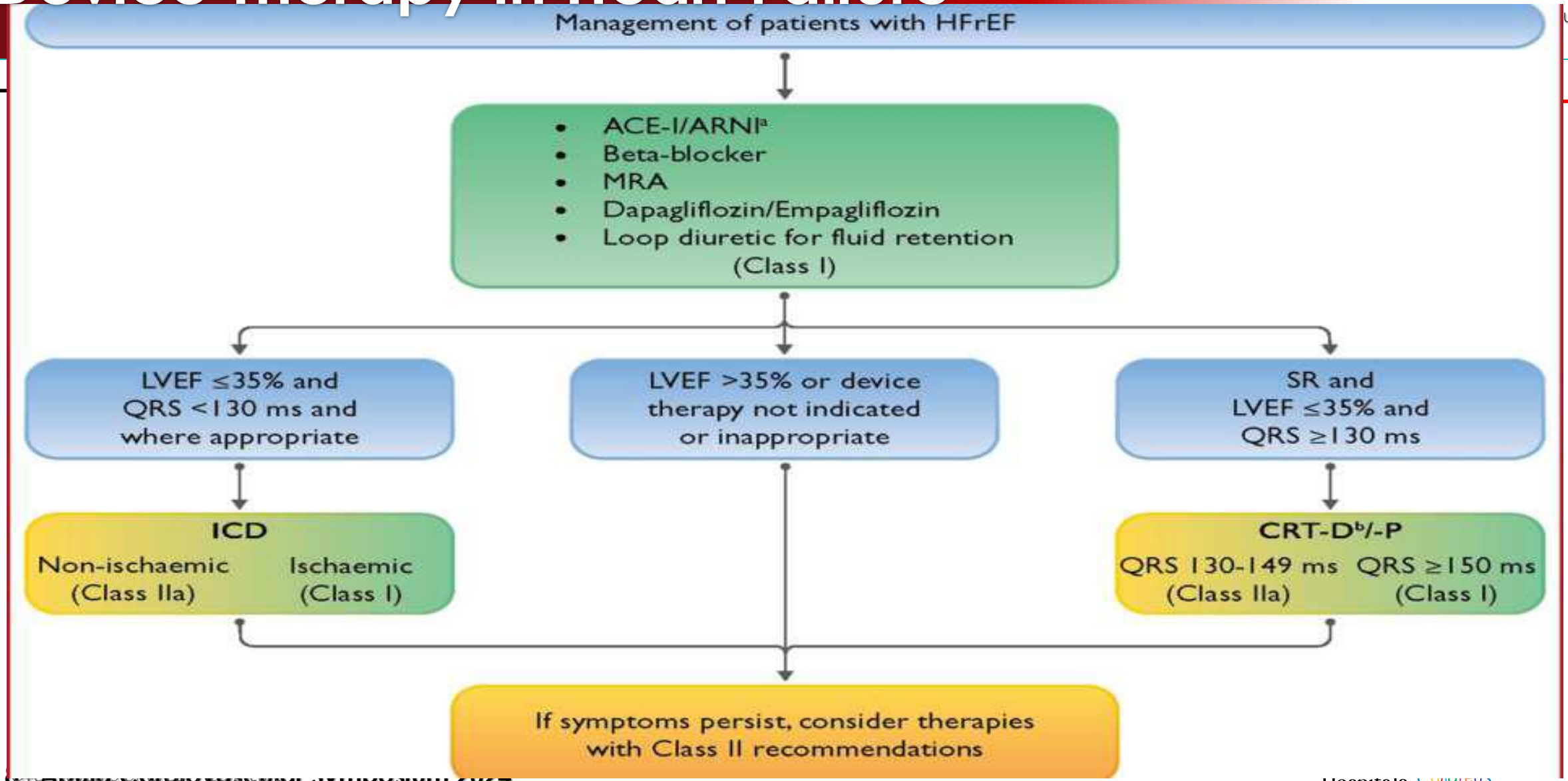
- If despite good treatment as above for 6 weeks:

- **ALL Guests with EF <35-40%**
  a. + Normal QRS Duration- Implantable Cardioverter Defibrillator (ICD)
  b. + Wide QRS Duration >135ms or LBBB- CRT

- ALL Guests that survive Cardiac Arrest or have high Ventricular Tachycardia burden (NSVT and VT on Holter)

Device Therapy in Heart Failure



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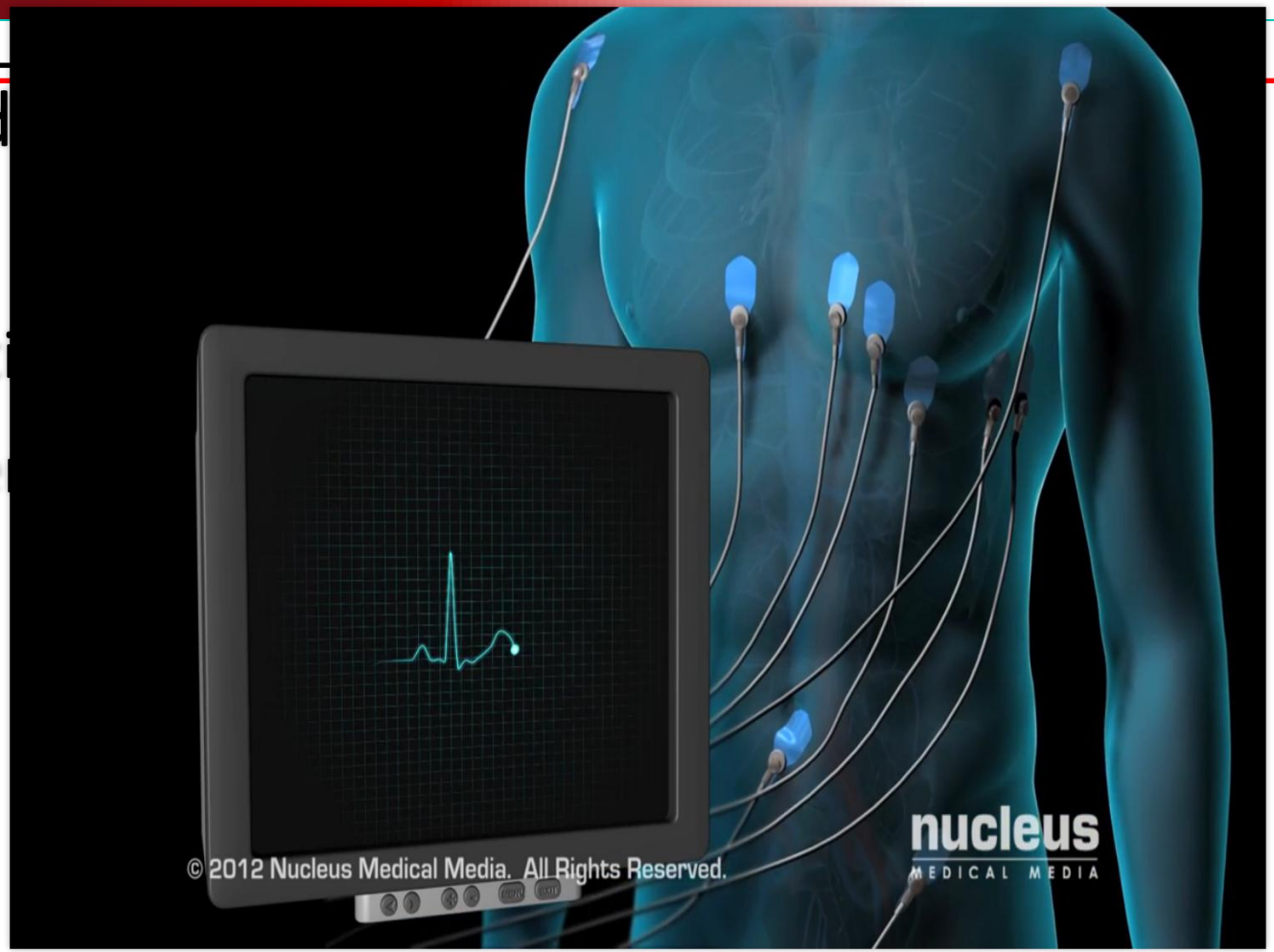
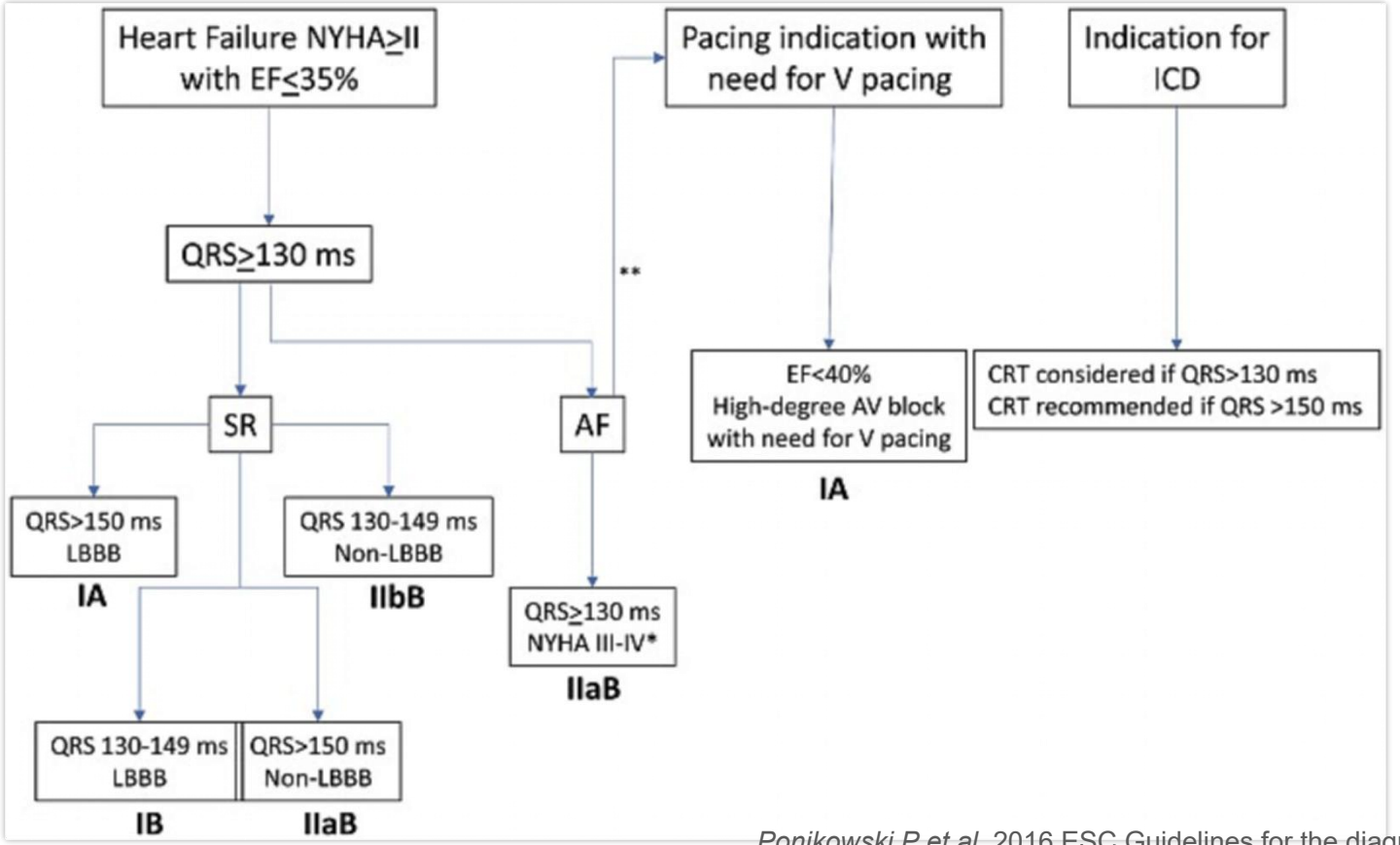


Flowchart showing most important (not all) recommendations for CRT based on the current European Society of Cardiology (ESC) heart failure guidelines



Ponikowski P et al. 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure

Cardiac Devices-Summary by NYHA/QRS

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	NYHA Class			
QRS Interval	**I**	**II**	**III**	**IV**
< 120 ms	ICD if there is a high risk of sudden death			ICD and CRT not clinically indicated
120–149 ms without LBBB	ICD	ICD	ICD	CRT-P
120–149 ms with LBBB	ICD	CRT-D	CRT-P or CRT-D	CRT-P
> 150 ms with or without LBBB	CRT-D	CRT-D	CRT-P or CRT-D	CRT-P

Table 1 National Institute of Health and Care Excellent Guidance on treatment options with ICD or CRT for people who have heart failure with left ventricular dysfunction (EF <35%) according to NYHA class and QRS duration[17]

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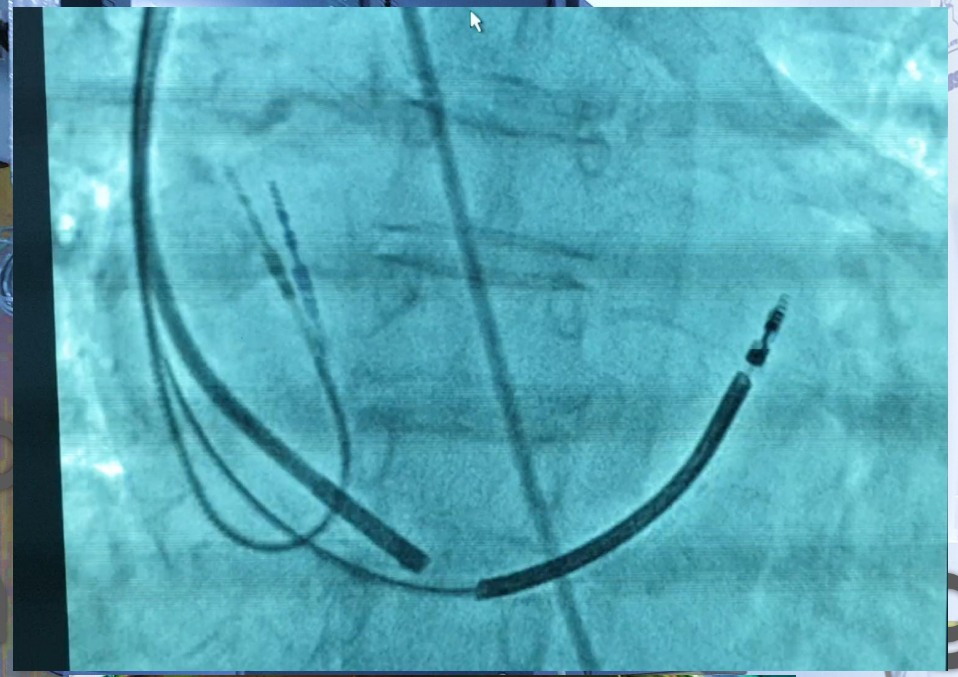

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10. Monitor for clinical progress, complications, quality of life

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- Minnesota QOL index
- 6 minute Walk Test
- Patient's subjective view of Health and Life
- Clinical Parameters:
  - NYHA
  - BP
  - PR
  - JVP
  - Etc

11. Psychosocial sup

- Heart Failure Support Groups
- Clinical Psychologist
- Heart Failure Nurse

12. Multidisciplinary Management

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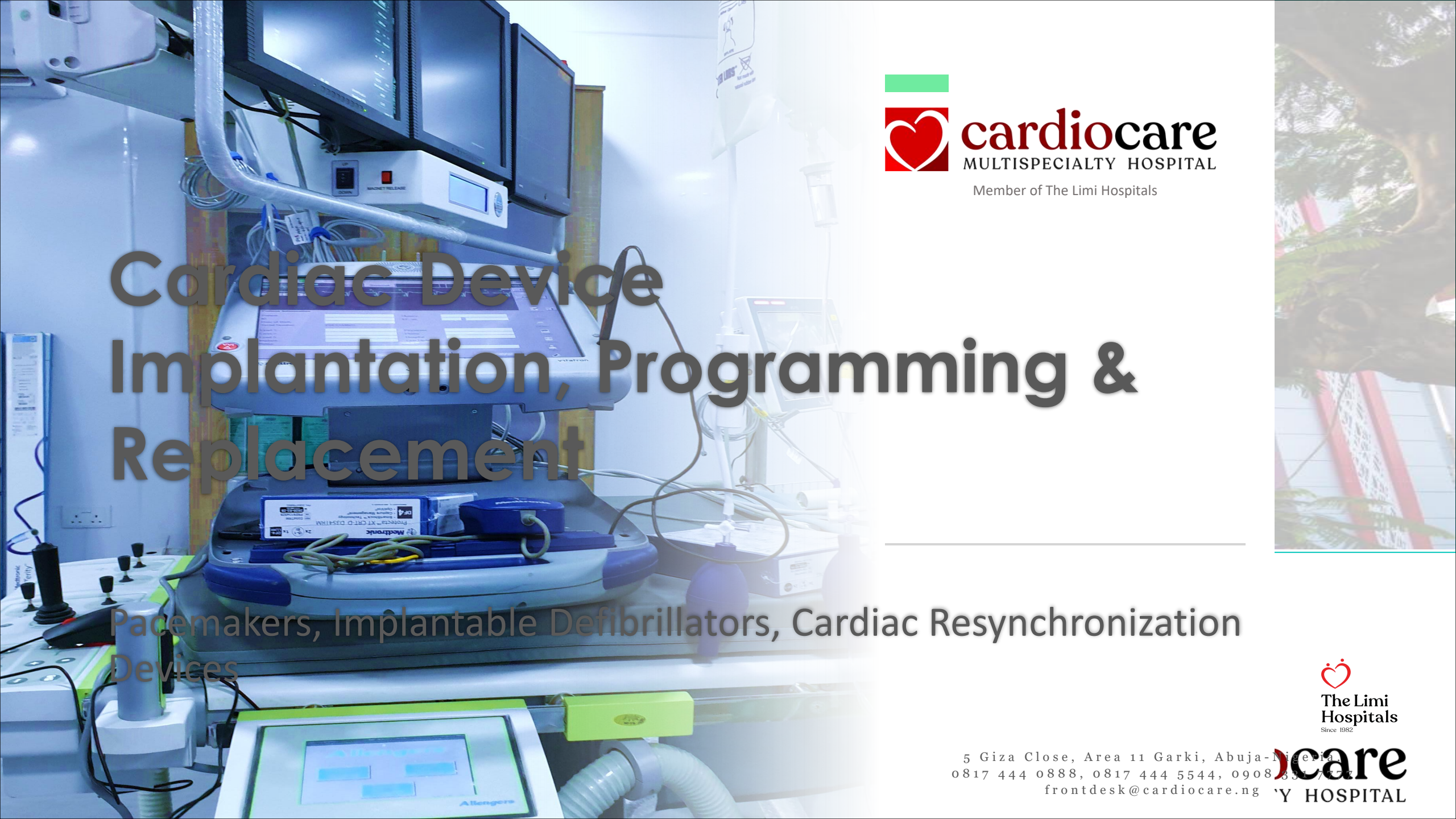
- Heart Failure Nurse
- Psychologist/Counsellor
- Social Worker
- Primary Care Physician
- Cardiologist- Clinical and Interventional
- Cardiac Surgeon
- Cardiac Device Technologist
- Pharmacist
- Dietitian
- Health Information Management Officer



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Multidisciplinary Management

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1. Heart Failure Nurse
2. Psychologist/Counsellor
3. Social Worker
4. Primary Care Physician
5. Cardiologist- Clinical and Interventional
6. Cardiac Surgeon
7. Cardiac Device Technologist
8. Pharmacist
9. Dietitian
10. Health Information Management Officer

When is Admission Needed?

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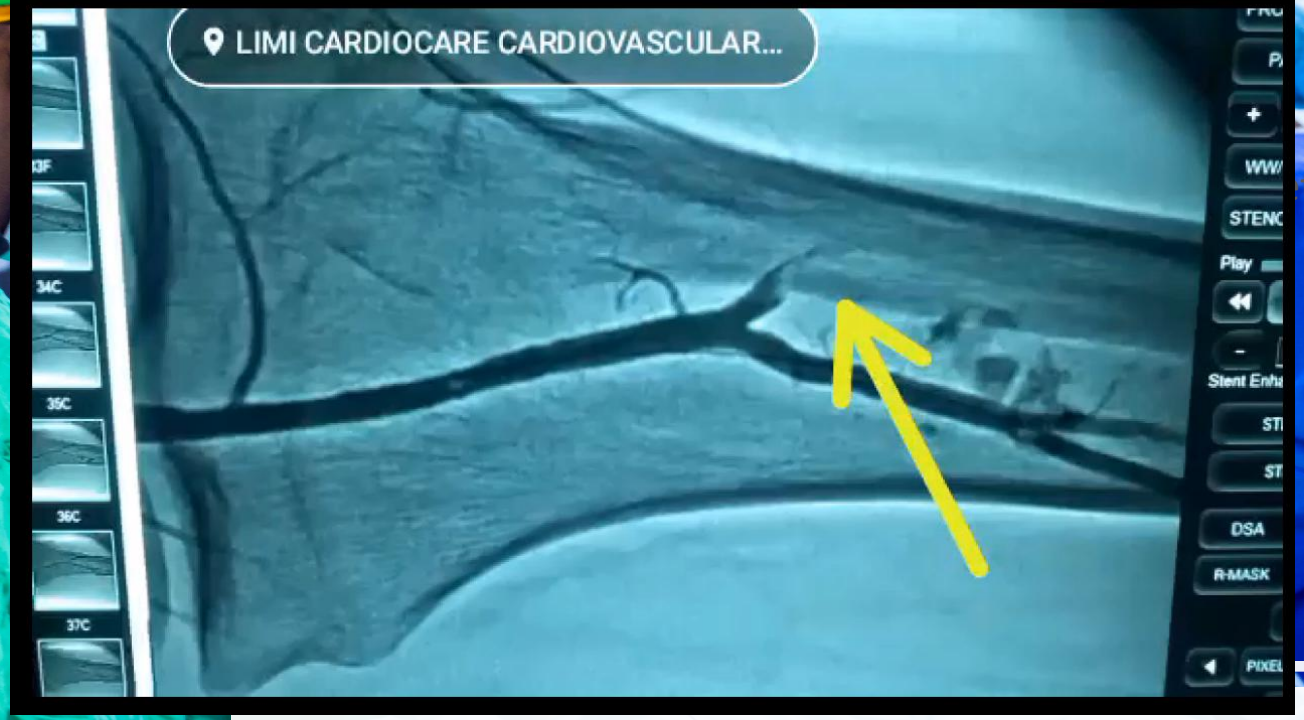

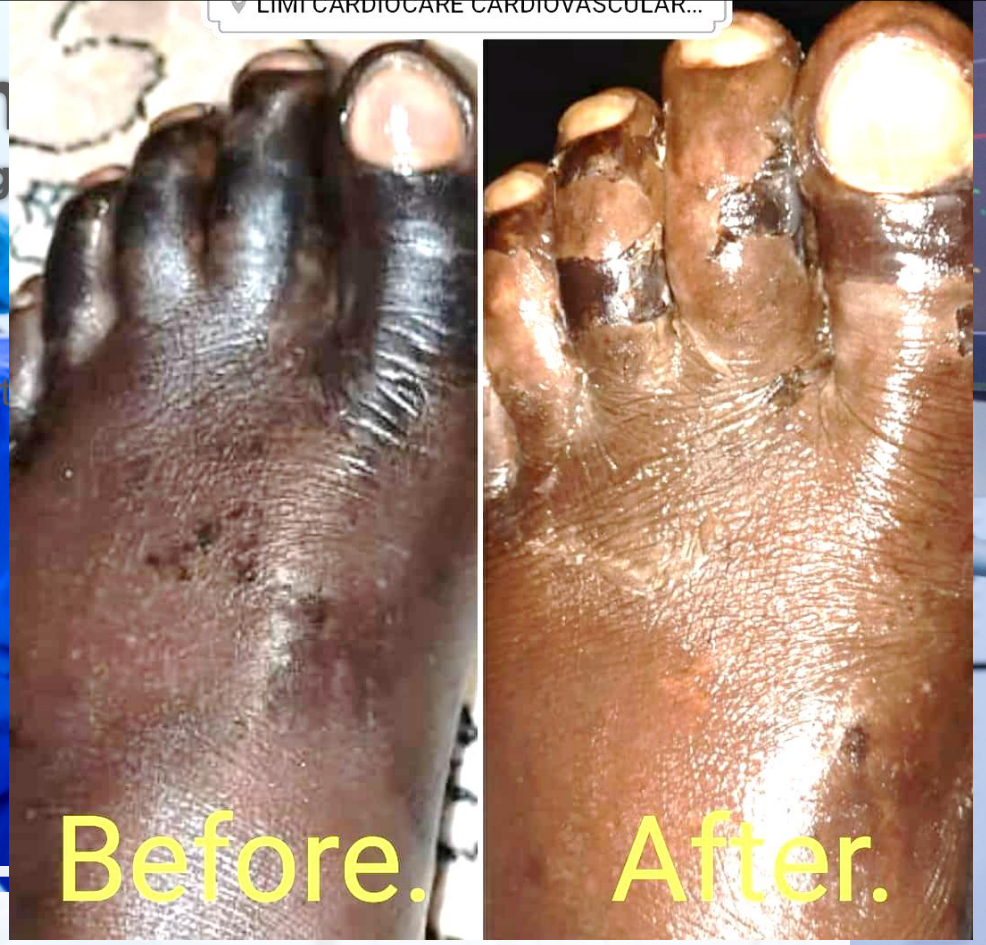

Acute Heart **Failure**

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- ✓AHF refers to **rapid or gradual onset of symptoms and/or signs of HF, severe enough** for the patient to seek **urgent medical attention,** leading to an **unplanned hospital admission or an emergency department visit.**
- ✓**Four major clinical presentations-**

1. Acute decompensated heart failure
2. Acute pulmonary edema
3. Isolated right ventricular failure
4. Cardiogenic shock

CASE 3

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- Mr. U.C has heart failure with reduced ejection fraction (HFrEF), with symptoms consistent with New York Heart Association (NYHA) class IV heart failure.
- Electrocardiogram (ECG): Sinus tachycardia, left ventricular hypertrophy
- Chest X-ray: Cardiomegaly, pulmonary congestion
- Echocardiogram: Left ventricular ejection fraction (LVEF) 20%, mitral regurgitation
  - Laboratory tests: Brain natriuretic peptide (BNP) 2500 pg/mL,

POLL 1;What do you think?

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A. He should be nurse in cardiac position

B Oxygen therapy: 2 L/min via nasal cannula.

C Diuretics should be commenced e.g Frusemide

D. Angiotensin-converting enzyme (ACE) inhibitors OR ARB e.g Ramipril or Valsartan should be commenced

E. Aldosterone antagonists e.g Spironolactone should be commenced

F All the above are correct

G- Only C is Correct

Peripheral Angioplasty and Intervention

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For Peripheral Arterial Disease- to reduce tissue loss and gangrene especially lower limb

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Poll 2; what do you think?

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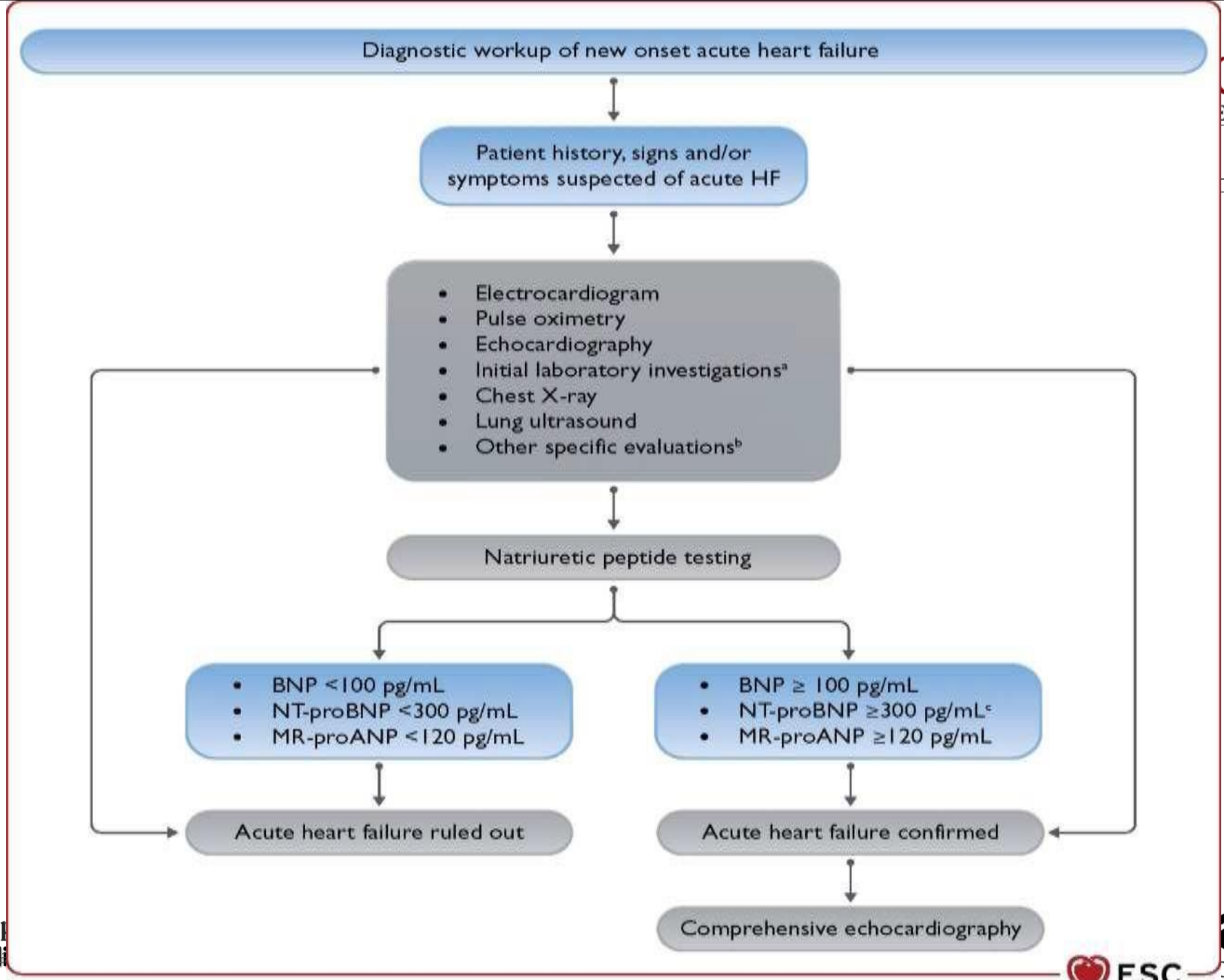
- A. Consider implantable cardioverter-defibrillator (ICD) or cardiac resynchronization therapy
- B Monitor vital signs and oxygen saturation.
- Educate patient and family on heart failure management, including lifestyle modifications and medication adherence
- D Only A is correct
- E A,B and C are correct
- F- Not sure

Let's discuss the case



Our Experience- Coronary

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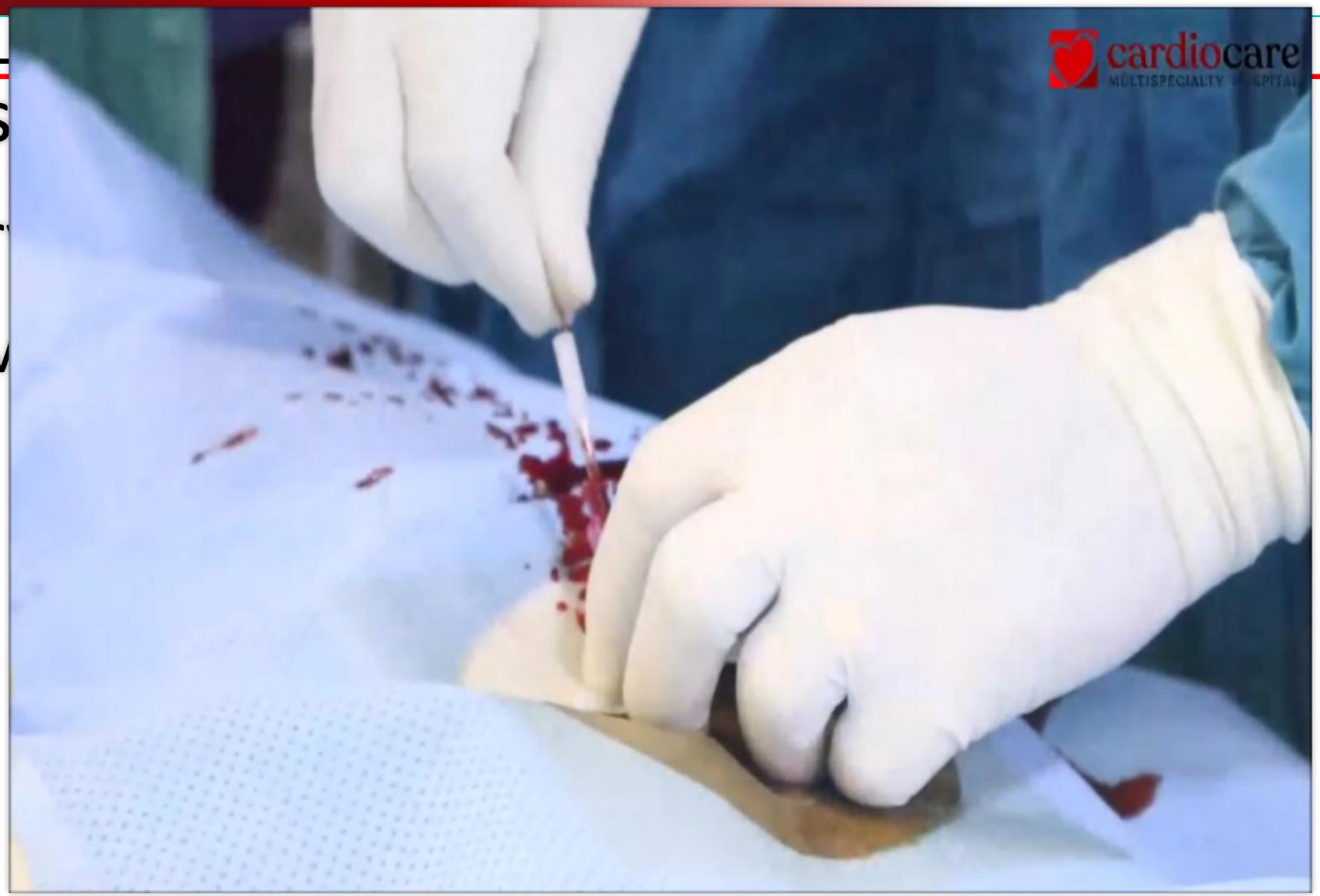
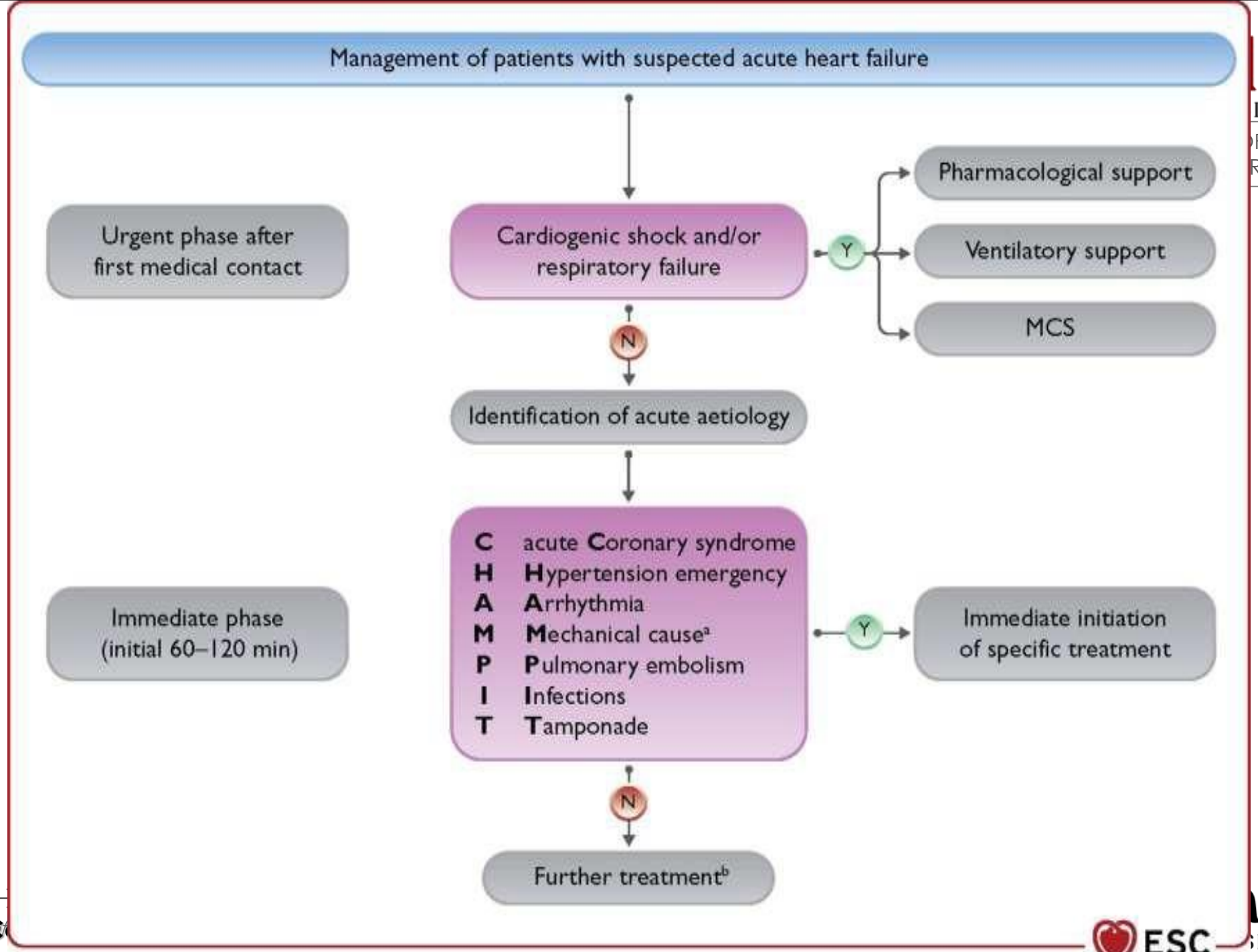
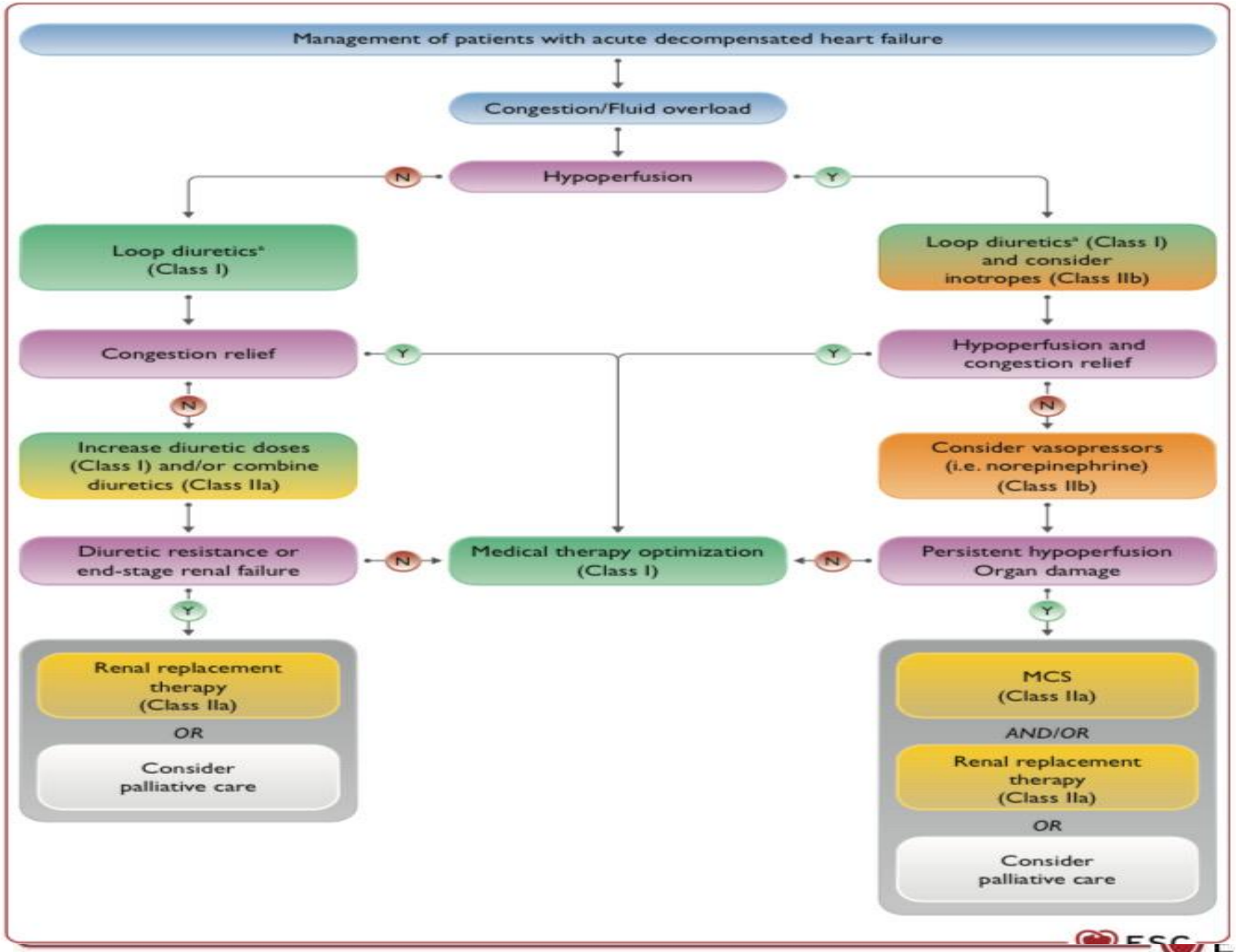
- The predominant procedures
  - 233 (51.3%) diagnostic coronar
  - 90 (19.8%) percutaneous interv






Management of patients with acute decompensated heart failure
Congestion/Fluid overload
Hypoperfusion
N
Y
Loop diuretics[a] (Class I)
Loop diuretics[a] (Class I) and consider inotropes (Class IIb)
Congestion relief
Y
Y
Hypoperfusion and congestion relief
N
N
Increase diuretic doses (Class I) and/or combine diuretics (Class IIa)
Consider vasopressors (i.e. norepinephrine) (Class IIb)
Diuretic resistance or end-stage renal failure
N
Medical therapy optimization (Class I)
N
Persistent hypoperfusion Organ damage
Y
Y
Renal replacement therapy (Class IIa)
OR
Consider palliative care
MCS (Class IIa)
AND/OR
Renal replacement therapy (Class IIa)
OR
Consider palliative care

Management of AHF

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- **Propped up position**
- **Oxygen &/ Mechanical ventilation:**(I)
  - Oxygen therapy is recommended in patients with AHF and SpO_2 <90% or PaO_2 <60 mmHg to correct hypoxaemia.
- **Diuretics** (I)
- **Vasodilators:** Intravenous vasodilators may be considered to relieve AHF symptoms when SBP is ≥110 mmHg **(IIb)**
- **Ionotropes:** They should be reserved for patients with LV systolic dysfunction, low cardiac output and low SBP (e.g. <90 mmHg) resulting in poor vital organ perfusion. **(IIb)**

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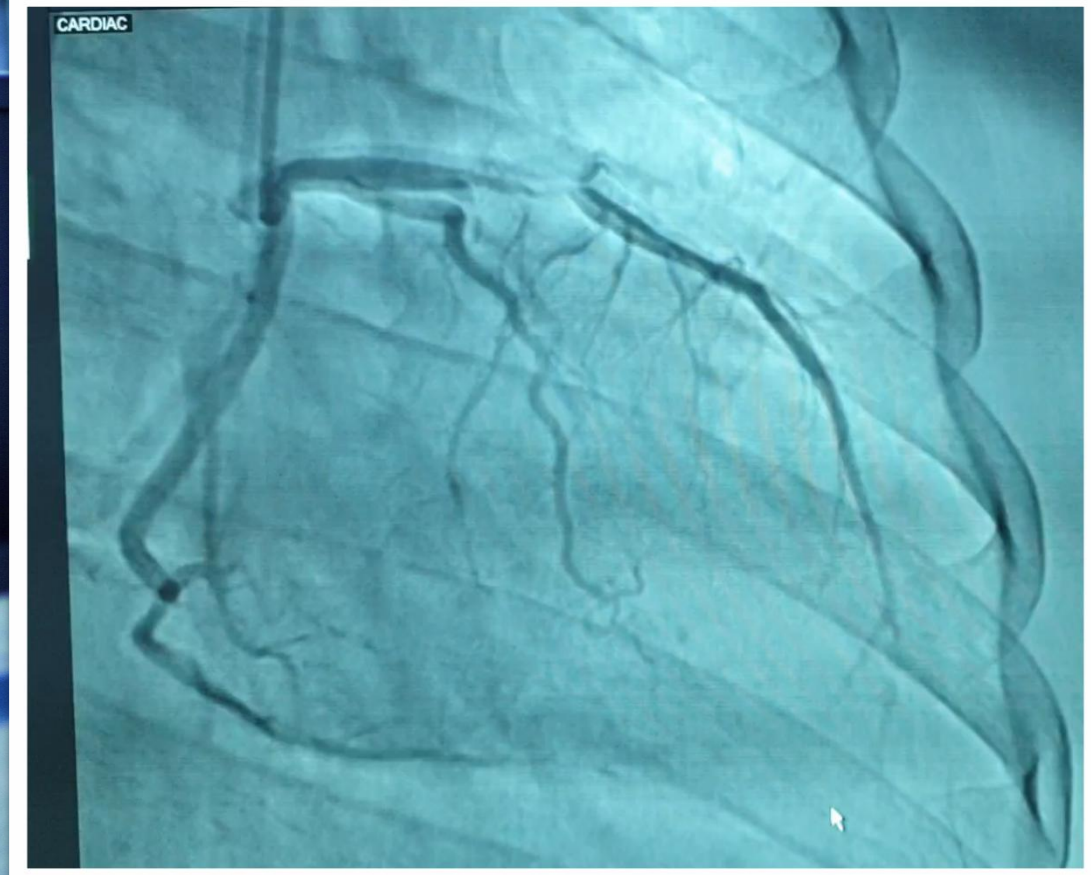
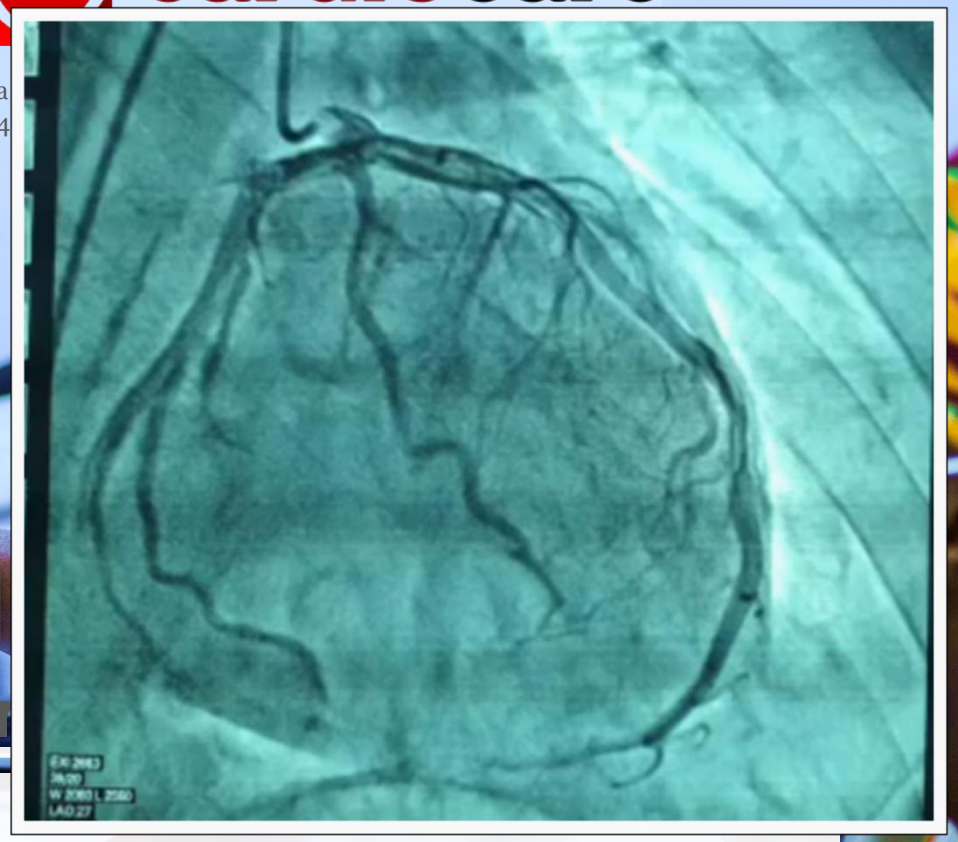
5 Giza
0817 44





For Heart Attacks/Myocardial Infarction, Angina, Ischemic Heart Disease/Failure-

Stents, Balloon Angioplasty, & Chronic Total Occlusions (CTO) of Heart Vessels

ACUTE HEART FAILURE CONTD

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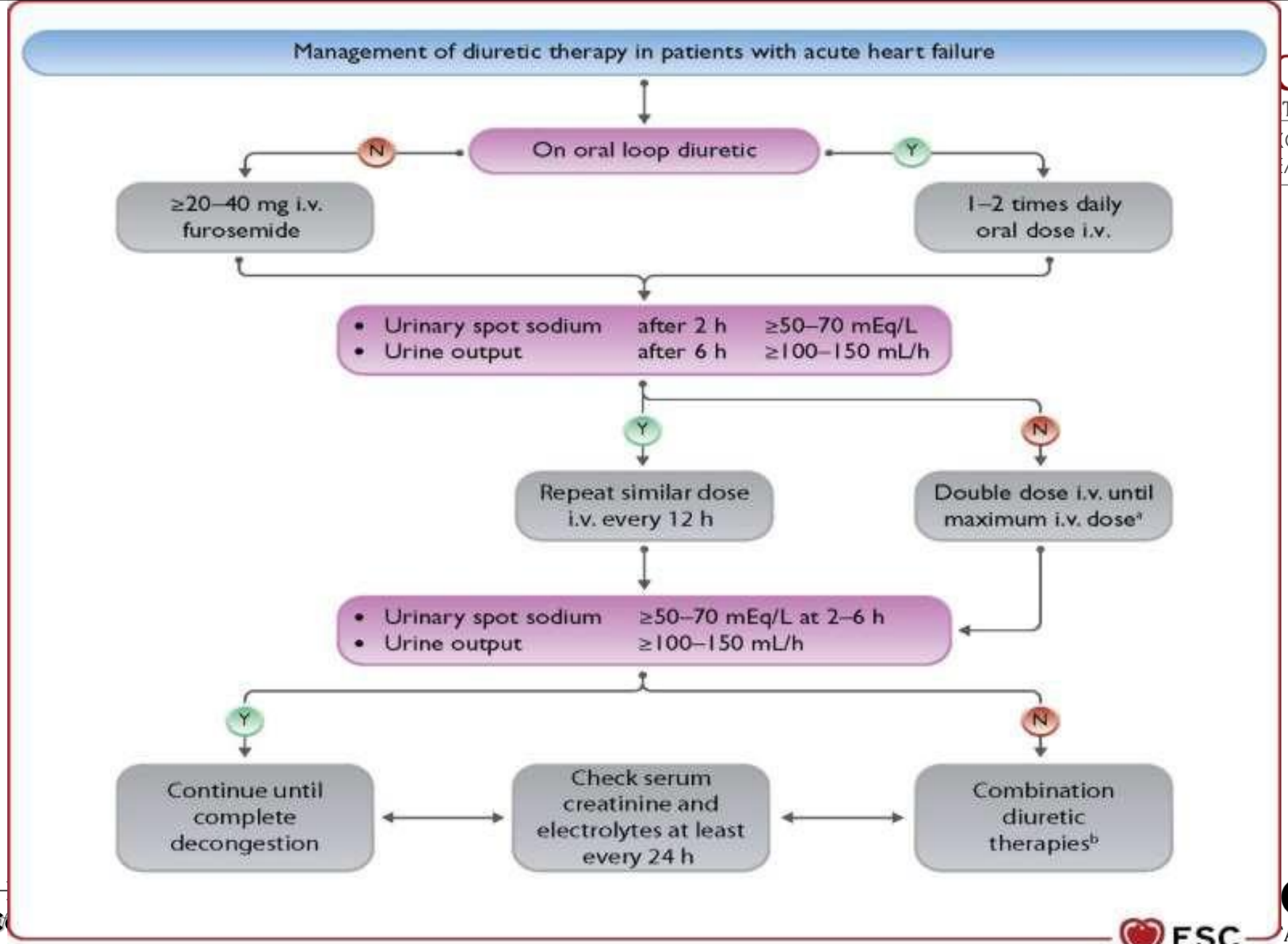
- **Vasopressors:**
  - Norepinephrine may be preferred in patients with severe hypotension. The aim is to increase perfusion to the vital organs.
  - Some studies, support the use of norepinephrine as first choice, compared with dopamine or epinephrine. **(I)**
- **Thromboembolism prophylaxis:**
  - **H**eparin (e.g. low-molecular-weight heparin) or another anticoagulant is recommended, unless contraindicated or unnecessary (because of existing treatment with oral anticoagulants). **(I)**


Management of diuretic therapy in patients with acute heart failure
On oral loop diuretic
N
Y
≥20–40 mg i.v. furosemide
1–2 times daily oral dose i.v.
• Urinary spot sodium after 2 h ≥50–70 mEq/L
• Urine output after 6 h ≥100–150 mL/h
Y
N
Repeat similar dose i.v. every 12 h
Double dose i.v. until maximum i.v. dose[a]
• Urinary spot sodium ≥50–70 mEq/L at 2–6 h
• Urine output ≥100–150 mL/h
Y
N
Continue until complete decongestion
Check serum creatinine and electrolytes at least every 24 h
Combination diuretic therapies[b]

How do we Follow Up Heart Failure Patients?

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5 Giza Close, Area 11 Garki, Abuja-Nigeria.
0817 444 0888, 0817 444 5544, 0908 331 7777
frontdesk@cardiocare.ng

Coronary Angiography

& Percutaneous Coronary Intervention

For Heart Attacks/Myocardial Infarction, Angina, Ischemic Heart Disease/Failure-
Stents, Balloon Angioplasty, & Chronic Total Occlusions (CTO) of Heart Vessels

FOLLOW UP (1)

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- Despite stellar outcomes with medical therapy admission rates following hospitalization remain high,
- Nearly half of all patients readmitted to hospital within 6 months of discharge.
- The key to achieving enhanced outcomes must begin with the attention to transitional care at the index hospitalization
  - facilitated discharge through comprehensive discharge planning,
  - patient and caregiver education
  - appropriate use of visiting nurses if necessary
  - planned follow up (telephone or clinic-based)

FOLLOW UP (2)

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- How often?
  1. Every 1-2 weeks for 3-6 months
  2. After stabilization: every 3-6 months for 1-2 years
  3. Advanced heart failure: every 1-3 months

FOLLOW UP (3)- Components

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1. Medical history and physical examination
2. Clinical Assessment of:
   - Symptoms (e.g., dyspnea, fatigue)
   - Functional status (e.g., NYHA class)
   - Quality of life
3. Review of medications and adherence
4. Electrocardiogram (ECG)
5. Blood tests (as needed):
   - B-type natriuretic peptide (BNP)
   - Electrolytes (e.g., potassium, magnesium)
   - Kidney function tests (e.g., eGFR)

Why Consider Cardiocare Multispecialty Hospital?

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MULTISPECIALTY HOSPITAL
Reversing Medical Tourism

1. Team of consultants & residents
2. **Detailed back-referral medical reports** when indicated/requested
3. Opportunity to **discuss & collaborate** with team on referred cases
4. **24/7 emergencies** and **same-day/next-day appointments**
5. Over **400 successful cathlab cases** for:
   - Pacemakers, CRTs, Coronary & Peripheral revascularization with stents, IVC filters, etc. while awake with no scars for vascular interventions.
6. **Ultramodern world-class equipment** & fully computerized Systems

What are the Cardiocare Multispecialty Hospital's services?

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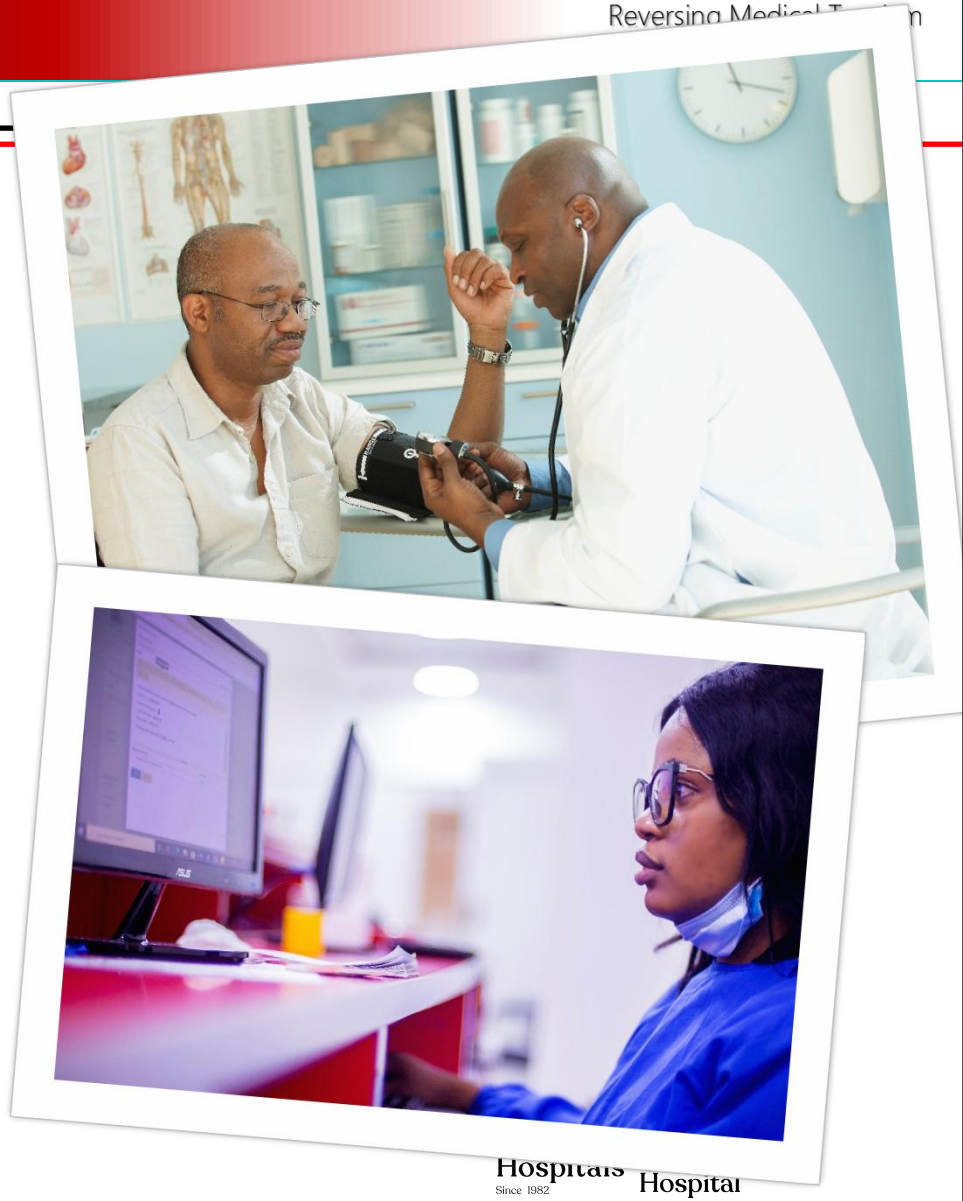
Reversing Medical Tourism

We provide **24/7 world-class healthcare solutions** for patients, hospitals, and their doctors in:

- ✓ **Interventional Cardiology (Cathlab)**
- ✓ **Endocrinology, Diabetology & Metabolic Medicine**
- ✓ **Cardiology**
- ✓ **Nephrology, Transplant & Dialysis**
- ✓ **Neurology**
- ✓ **Rheumatology**
- ✓ **Pulmonology**
- ✓ **Critical Care**
- ✓ **Cardiothoracic Surgery**
- ✓ **General Internal Medicine**
- ✓ **Comprehensive Medical Checkups**

How to refer patients to Consider Cardiocare Multispecialty Hospital?

1. Give a standard referral letter & preferably attach any available results
2. **Call:** 0908-331-7777, 0817 444 0888
3. **WhatsApp**: 0908-331-7777
4. **Email**: frontdesk@cardiocare.ng
5. **Visit**: 5, Giza Close Area 11, Garki (off Dunukofia Street-near FCDA) Abuja-FCT.
6. Kindly indicate Doctor's name, & email/phone number especially if you wish to receive a medical report afterwards.



Additional FollowUp considerations

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1. Remote monitoring (e.g., telemedicine, wearable devices)
2. Collaboration with multidisciplinary teams (e.g., cardiologists, primary care physicians, nurses)
3. Patient engagement and empowerment
4. Caregiver support and education
5. End-of-life discussions and hospice care (if necessary)
6. Management of comorbidities (e.g., diabetes, hypertension, COPD)
7. Vaccinations (e.g., influenza, pneumococcal)
8. Depression and anxiety screening
9. Sleep apnea screening
10. Nutritional counseling

Advanced heart failure follow-up

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1. More frequent visits (every 1-3 weeks)
2. Closer monitoring of:
   - Weight
   - Blood pressure
   - Electrolyte levels
   - Kidney function
3. Consideration of:
   - Device therapy (e.g., ICD, CRT)
   - Surgical options (e.g., heart transplantation, VADs)

CONCLUSION

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Reversing Medical Tourism

- Heart Failure is a major health challenge
- Hypertensive heart disease is the leading cause
- Accurate diagnosis through history, physical examination, ECG, TTE and biomarkers
- GDMT and Device therapy when needed is key in the management
- Follow up, patient education and support can improve outcomes of patients with heart failure

REFERENCES

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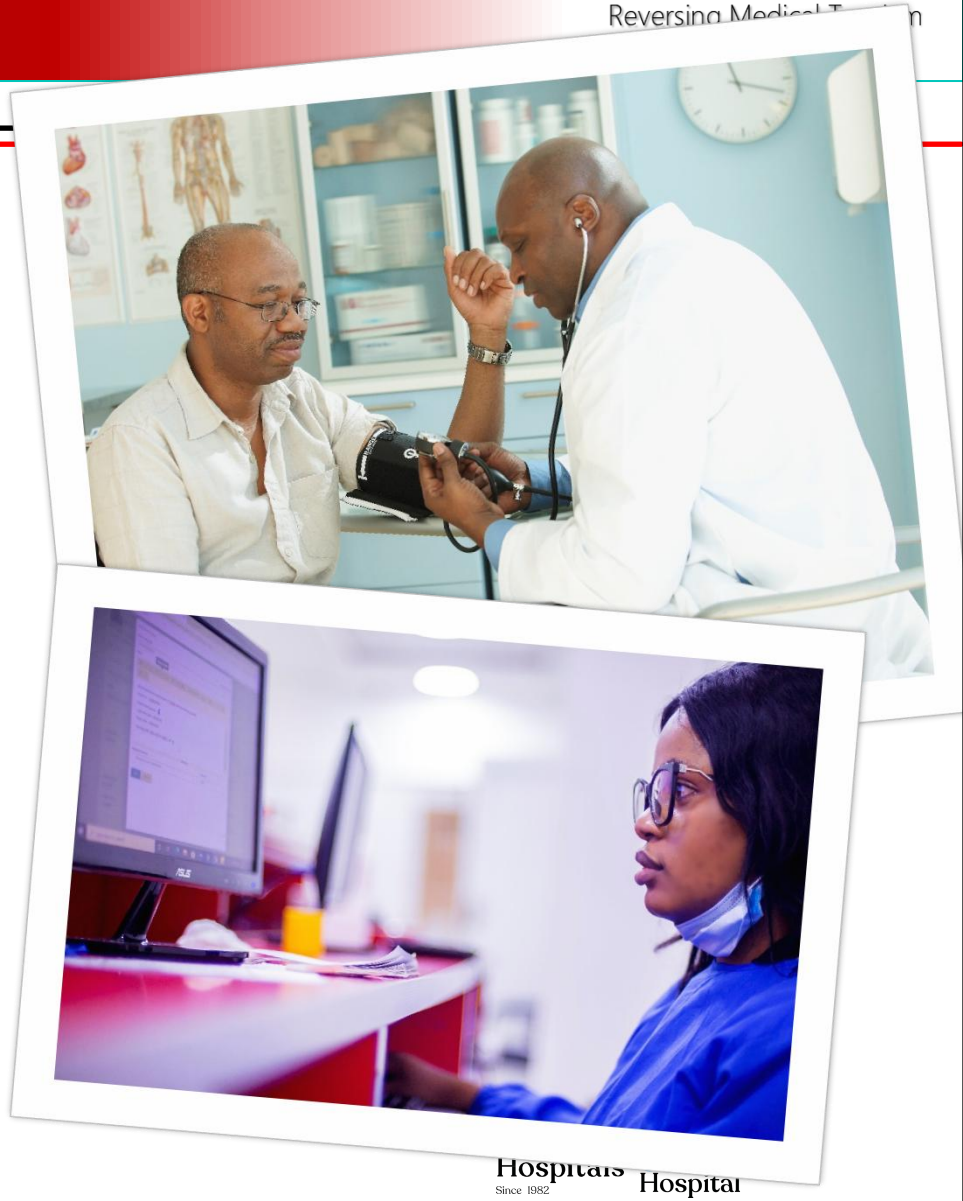

THANK YOU FOR LISTENING