HEART FAILURE

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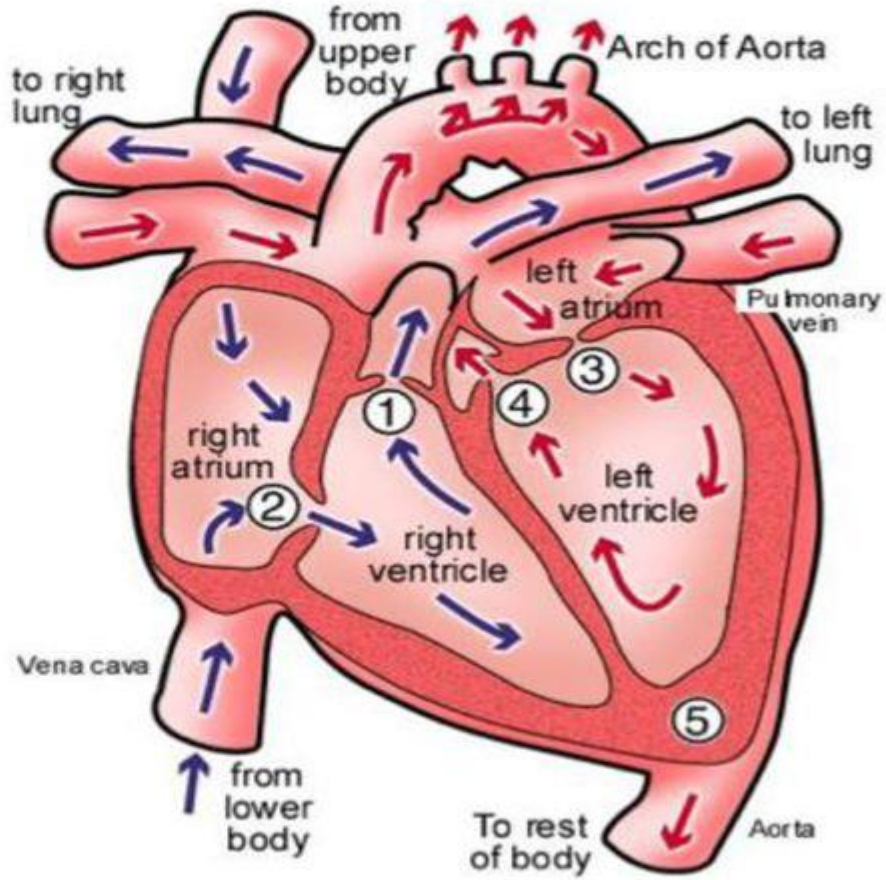
Structure & Function of the Heart

Right Side

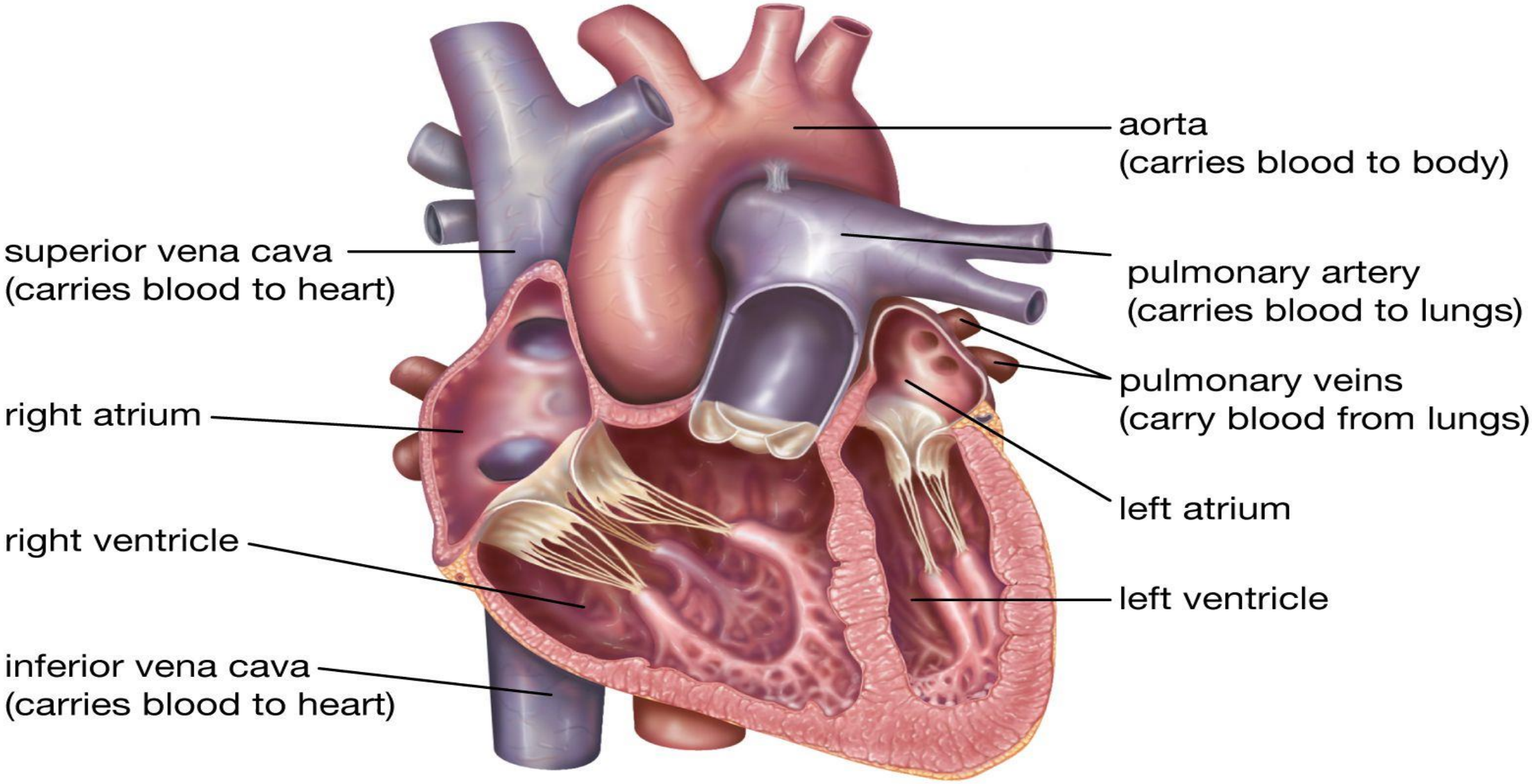
- receives deoxygenated blood from body
- this side pumps this blood to the lungs through the pulmonary arteries
- pulmonary arteries are the only arteries in body that contain blood that is low in oxygen

Left Side

- receives oxygenated blood from the lungs
- blood returns to heart from the lungs through the pulmonary veins
- pulmonary veins are the only veins in body that contain blood high in oxygen
- this side pumps blood through left atrium & left ventricle to the body via the aorta



You will make your own diagram!!!



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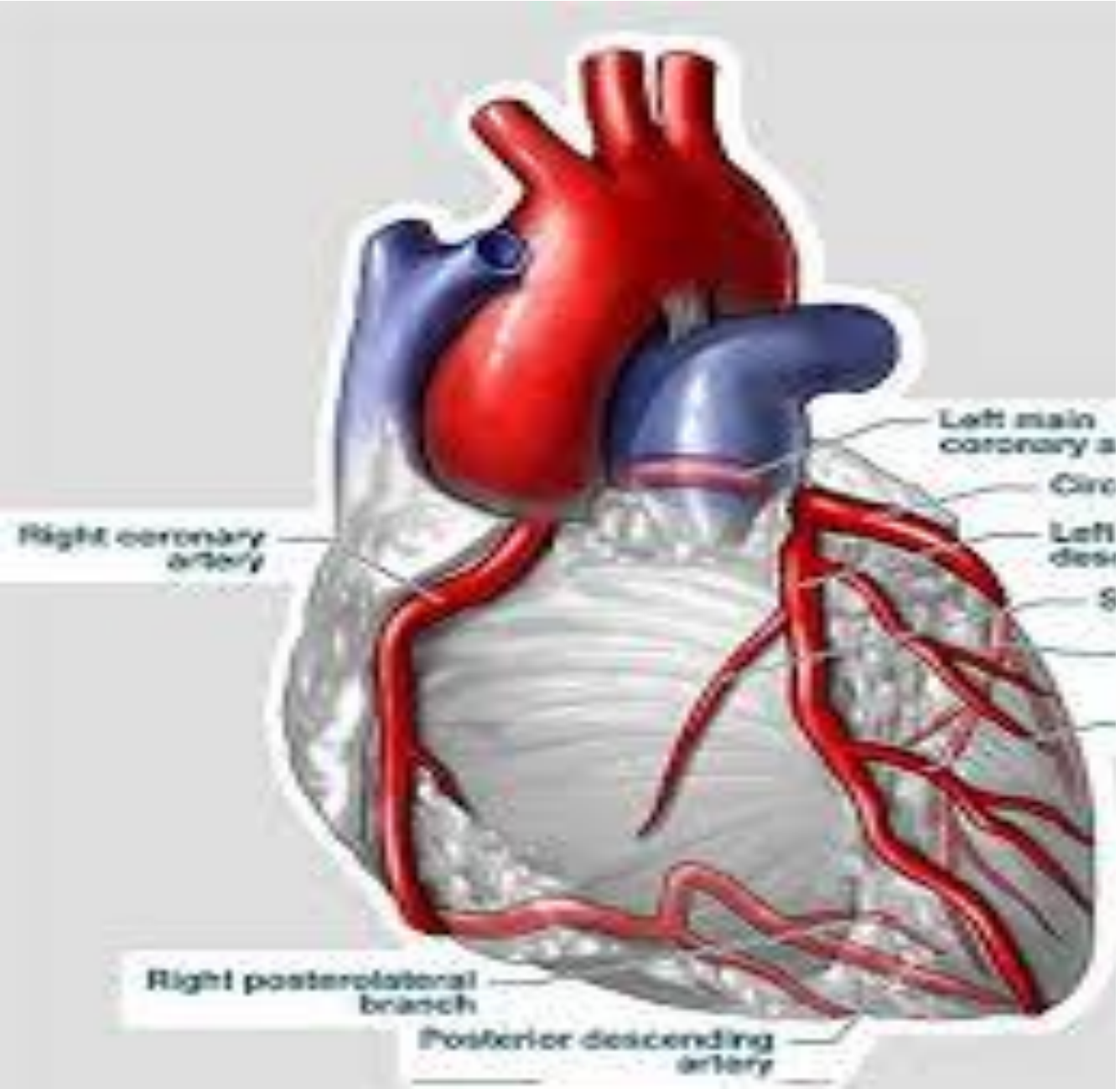
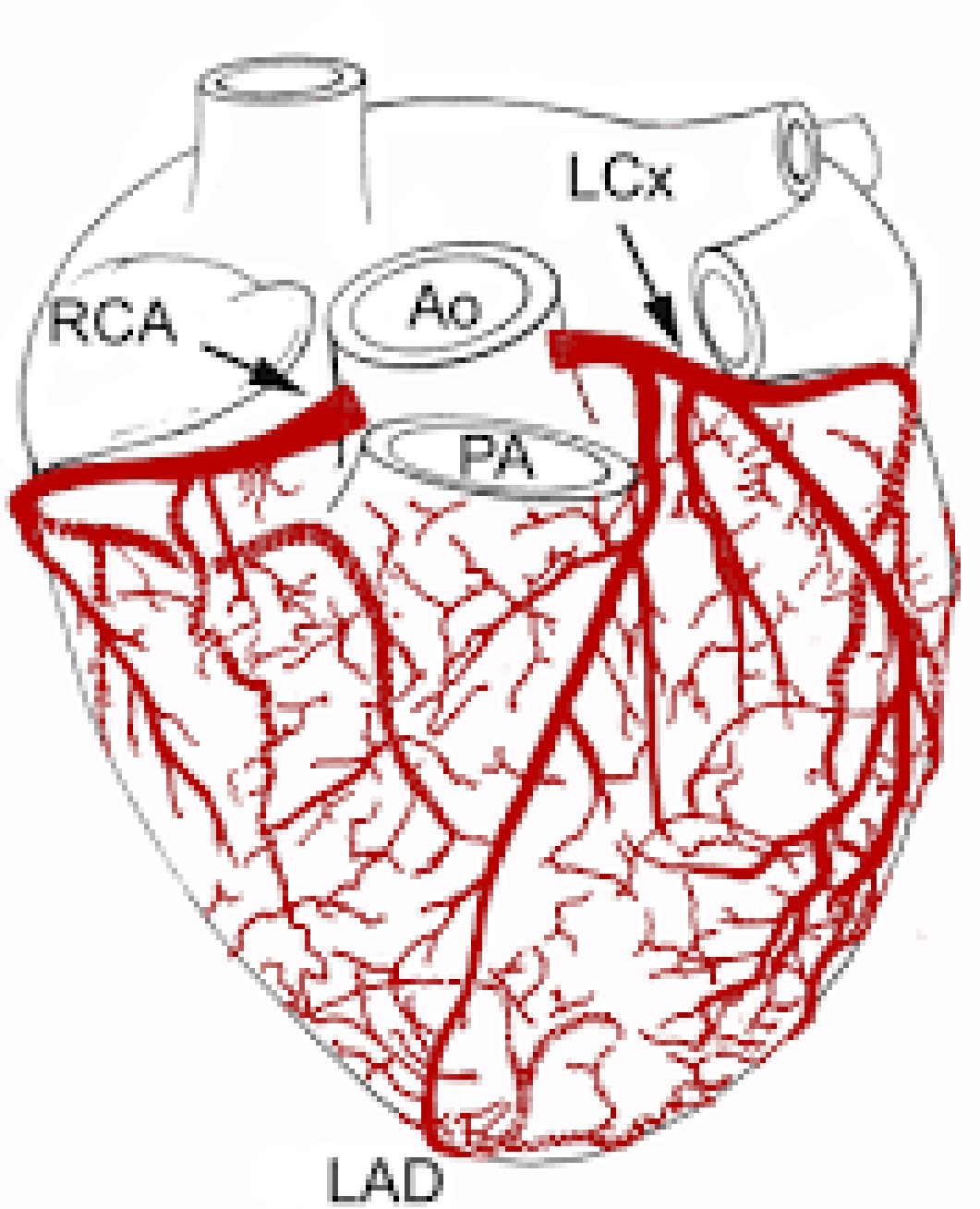

Right coronary artery
Right posterolateral branch
Posterior descending artery


LCx
RCA
Ao
PA
LAD

What is heart failure?

Definition:

- *A state in which the heart cannot provide sufficient cardiac output to satisfy the metabolic needs of the body*

- It is commonly termed congestive heart failure (CHF) since symptoms of increase venous pressure are often prominent

Causes Of Heart Failure

- Coronary artery disease
- Hypertension
- Valvular heart disease
- Cardiomyopathy
- Cor pulmonale

CLASSIFICATION

- Systolic heart failure
- Diastolic heart failure
- Acute heart failure
- Chronic heart failure
- Left side heart failure
- Right side heart failure

CLINICAL MANIFESTATIONS

SYMPTOMS

- Fatigue
- Weakness
- Shortness of Breath on exertion
- Shortness of Breath at Rest
- Cough and wheezing
- Anorexia / loss of appetite
- Paroxymal nocturnal dyspnea
- Nausea
- Abdominal pain
- Nocturia

SIGNS

- Pulmonary edema
- Pleural effusion
- Tachycardia
- Narrow pulse pressure
- Cardiomegaly
- Peripheral edema
- Jugular vein distension



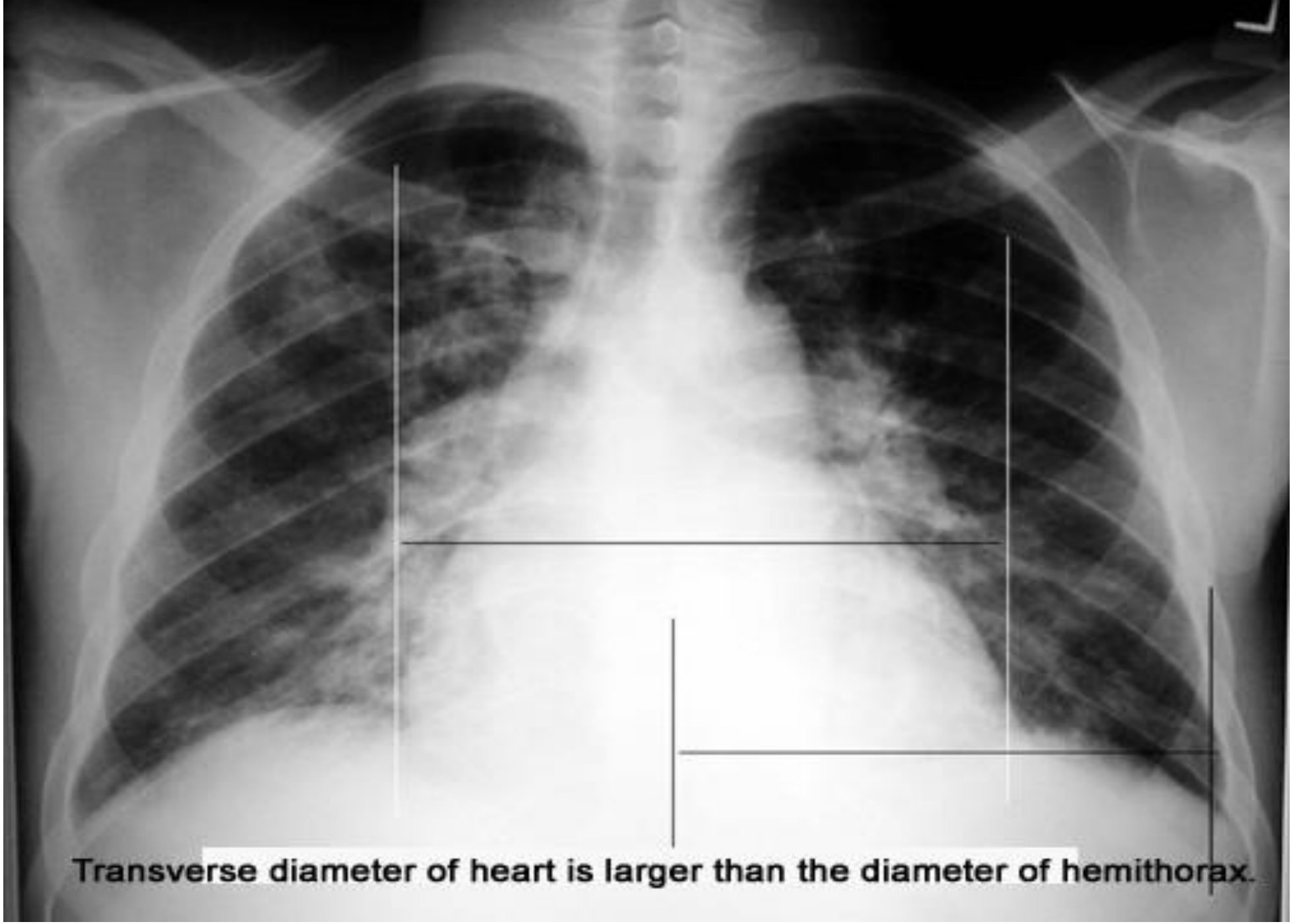
Factors aggravating heart failure

- Myocardial ischemia or infarct
- Dietary sodium excess
- Excess fluid intake
- Medication noncompliance
- Arrhythmias
- Intercurrent illness (eg infection)
- Conditions associated with increased metabolic demand (eg pregnancy, thyrotoxicosis, excessive physical activity)
- Administration of drug with negative inotropic properties or flu retaining properties (e. NSAIDs, corticosteroids)
- Alcohol

DIAGNOSIS

1. **HISTORY TAKING**
2. **EXAMINATION**
3. **INVESTIGATIONS**

- Electrocardiogram (ECG)
- Chest x-ray
- Echocardiography (“Echo”)
- Heart catheterization
- Angiography
- Blood tests


Transverse diameter of heart is larger than the diameter of hemithorax.



Laboratory Findings

- Anemia
- Hyperthyroid
- Chronic renal insuffiency, electrolytes abnormality
- Pre-renal azotemia
- Hemochromatosis

Electrocardiogram

- Old MI or recent MI
- Arrhythmia
- Some forms of Cardiomyopathy are tachycardia related
- LBBB⟶*may help in management*

Chest X-ray

- Size and shape of heart
- Evidence of pulmonary venous congestion (dilated or upper lobe veins → perivascular edema)
- Pleural effusion

Echocardiogram

- Function of both ventricles
- Wall motion abnormality that may signify CAD
- Valvular abnormality
- Intra-cardiac shunts

Cardiac Catheterization

- When CAD or valvular is suspected
- If heart transplant is indicated

Differential diagnosis

- Pericardial diseases
- Liver diseases
- Nephrotic syndrome
- Protein losing enteropathy

MANAGEMENT

TREATNENT

NON PHARMACOLOGICAL MANAGEMENT

- Bed rest
- Consuming small but frequent meals
- Moderate sodium restriction (2-4g/day)
- Smoking cessation
- Avoid alcohol intake

Diet and Activity

- Salt restriction
- Fluid restriction
- Daily weight (tailor therapy)
- Gradual exertion programs

PHARMACOLOGICAL MANAEMEI

TREATMENT (MEDICATION)

- ACE Inhibitors
- Diuretics
- Inotropic Agents
- Beta Blockers
- Calcium Channel Blockers
- Vasodilators
- Digitalis glycosides
- Aldosterone antagonist
- Angiotensin receptor blockers

Goals of treatment

- To improve symptoms and quality of life
- To decrease likelihood of disease progression
- To reduce the risk of death and need for hospitalisation

Prognosis

- Annual mortality rate depends on patients symptoms and LV function
- 5% in patients with mild symptoms and mild ↓ in LV function
- 30% to 50% in patient with advances LV dysfunction and severe symptoms
- 40% – 50% of death is due to SCD