Chapter 4
Management of Patients with Cardiovascular Disorders

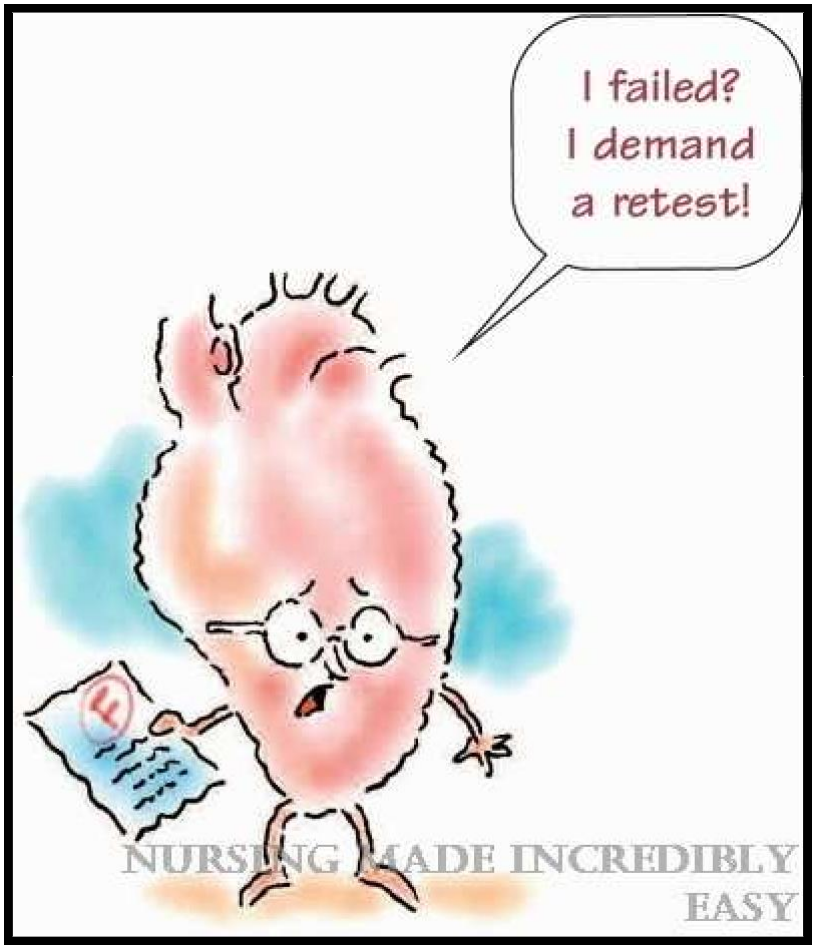
Dara A. Al-Banna

2019-2020

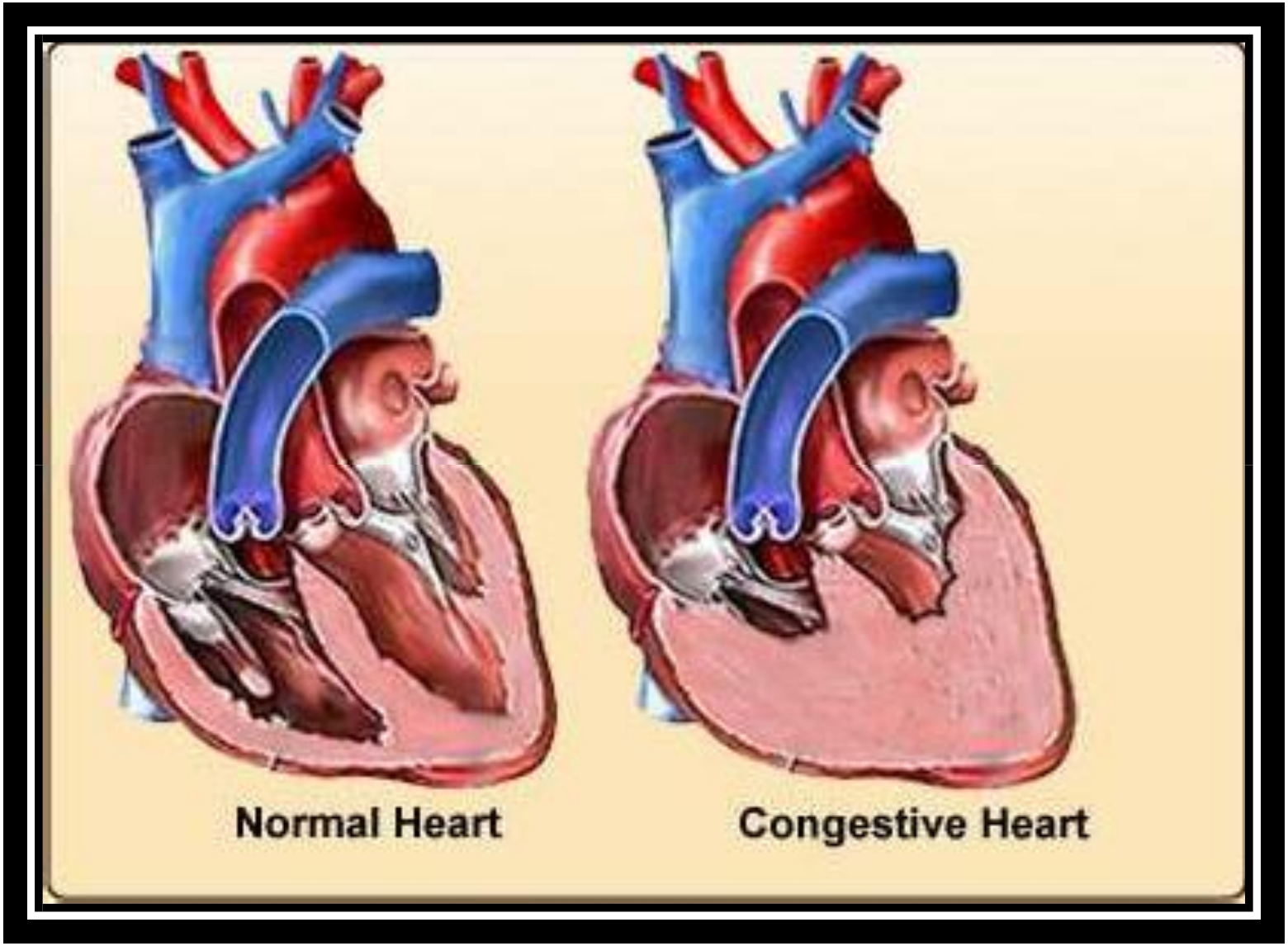
4.1. Management of Patients with Disorders of Cardiac Function

Heart Failure

- heart is unable to pump enough blood to meet the metabolic needs of the body at rest or during exercise
- not a disease itself; group of manifestations related to inadequate pump performance



- More than 287,000 people die yearly of heart failure
- 40% of patients admitted to the hospital with the condition die or are readmitted within 1 year.
- estimated annual cost for the management of heart failure in 2006 was $29.6 billion dollars.

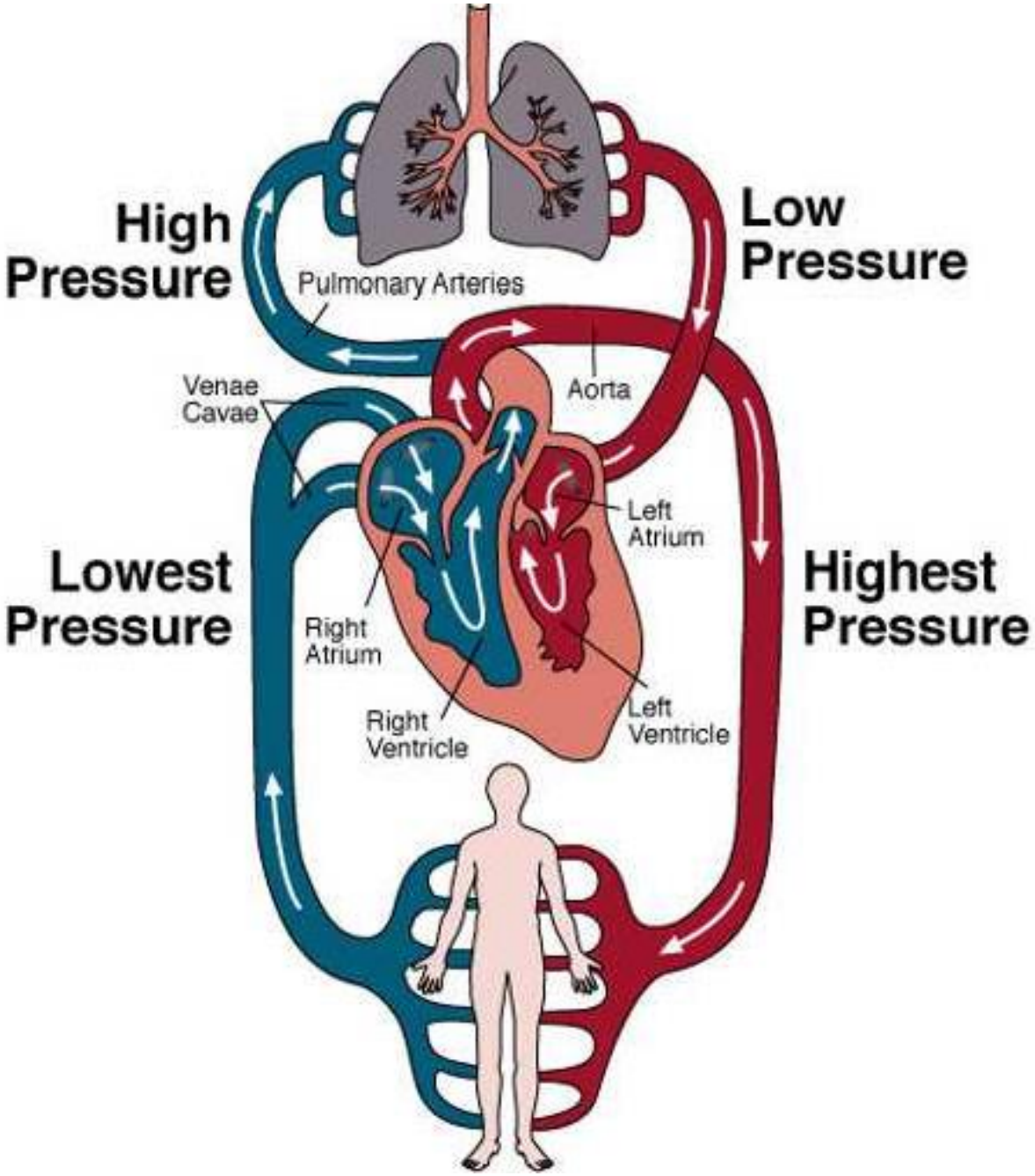

Normal Heart
Congestive Heart

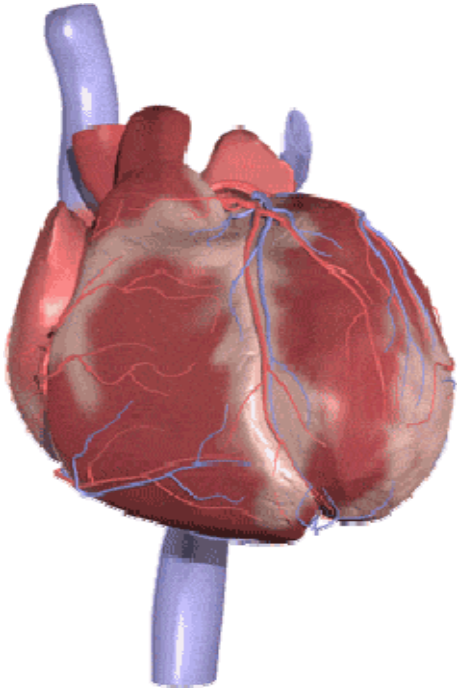
Etiology

- conditions that can lead to the development of heart failure
  1. coronary artery disease
  2. cardiomyopathy
  3. hypertension
  4. valvular heart disease

5. Other conditions that may contribute to the development and severity of heart failure include:

a) increased metabolic rate
b) iron overload
c) hypoxia
d) severe anemia
e) electrolyte abnormalities
f) cardiac dysrhythmias
g) diabetes


High Pressure
Low Pressure
Pulmonary Arteries
Venae Cavae
Aorta
Left Atrium
Lowest Pressure
Highest Pressure
Right Atrium
Right Ventricle
Left Ventricle



Cause and effect

1. Coronary artery disease

- Atherosclerosis of the coronary arteries is the primary cause of heart failure
- found in more than 60% of patients with the condition.
- Hypoxia and acidosis lead to ischemia, which causes an MI that leads to heart muscle necrosis, myocardial cell death, and loss of contractility. The extent of the MI correlates with the severity of the heart failure.

Cause and effect

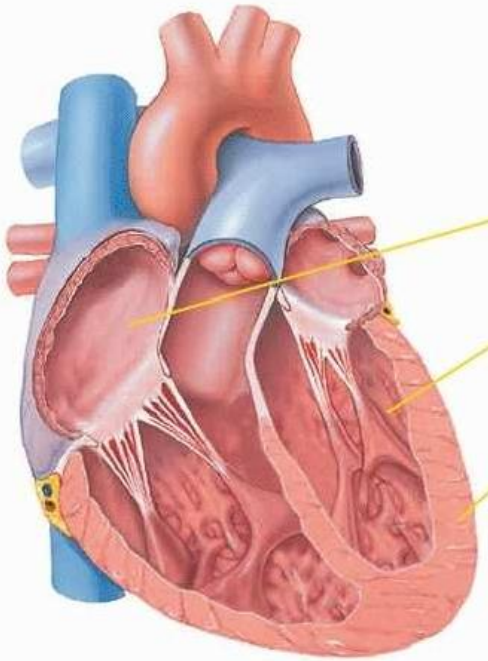
2. Cardiomyopathy

- A disease of the myocardium, there are three types of cardiomyopathy: dilated, hypertrophic, and restrictive

- Heart failure due to cardiomyopathy usually becomes chronic and progressive; however, both may resolve if the cause, such as alcohol use, is removed.

Picturing dilated cardiomyopathy

Dilated cardiomyopathy primarily affects systolic function. Here's what happens:



Secondary increased atrial chamber size

Increased ventricular chamber size (dilation)

Decreased muscle size, but increased heart size

The pathophysiology steps

1. Cardiac muscle fibers are extensively damaged.
2. Contractility in the left ventricle decreases, lowering stroke volume.
3. Early changes of heart failure (increased heart rate and left ventricular hypertrophy) help the heart to compensate functionally.
4. The compensatory mechanisms eventually are unable to maintain adequate cardiac output.
5. Severe left ventricular dilation occurs as venous return and systemic vascular resistance increase.
6. Eventually, all chambers may dilate, causing generalized cardiomegaly with associated risk of arrhyth-mias and emboli.

Cause and effect

- ***Cardiomyopathy***
  - dilated cardiomyopathy
    - The most common type
    - may result from an unknown cause (idiopathic), an inflammatory process such as myocarditis, or alcohol abuse;
    - it causes diffuse cellular necrosis and fibrosis, leading to decreased contractility (systolic failure).
  - Hypertrophic and restrictive cardiomyopathy
    - lead to decreased distensibility and ventricular filling (diastolic failure).

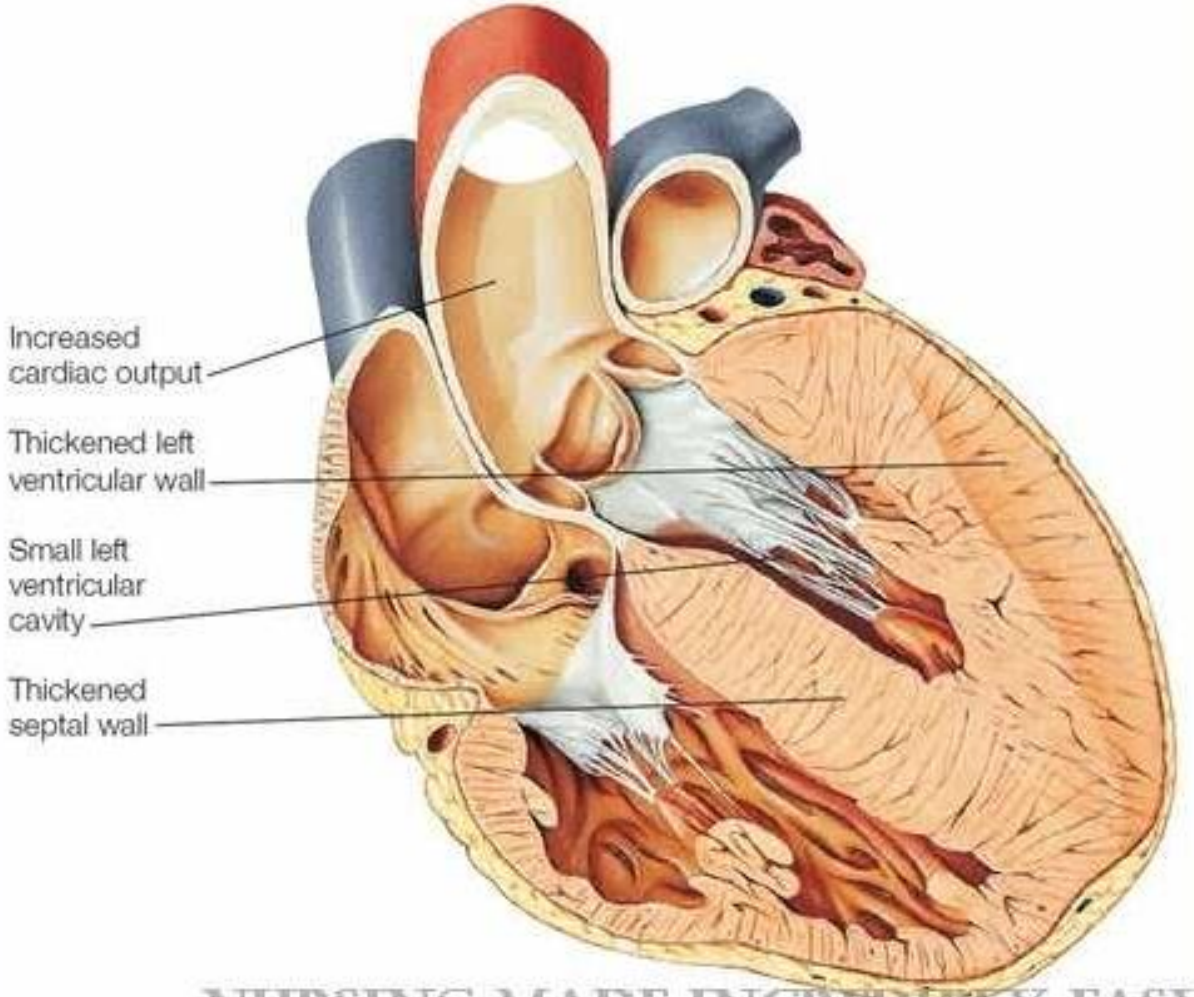
Cause and effect

3. Hypertension

- Systemic or pulmonary hypertension increases the heart's workload, leading to hypertrophy of its muscle fibers.
- This hypertrophy may impair the heart's ability to fi properly during diastole, and the hypertrophied ventricle may eventually fail

Picturing left ventricular hypertrophy

Hypertrophy of the left ventricle is one of the heart's first steps to compensate for either increased pressures or increased blood volume.



Cause and effect

4. Valvular heart disease

- The valves ensure that blood flows in one direction.
- In valvular disorders, blood has an increasing difficulty moving forward, increasing pressure within the heart and cardiac workload and leading to heart failure.
- Degenerative aortic stenosis and chronic aortic and mitral regurgitation are often the culprits.

Etiology

1. **Systolic dysfunction**
   a. **decreased contractility**
   b. **increased after load**
2. **Diastolic Dysfunction**
   a. **abnormalities in active relaxation**
   b. **abnormalities in passive relaxation**

Etiology: Systolic dysfunction

a. **decreased contractility**

- MI
- Valvular heart disease
- HPN
- cardiomyopathies

b. increased after load

- disease states that increase either the systolic pressure(HPN, aortic stenosis)
- or chamber radius(dilated cardiomyopathies) increase after load unless wall thickness increases proportionately

Etiology: Diastolic Dysfunction

1. **abnormalities in active relaxation**
   - MI
   - Ventricular hypertrophy
2. **abnormalities in passive relaxation**
   - increased ventricular stiffness leading to increase filling pressure
   - Concentric hypertrophy
   - HPN

Hypertrophic growth of a hollow organ without overall enlargement, in which the walls of the organ are thickened and its capacity or volume is diminished

Conditions that Precipitate Heart Failure

1. Dysrhythmias especially tachycardia
2. Sepsis
3. Anemia
4. Thyroid disorders
5. Pulmonary embolism
6. Thiamine deficiency
7. Medication dose changes
8. Physical or emotional stress
9. Endo, Myo and Pericarditis
10. Fluid retention from medication or salt intake

Classification of Heart Failure

1. Acute versus Chronic Heart Failure
2. Left versus Right Ventricular Failure
3. Backward versus Forward Failure
4. High versus Low Output Failure
5. Systolic versus Diastolic Failure

Acute versus chronic heart failure

- **acute heart failure**
  - an emergency situation in which a patient who was completely asymptomatic before the onset of heart failure decompensates when there's an acute injury to the heart, such as a myocardial infarction (MI), impairing its ability to function
- **chronic heart failure**
  - a long-term syndrome in which the patient experiences persistent signs and symptoms over an extended period of time, likely as a result of a preexisting cardiac condition.

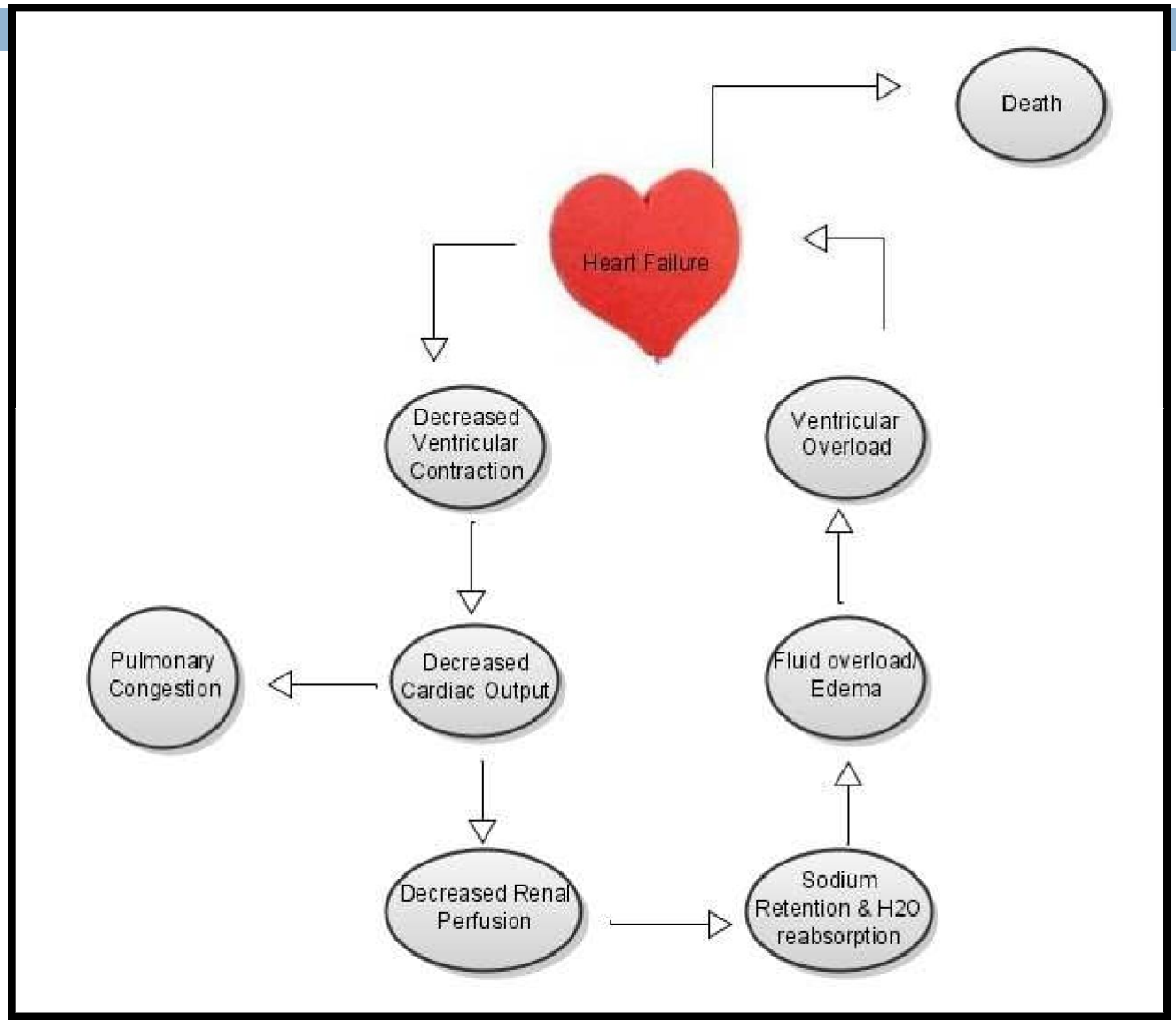
Classification of Heart Failure

1. Acute versus Chronic Heart Failure
2. Left versus Right Ventricular Failure
3. Backward versus Forward Failure
4. High versus Low Output Failure
5. Systolic versus Diastolic Failure

Left versus Right ventricular failure

- **left-sided heart failure**
  - inability of the left ventricle to pump enough blood, causing fluid to back up into the lungs
- **right-sided heart failure**
  - the inefficient pumping of the right side of the heart, causing congestion or fluid buildup in the abdomen, legs, and feet

Pathophysiology of LSHF



MI, HPN, Valvular Disorders

↓

Reduced myocardial contractility, Increased cardiac workload, Decreased diastolic filing, Obstruction of left atrial emptying

↓

Increased left atrial pressure

↓

Left sided heart failure

↓

Blood dams back into the pulmonary capillary bed

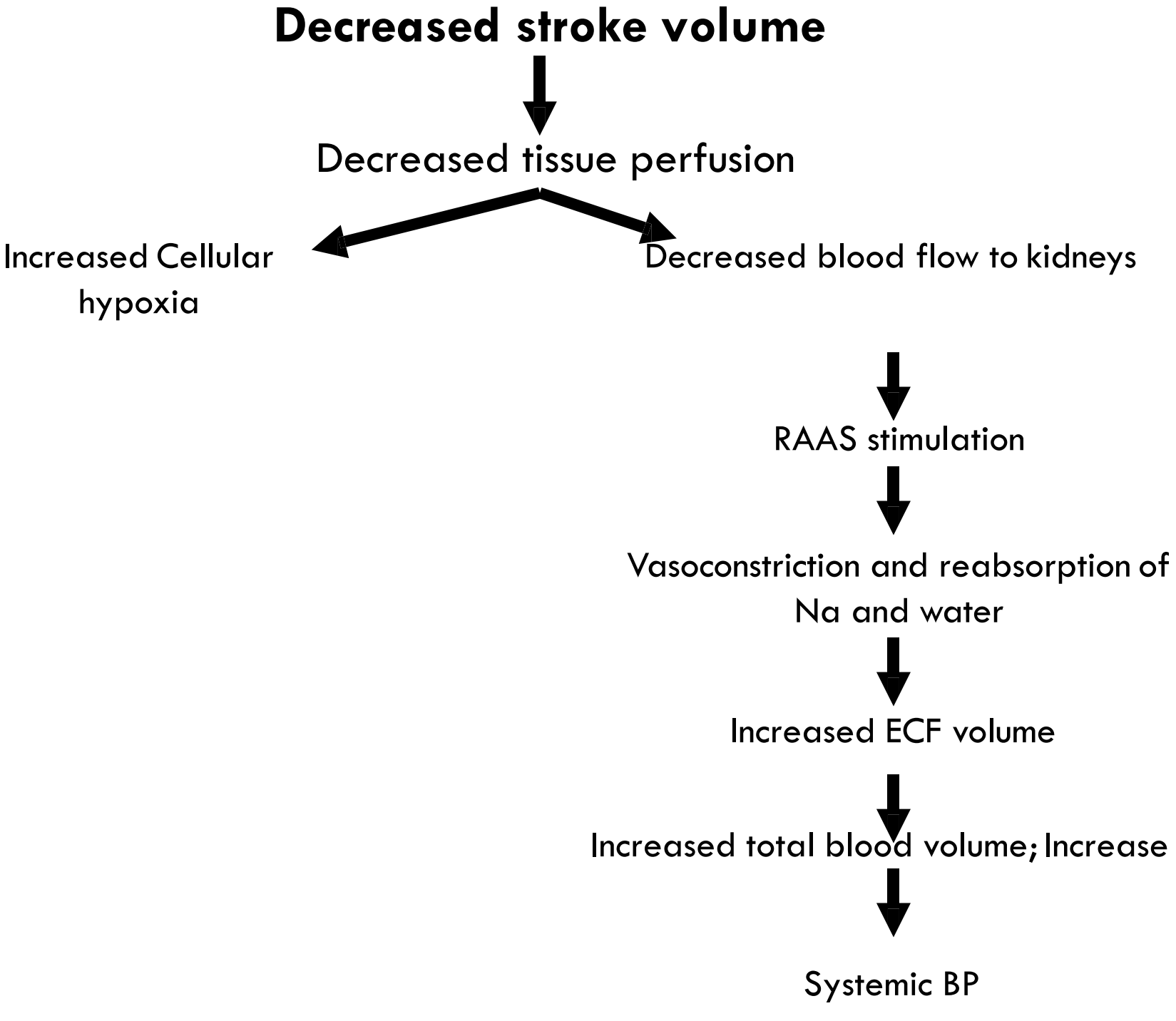
Decrease stroke volume

Blood dams back into the pulmonary capillary bed

Pressure of blood into the pulmonary capillary bed increases

Fluid shifts into the intraalveolar and interalveolar spaces

Signs and symptoms of left sided heart failure


Decreased stroke volume
Decreased tissue perfusion
Increased Cellular hypoxia
Decreased blood flow to kidneys
RAAS stimulation
Vasoconstriction and reabsorption of Na and water
Increased ECF volume
Increased total blood volume; Increase
Systemic BP

Pathophysiology of RSHF

LSHF, PE, RV infarction, CHD

↓

Reduced myocardial contractility, Increased cardiac workload, Decreased diastolic filing, Obstruction of left atrial emptying

↓

Increased atrial pressure

↓

Right sided HF

↓

Blood dams back from RV to RA

↓

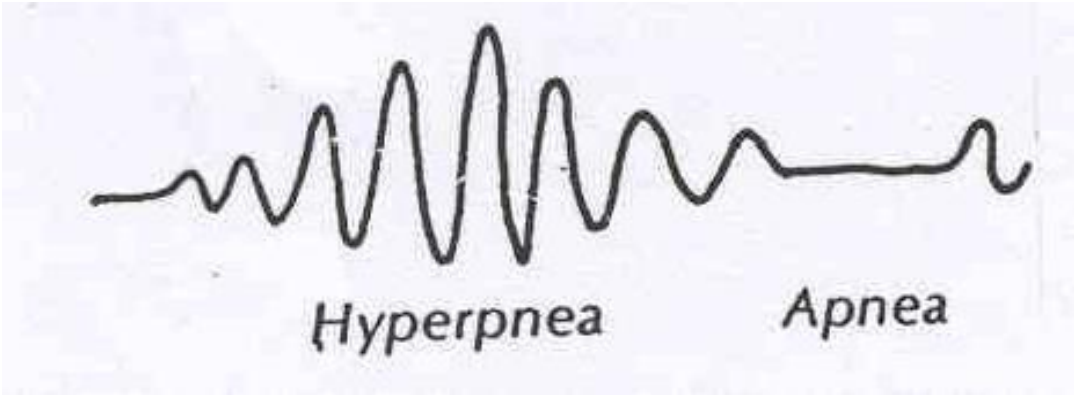
Signs and Symptoms of RSHF

left-sided heart failure (LSHF)

- Signs and symptoms are related to **pulmonary congestion** and include:
  - dyspnea
  - Wheezing (Cardiac asthma)
  - unexplained cough
  - pulmonary crackles
  - low oxygen saturation levels
  - third heart sound (S_3)
  - dizziness and light-headedness
  - confusion
  - Clubbing of fingers
  - restlessness and anxiety
  - fatigue and weakness
  - Anorexia
  - Hypokalemia (increased levels of aldosterone)
  - polycythemia
  - reduced urine output
  - altered digestion
  - Elevated PAP, PCWP, LVEDP

LSHF

Dyspnea	-Most frequent symptom - Vascular congestion
Cheyne-stokes respiration	
Cough	Frothy, blood tinged - fluid in the lung irritates the lung mucosa
Orthopnea	Dyspnea on recumbency -increase blood returning to heart when recumbent



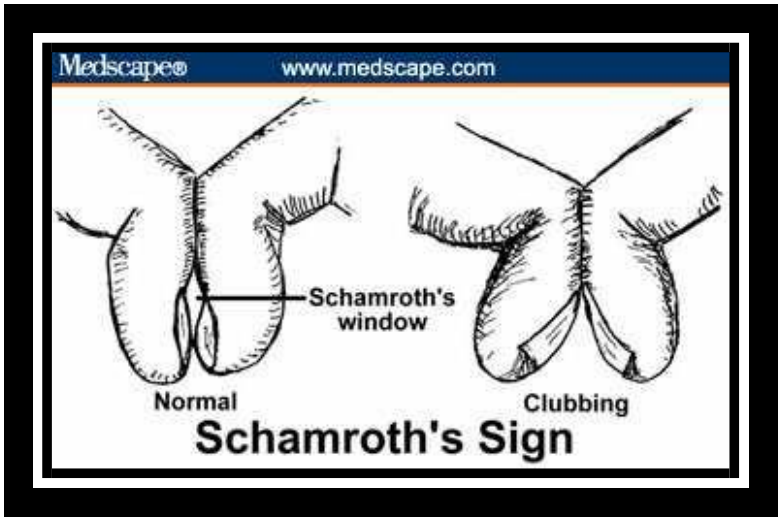
Cheyne – Stokes Respiration

is an abnormal pattern of breathing characterized by progressively deeper and sometimes faster breathing, followed by a gradual decrease that results in apnea

Orthopneic position.

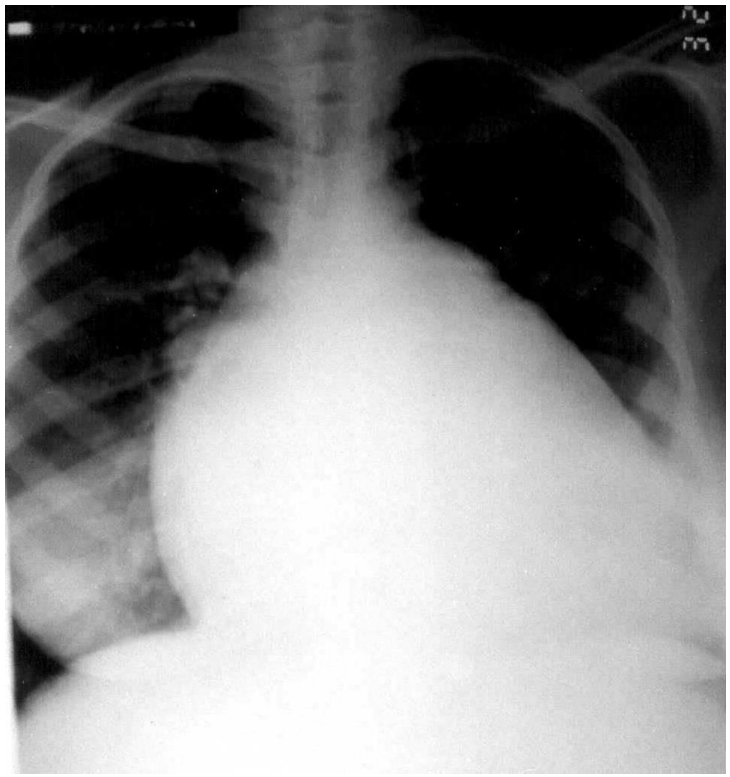
Paroxysmal nocturnal dyspnea	Sudden dyspnea that awakens patients from sleep -subsides after 5-20 minutes
Cardiomegaly	Dilatation of the left ventricle in an effort to augment ventricular contraction
S3	Ventricular gallop-single most reliable sign of LVF -due rapid filling of left ventricle due to inc.left atrial pressure and non compliance of LV
Cerebral hypoxia,fatigue,muscular weakness	Decrease cardiac output
Nocturia	During the day blood is diverted into the skeletal musculature at night cardiac output is shifted toward the kidney and diuresis ensues

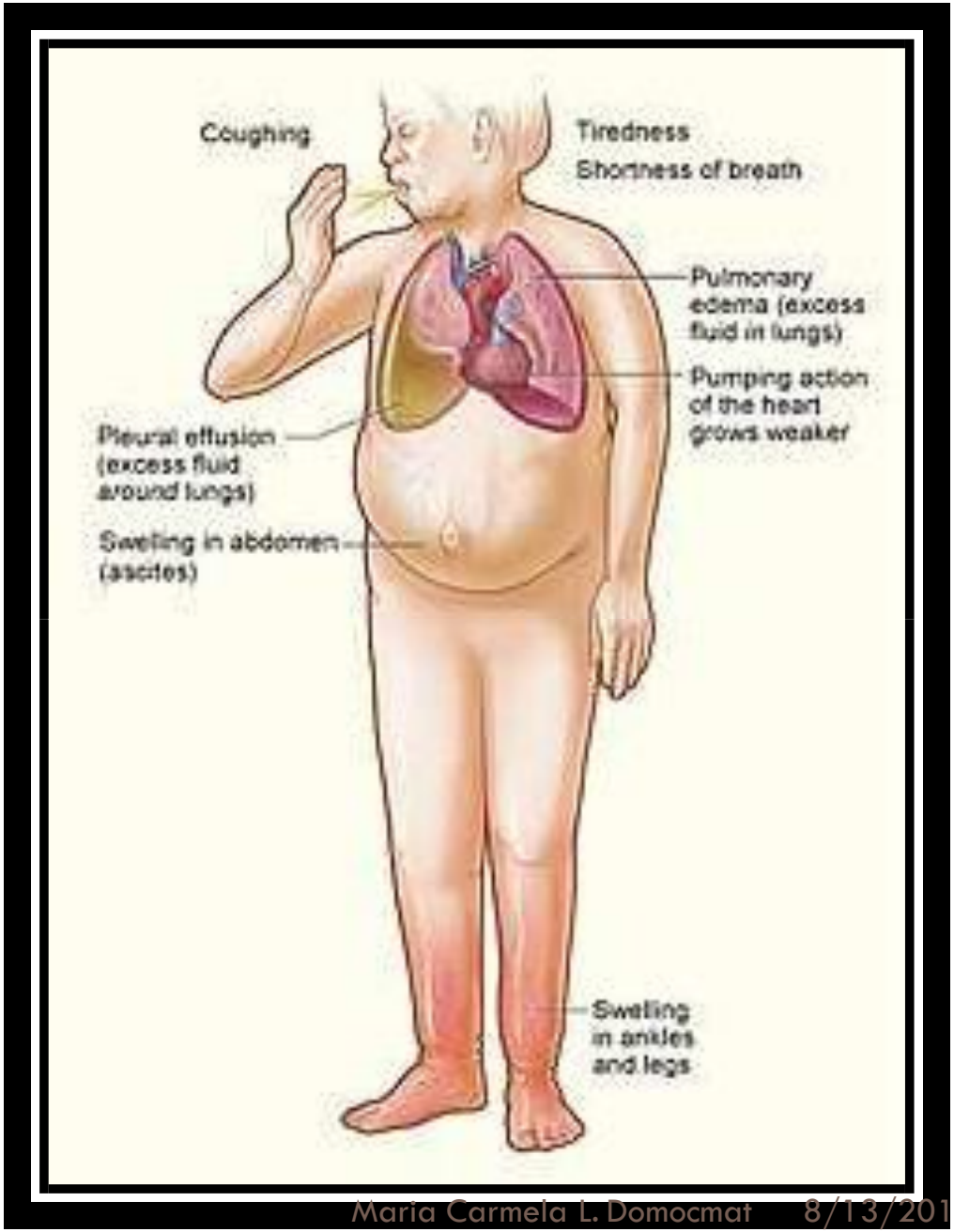

Clubbed fingers
Normal angle of nail bed
Distorted angle of nail bed

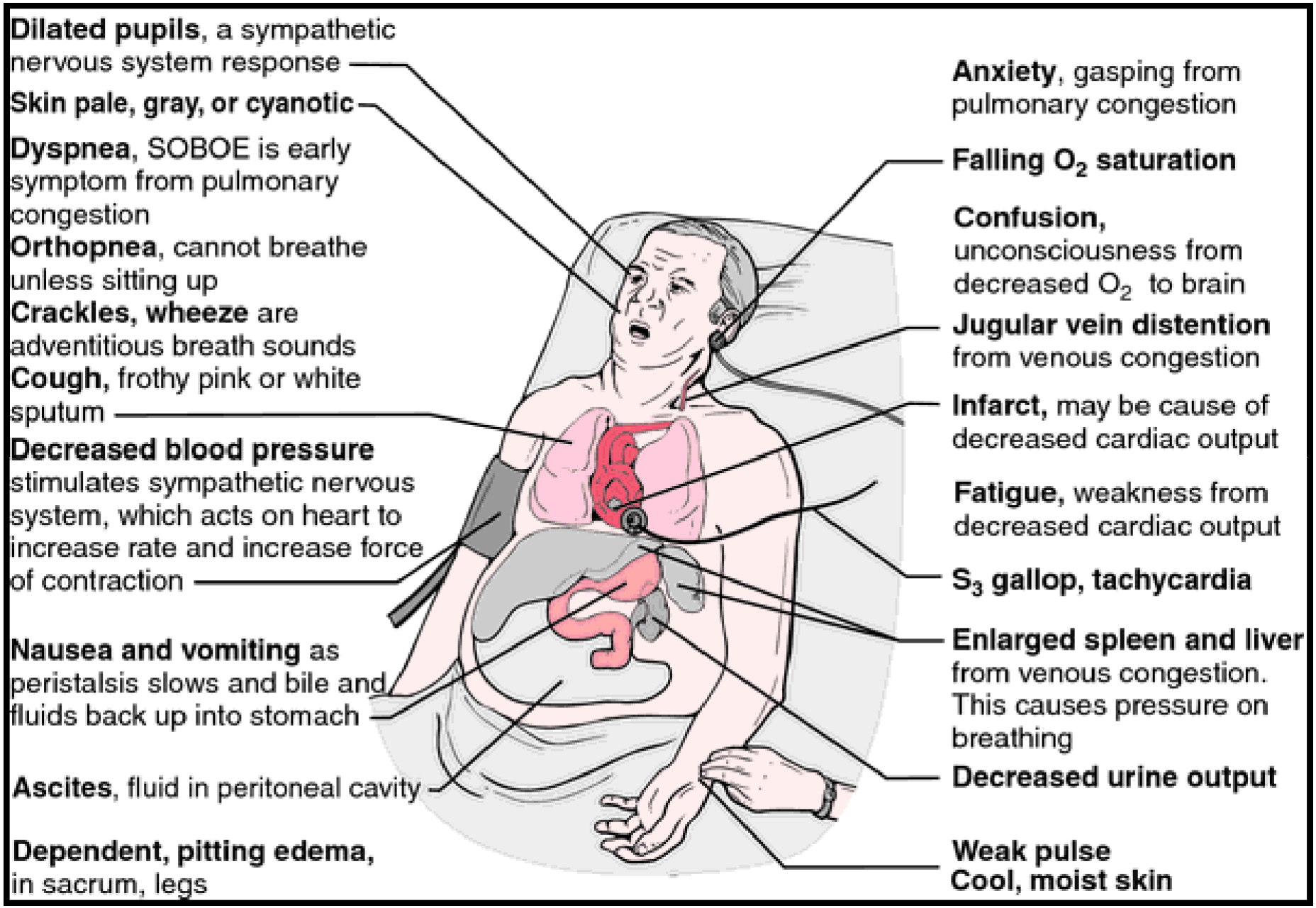

Medscape®
www.medscape.com
Schamroth's window
Normal
Clubbing
Schamroth's Sign

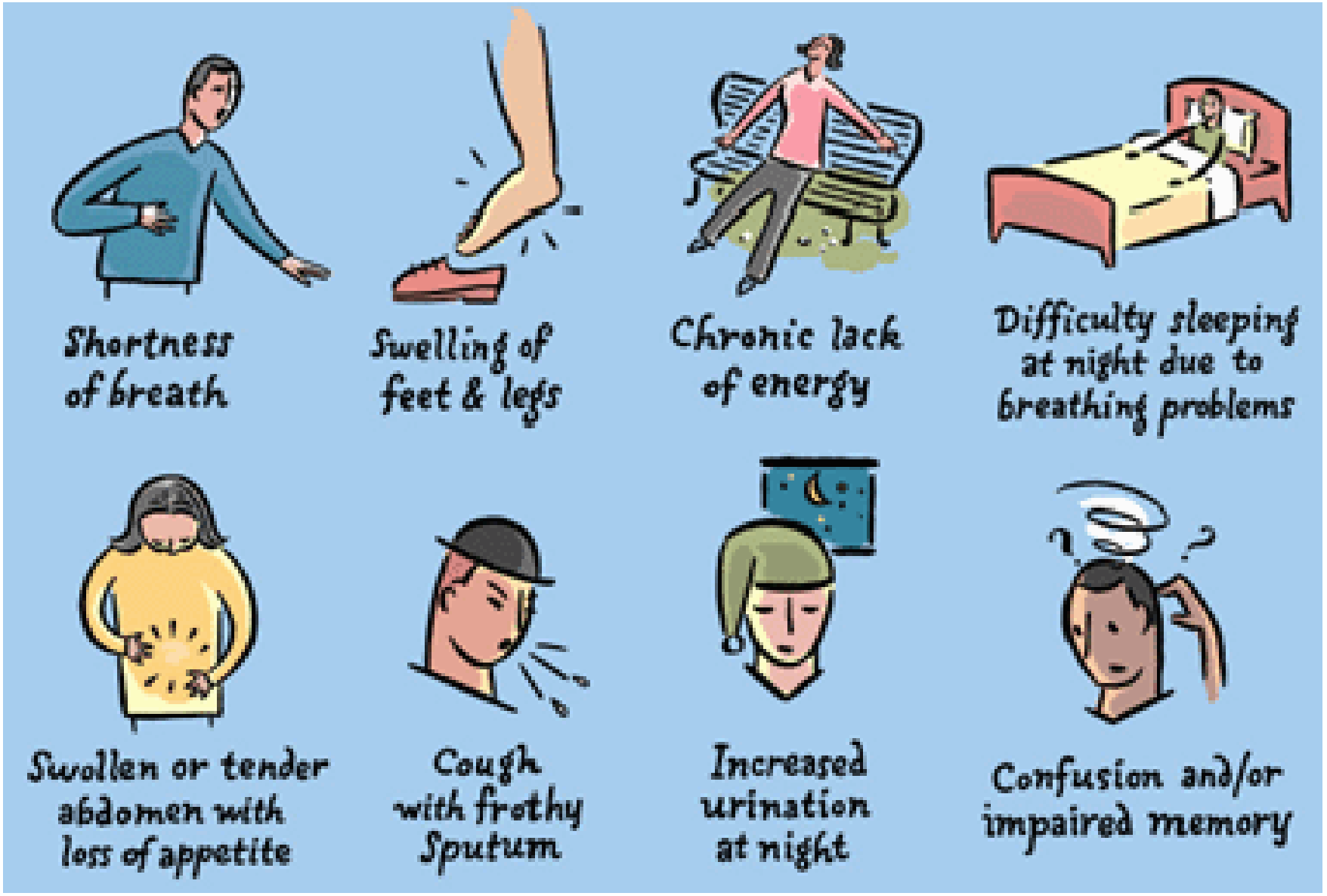
Normal Chest X-ray

Cardiomegaly




Coughing
Tiredness
Shortness of breath
Pulmonary edema (excess fluid in lungs)
Pumping action of the heart grows weaker
Pleural effusion (excess fluid around lungs)
Swelling in abdomen (ascites)
Swelling in ankles and legs

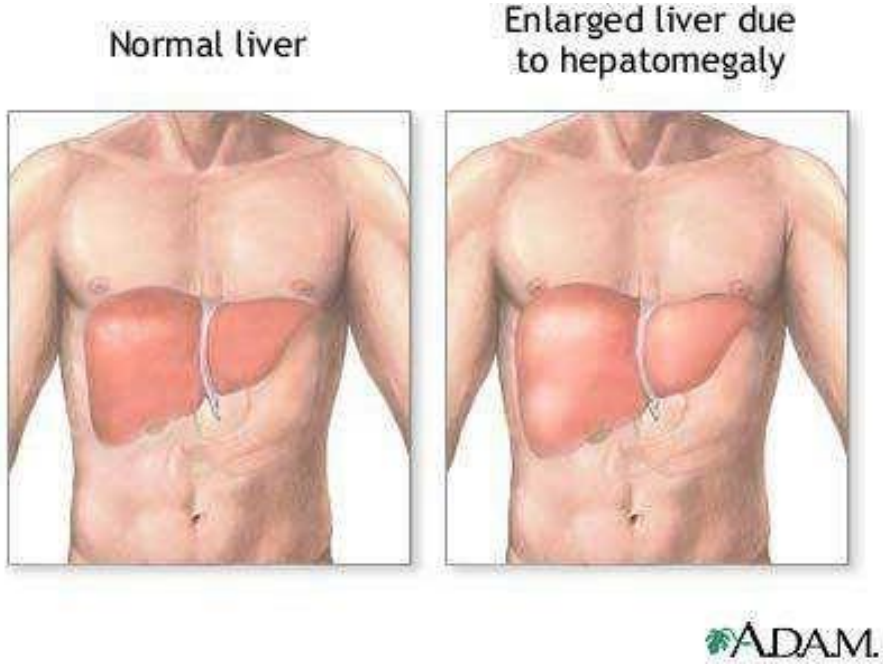

Dilated pupils, a sympathetic nervous system response
Skin pale, gray, or cyanotic
Dyspnea, SOBOE is early symptom from pulmonary congestion
Orthopnea, cannot breathe unless sitting up
Crackles, wheeze are adventitious breath sounds
Cough, frothy pink or white sputum
Decreased blood pressure stimulates sympathetic nervous system, which acts on heart to increase rate and increase force of contraction
Nausea and vomiting as peristalsis slows and bile and fluids back up into stomach
Ascites, fluid in peritoneal cavity
Dependent, pitting edema, in sacrum, legs
Anxiety, gasping from pulmonary congestion
Falling O_2 saturation
Confusion, unconsciousness from decreased O_2 to brain
Jugular vein distention from venous congestion
Infarct, may be cause of decreased cardiac output
Fatigue, weakness from decreased cardiac output
S_3 gallop, tachycardia
Enlarged spleen and liver from venous congestion. This causes pressure on breathing
Decreased urine output
Weak pulse
Cool, moist skin


Shortness of breath
Swelling of feet & legs
Chronic lack of energy
Difficulty sleeping at night due to breathing problems
Swollen or tender abdomen with loss of appetite
Cough with frothy Sputum
Increased urination at night
Confusion and/or impaired memory

Right-sided heart failure

Peripheral edema	Prominent at the end of the day
Hepatomegaly	Chronic passive congestion of the liver
Abdominal pain	Stretching of Glisson's capsule
Cardiac cirrhosis	Jaundice,ascites
Jugular vein distention	Increase right sided pressure
Ascites	accumulation of fluid in the peritoneal cavity

- Leg varicosities
- Elevated CVP reading
- Internal hemorrhoids
- Anorexia
- Nausea
- Weight gain
- Weakness



Hepatomegaly

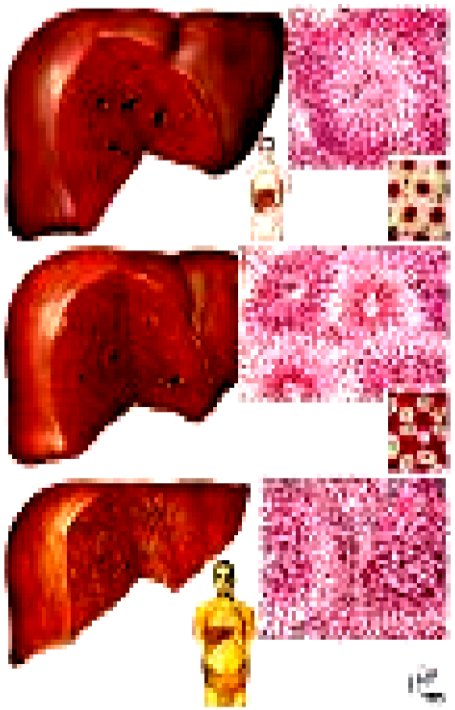
Splenomegaly

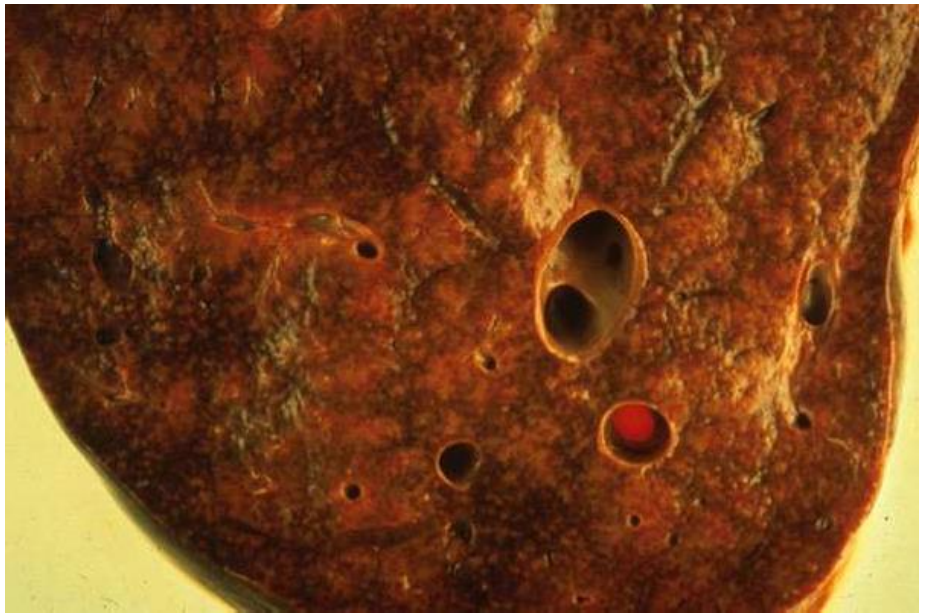
Normal spleen

Splenomegaly

A.D.A.M.

Cardiac Cirrhosis

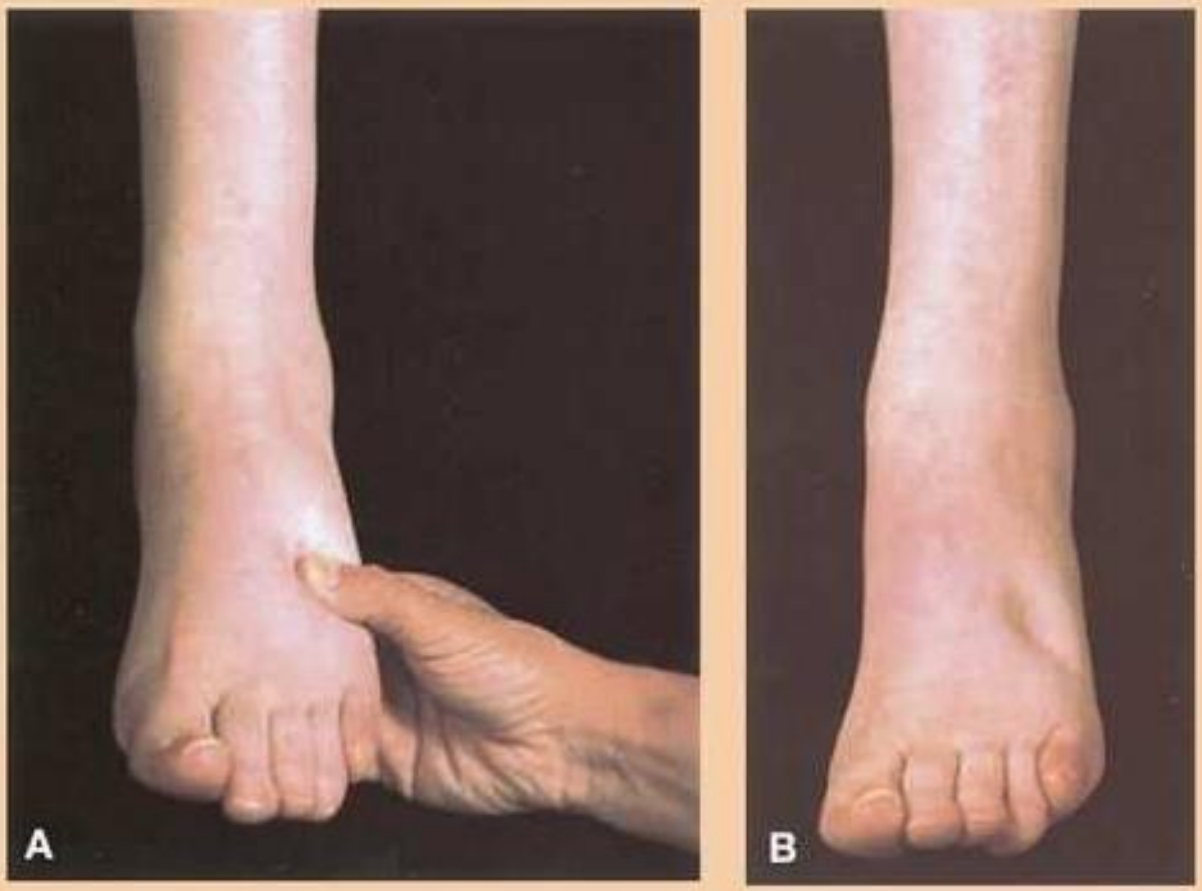




•An extensive fibrotic reaction occurring within the liver as a result of prolonged congestive heart failure.

•Also called *pseudocirrhosis*.

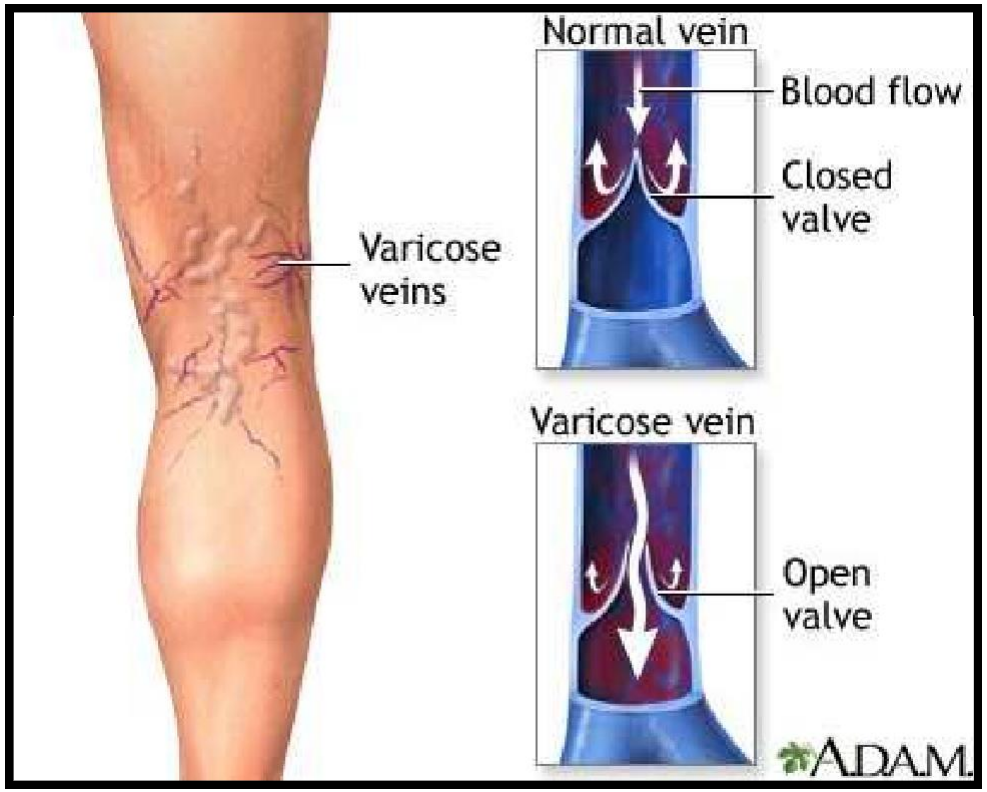
Assessing for pitting edema

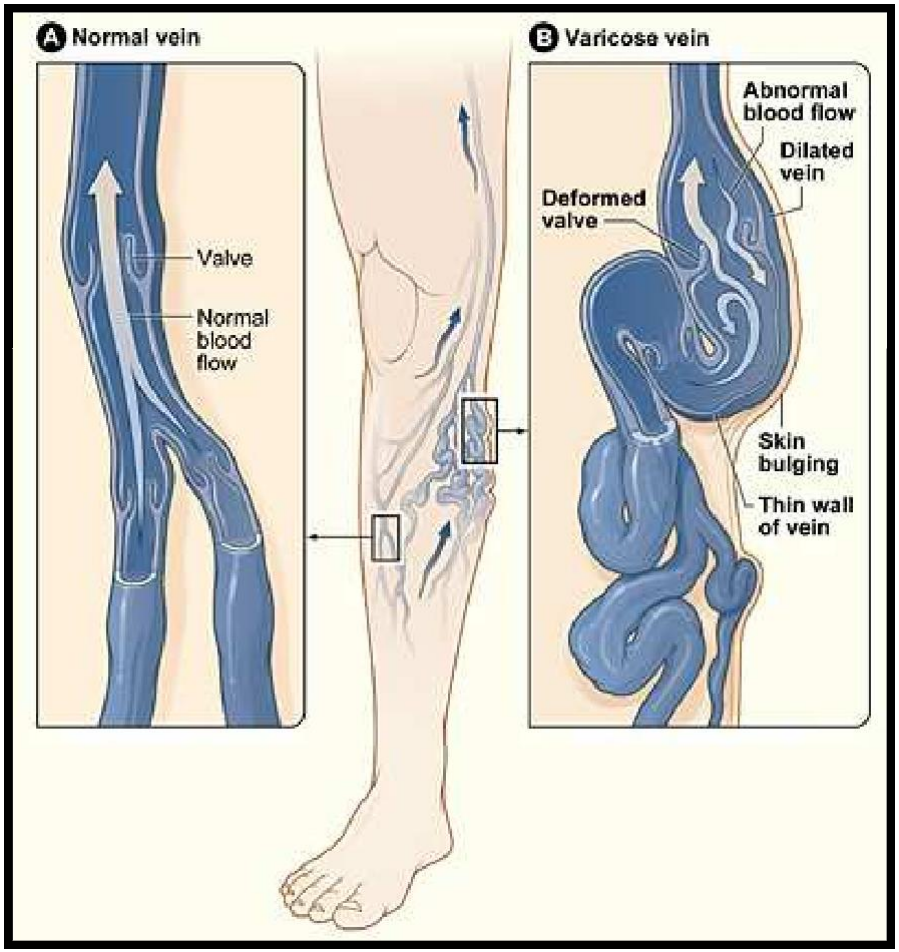


(A) Apply finger pressure to an area near the ankle.

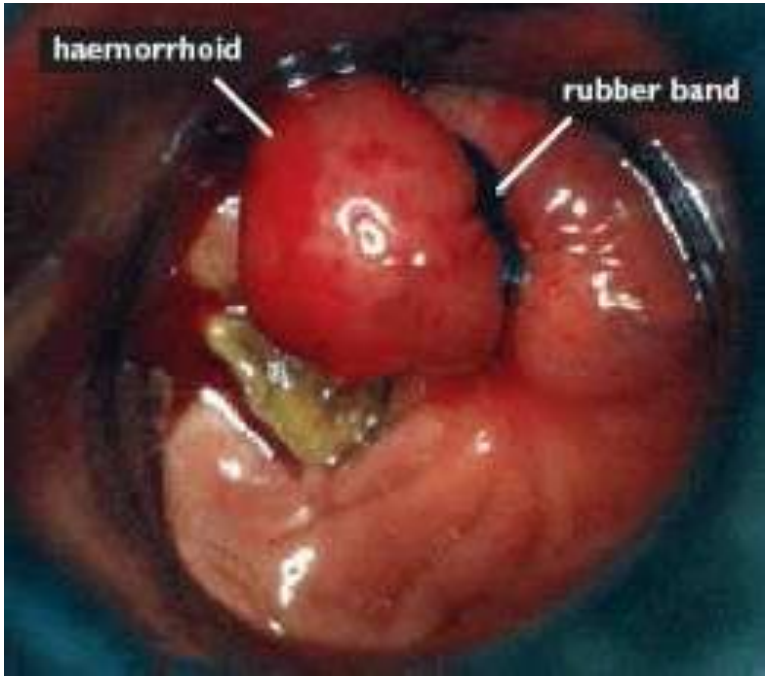
(B) When the pressure is released, an indentation remains in the edematous tissue.

Leg varicosities





Internal hemorrhoids



Classification of Heart Failure

1. Acute versus Chronic Heart Failure
2. Left versus Right Ventricular Failure
3. Backward versus Forward Failure
4. High versus Low Output Failure
5. Systolic versus Diastolic Failure

Backward versus Forward Failure

- Backward failure
  - venous congestion arising from the damming of blood behind the failing chamber
  - increase hydrostatic pressure resulting into pulmonary edema or peripheral edema
- Forward failure
  - decreased CO causes decreased organ perfusion

Decrease CO

↓

decreased blood to vital organs

↓

mental confusion
muscular weakness
renal retention of sodium/water

Classification of Heart Failure

1. Acute versus Chronic Heart Failure
2. Left versus Right Ventricular Failure
3. Backward versus Forward Failure
4. High versus Low Output Failure
5. Systolic versus Diastolic Failure

High versus Low output failure

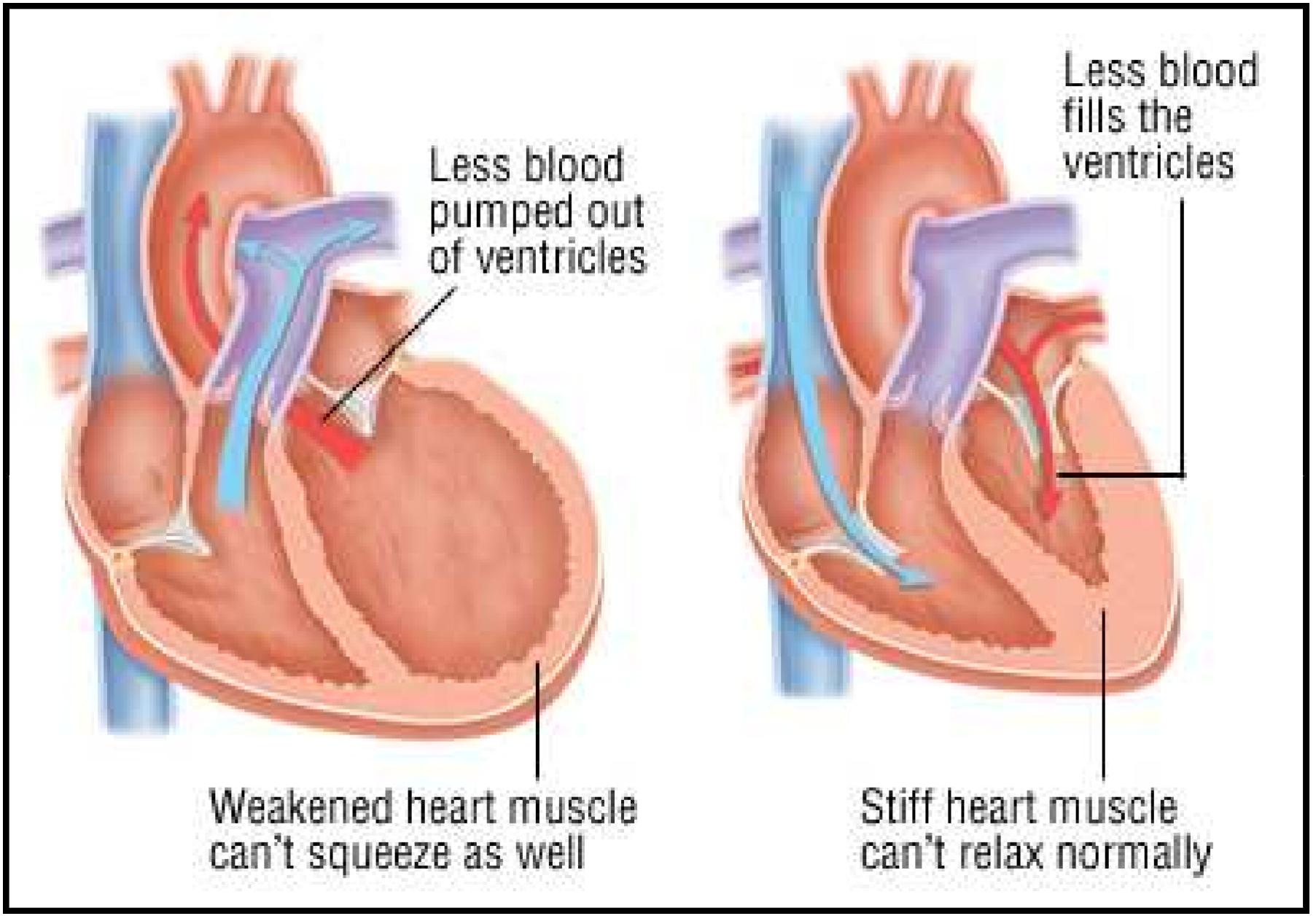
- **High output failure** – a condition causes the heart to work harder to meet metabolic demands of the body
  - ex. Sepsis, anemia, thyrotoxicosis pregnancy
- **Low output** - heart unable to pump blood out of the left ventricle to meet demand of the body
  - ex. RHD, cardiomegaly

Classification of Heart Failure

1. Acute versus Chronic Heart Failure
2. Left versus Right Ventricular Failure
3. Backward versus Forward Failure
4. High versus Low Output Failure
5. Systolic versus Diastolic Failure

Systolic versus Diastolic Failure

- **systolic heart failure** (pumping problem)
  - the inability of the heart to contract enough to provide blood flow forward
  - causes problems with contraction and ejection of blood
- **diastolic heart failure** (filling problem)
  - the inability of the left ventricle to relax normally, resulting in fluid backing up into the lungs
  - Diastolic failure leads to problems with heart relaxation and filling with blood


Less blood pumped out of ventricles
Weakened heart muscle can't squeeze as well
Less blood fills the ventricles
Stiff heart muscle can't relax normally

Framingham Criteria for CHF

Major Criteria	Minor Criteria
PND	Hepatomegaly
NVE	Extremity edema
Rales	Night cough
Cardiomegaly	DOB on exertion
Acute pul.edema	Pleural effusion
S3 gallop	Dec.vital capacity
Inc.venous pressure >16cm H20	Tachycardia >120bpm
+ hepatojugular reflux	

- **hepatojugular reflux** distention of the jugular vein induced by applying manual pressure over the liver; it suggests insufficiency of the right heart.

Diagnostics

1. ECG
2. CXR
3. 2Decho- EF > 55%
4. ABG's -early CHF- metabolic acidosis
5. Liver enzymes
6. BUN / Creatinine

Diagnostics

- **brain natriuretic peptide (BNP)**
  - a hormone secreted by the heart at high levels when it is injured or overworked.
  - One of the most specific for heart failure
- **complete blood cell count**
- **complete metabolic panel** (electrolytes, creatinine, glucose, and liver function studies),
- urinalysis
- To determine the cause of heart failure include **thyroid function tests, a fasting lipid profile, and testing for offending drug levels.**

Diagnostics

- **echocardiogram, or echo**
- **chest X-ray**
- **ECG**
- **cardiac stress test**
- **cardiac catheterization (angiogram),**
- **cardiac computed tomography scan or magnetic resonance imaging,**
- **radionuclide ventriculography**
- **ambulatory ECG monitoring (Holter monitor)**
- **pulmonary function tests**
- **a heart biopsy**
- **exercise testing** such as the 6-minute walk.

Classification systems

Classification systems

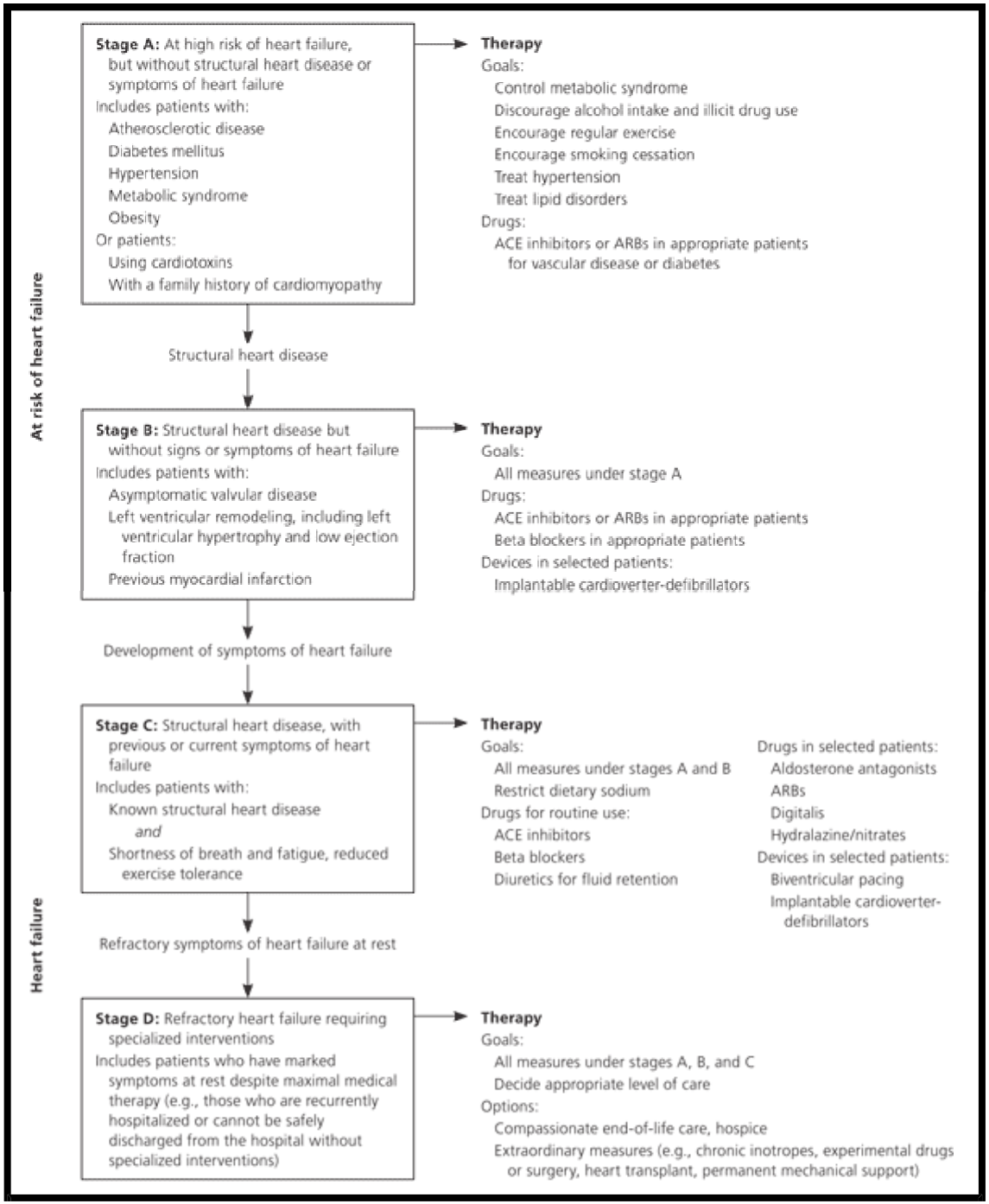
- After all the data are obtained, determine the cause and classification of the patient's heart failure and the appropriate treatment plan.
- two well-accepted **classification systems** used to describe heart failure, focusing on either structural abnormalities or symptoms:
  1. the American College of Cardiology/American Heart Association stages of heart failure (ACC/AHA)
  2. the New York Heart Association (NYHA) functional classifications

American College of Cardiology/American Heart Association stages of heart failure

- focuses on the progression and worsening of the condition over time.
- moves forward from one stage to the next based on the progression of the disease.
- helps doctors identify people who are at high risk for heart failure but don't have the condition yet (Stage A), those with heart damage but no symptoms of heart failure (Stage B), and those with heart damage and with symptoms of heart failure (Stages C and D).
- helps doctors prevent heart failure in those at risk and complements the New York Heart Association (NYHA) classification system, which gauges the severity of symptoms in people who are at stages C and D of the AHA/ACC system.

AHA/ACC Heart Failure Stages

Stage	Description
A	People at high risk for developing heart failure but who do not have heart failure or damage to the heart
B	People with damage to the heart but who have never had symptoms of heart failure; for example, those who have had heart attack
C	People with heart failure symptoms caused by damage to the heart, including shortness of breath, tiredness, inability to exercise
D	People who have advanced heart failure and severe symptoms difficult to manage with standard treatment



http://www.aafp.org/afp/2010/0301/p654.html

Algorithm of the stages in the development of heart failure, with recommended therapy for patients by stage. (ACE = angiotensin-converting enzyme; ARB = angiotensin-II receptor blocker.)

The New York Heart Association (NYHA) Classification System

- used to classify symptoms of heart disease, including heart failure.
- Symptoms are graded based on how much they limit your *functional capacity*
- Unlike the AHA/ACC staging system, the NYHA class often can shift from one level to another; for example, if you respond well to treatment and your symptoms improve, your NYHA class can go down. If you don't respond well and your symptoms continue to worsen, your NYHA class can go up.

NYHA Heart Failure Classification

Class	Description
1 (Mild)	No limitation of physical activity - ordinary physical activity doesn't cause tiredness, heart palpitations, or shortness of breath
2 (Mild)	Slight limitation of physical activity; comfortable at rest, but ordinary physical activity results in tiredness, heart palpitations, or shortness of breath
3 (Moderate)	Marked or noticeable limitations of physical activity; comfortable at rest, but less than ordinary physical activity causes tiredness, heart palpitations, or shortness of breath
4 (Severe)	Severe limitation of physical activity; unable to carry out any physical activity without discomfort. Symptoms also present at rest. If any physical activity is undertaken, discomfort increases.

Medical Management

Medical Management

- 4 D's (Basic)
  1. **Digitalis/ Digoxin**
  2. **Diuretics**
  3. **vasoDilators**
  4. **Diet**

Symptoms of Digitalis Toxicity

GI	Anorexia, nausea, vomiting, diarrhea
CNC	Headache, fatigue, lethargy
CVS	Bradycardia. Dysrhythmias
Ophthalmologic	Flickering flashes of light

* Toxicity may be treated with gastric lavage, activated charcoal or digoxin-Fab fragment (Digibind) which is the antidote

Diuretic Therapy

- To decrease cardiac workload by reducing circulating volume and thereby reduce preload
- used as symptom relief agents and are recommended for patients who have clinical signs of congestion.

Diuretic Therapy

- Assess for signs of hypokalemia especially when administering thiazides and loop diuretics
- Give potassium supplements or food rich in potassium
- Give diuretics in the morning

VasoDilators

- To decrease afterload by decreasing resistance to ventricular emptying
- Example
  - ACE inhibitors – first line
  - Nitroprusside
  - Hydralazine

84

Nursing Management

Nursing Management

1. Providing oxygenation
2. Promote rest and activity
3. Facilitating fluid balance
4. Provide skin care
5. Promote nutrition
6. Promote elimination
7. Manage acute pulmonary edema
8. Phlebotomy
9. Administer medications and assess the patient's response to them

Nursing Management

- Providing oxygenation
  - O2 at 2-6 L/min as ordered
  - Evaluate ABG's
  - Semi fowler's position

Nursing Management

- Promote rest and activity
  - Bed rest or limit activity during acute phase
  - Activities should progress through dangling, sitting up in a chair and then walking in increased distances under close supervision
  - Assess for signs of activity intolerance such as dyspnea, fatigue, and increased PR

Nursing Management

- Facilitating fluid balance
  - assess fluid balance with a goal of optimizing fluid volume
  - limit sodium intake (no added salt)
  - Limit fluid to < 1.2 L/day
  - Diuretics
  - I and O, V/S, weight
    - weigh the patient daily at the same time on the same scale, usually in the morning after the patient urinates (a 2- to 3-pound [0.9- to 1.4-kg] gain in a day or a 5-pound [2.3 kg] gain in a week indicates trouble)
  - Dry phlebotomy

Nursing Management

- auscultate lung sounds to detect an increase or decrease in pulmonary crackles
- determine the degree of jugular vein distension
- identify and evaluate the severity of edema
- monitor the patient's pulse rate and BP and check for postural hypotension due to dehydration
- examine skin turgor and mucous membranes for signs of dehydration
- assess for symptoms of fluid overload.

Nursing Management

- Provide skin care
  - Edematous skin is poorly nourished and susceptible to pressure sores
  - Frequent change in position
  - Assess sacral area regularly
  - Egg crate mattress

Nursing Management

- Promote nutrition
  - Bland, low calorie, low-residue with vitamin supplement during the acute phase
  - Small frequent feedings

Nursing Management

- Promote elimination
  - Advise to avoid straining at defecation which involves Valsalva's manuever. It increases cardiac workload.
  - Laxatives as ordered
  - Bedside commode

Nursing Management

- If acute pulmonary edema occurs in the client with CHF, the following are the appropriate management:
  - High fowler's position
  - Morphine sulfate IV push as ordered to allay anxiety and reduces preload and afterload
  - O2 per nasal canula or face mask
  - Aminophylline to relieve bronchospasm
  - Rapid digitalization
  - Diuretics
  - Vasodilators
  - Dopamine/Dobutamine
  - Monitor serum potassium

Nursing Management

- Phlebotomy
  - Dry phlebotomy or rotating tourniquets intends to allow pooling of blood in the lower extremities, thereby reducing preload
  - Occlude 3 extremities at a time
  - Rotate tourniquets clockwise every 15 minutes
  - Each extremity is occluded for a maximum of 45 minutes
  - If Bp compression cuff is used as tourniquet inflate up to slightly above diatolic pressure (10-40). This allows occlusion of venous return but arterial pressure remains

Nursing Management

- Perform neurovascular check distal to the tourniquet application:
  - Skin color
  - Skin temperature
  - Presence of pulse
  - Presence of numbness or tingling
- If tourniquet application is too tight, tissue ischemia may occur
- Assess for signs and symptoms of thrombosis and embolism
- Remove tourniquet one at a time every 15 minutes

Nursing Management

- Administer medications and assess the patient's response to them

97

Devices and surgical management

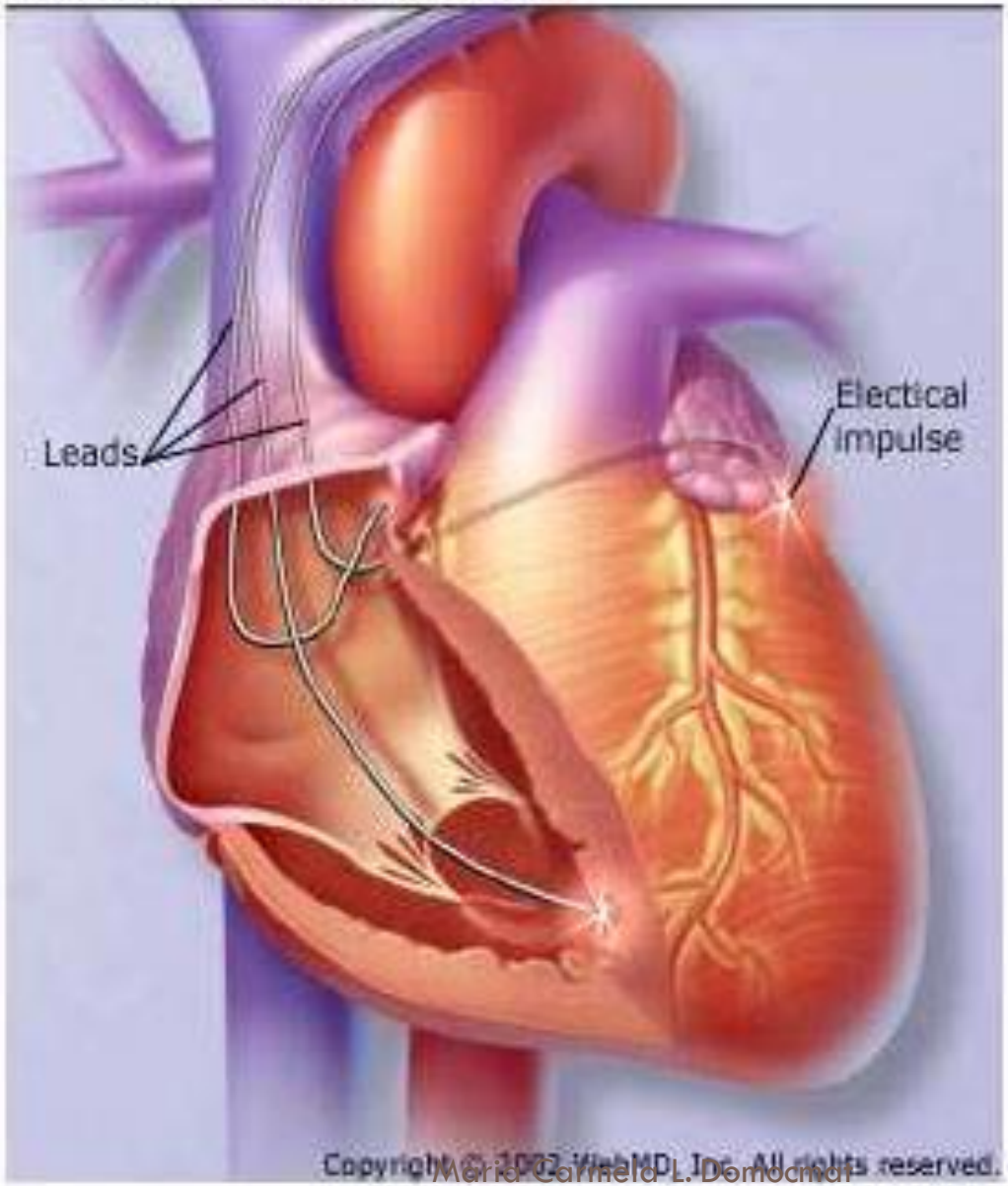
Devices and surgical management

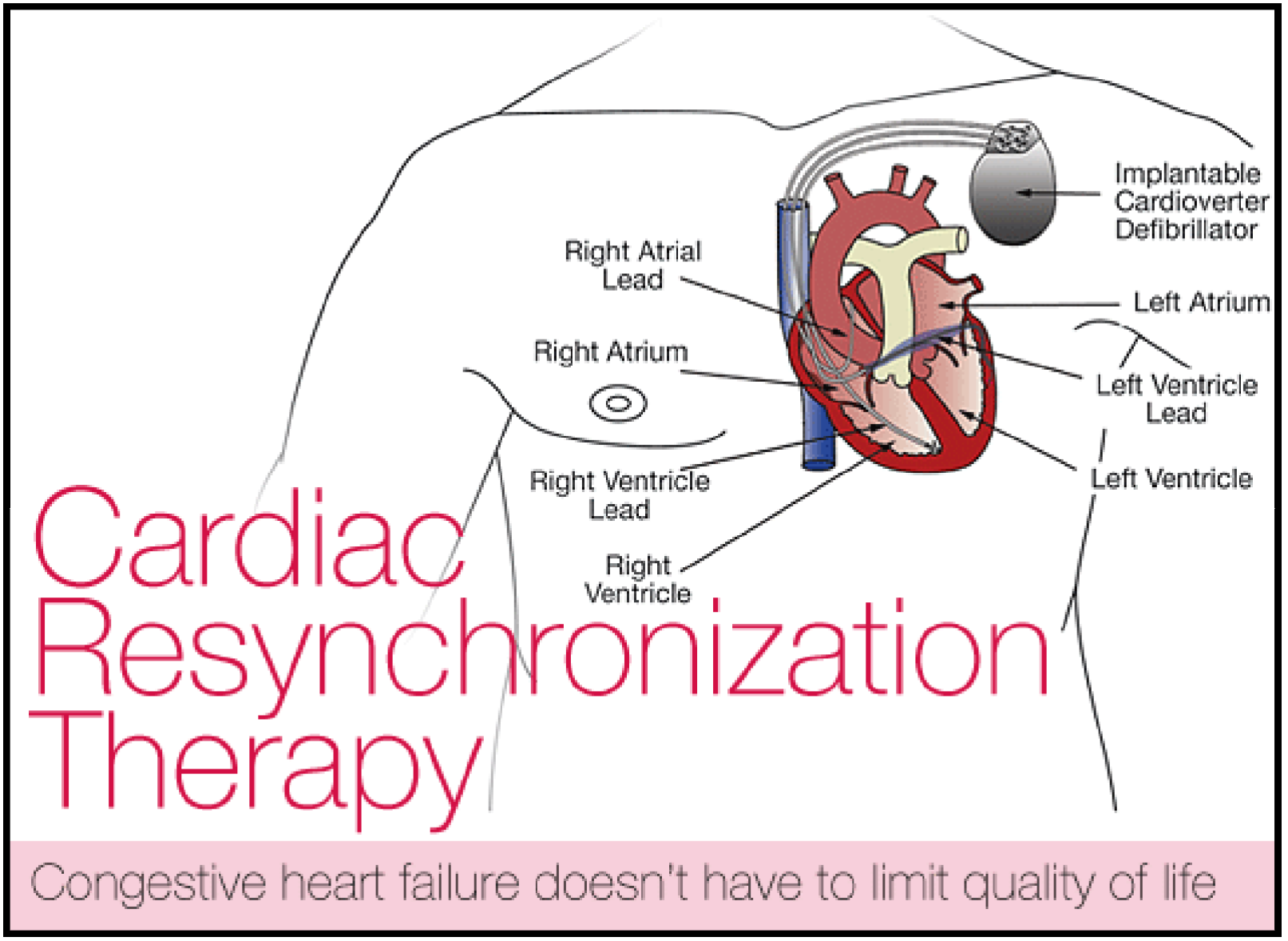
1. Biventricular pacing
2. Implantable cardioverter defibrillator (ICD)
3. Ventricular assist device, or artificial heart
4. Heart transplantation

1. Biventricular pacing

- Aka: **cardiac resynchronization therapy**
- recommended for NYHA Class III or Class IV with a QRS prolongation of greater than 120 ms who continue to experience symptoms despite adequate pharmacologic therapy.

Biventricular Pacemaker



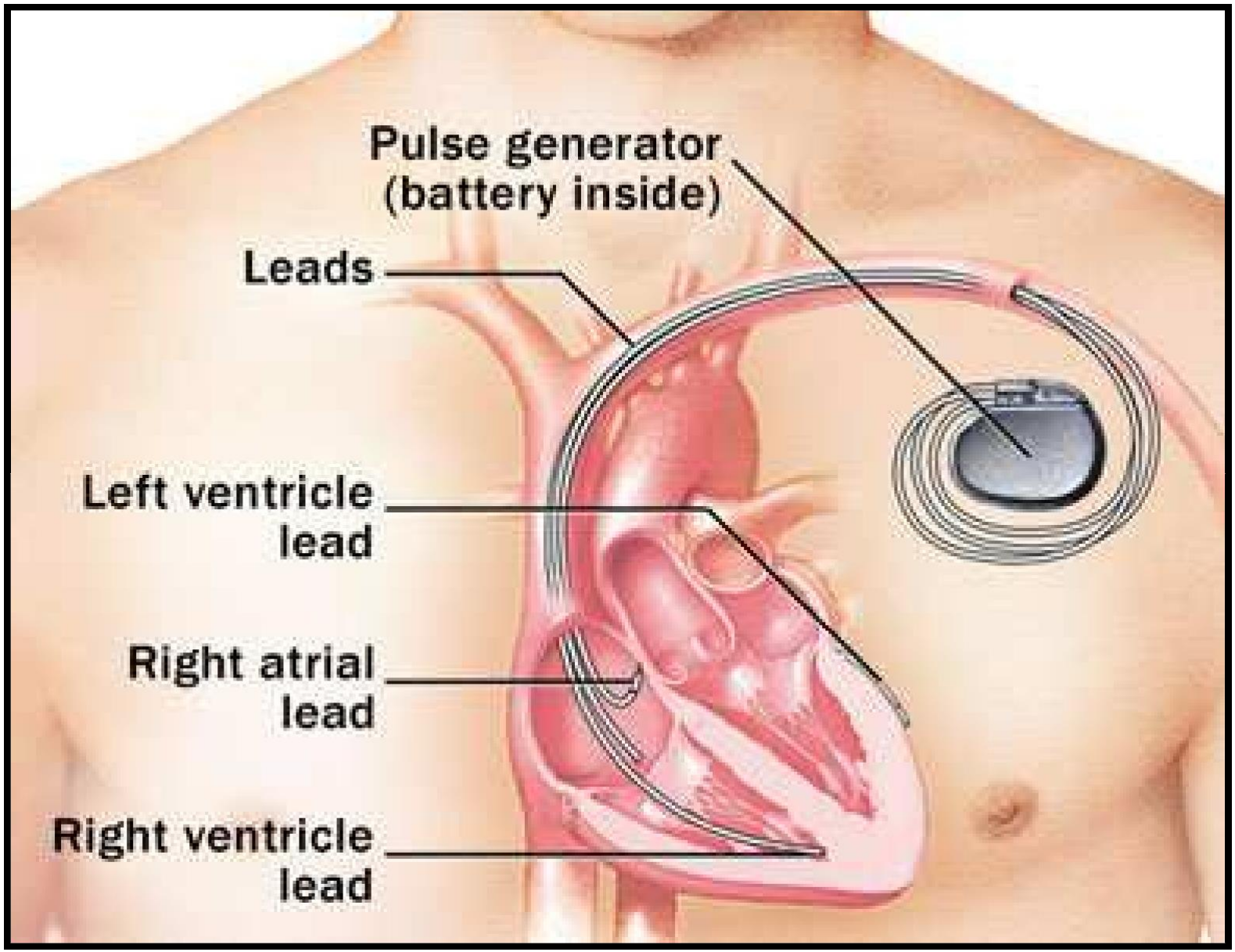


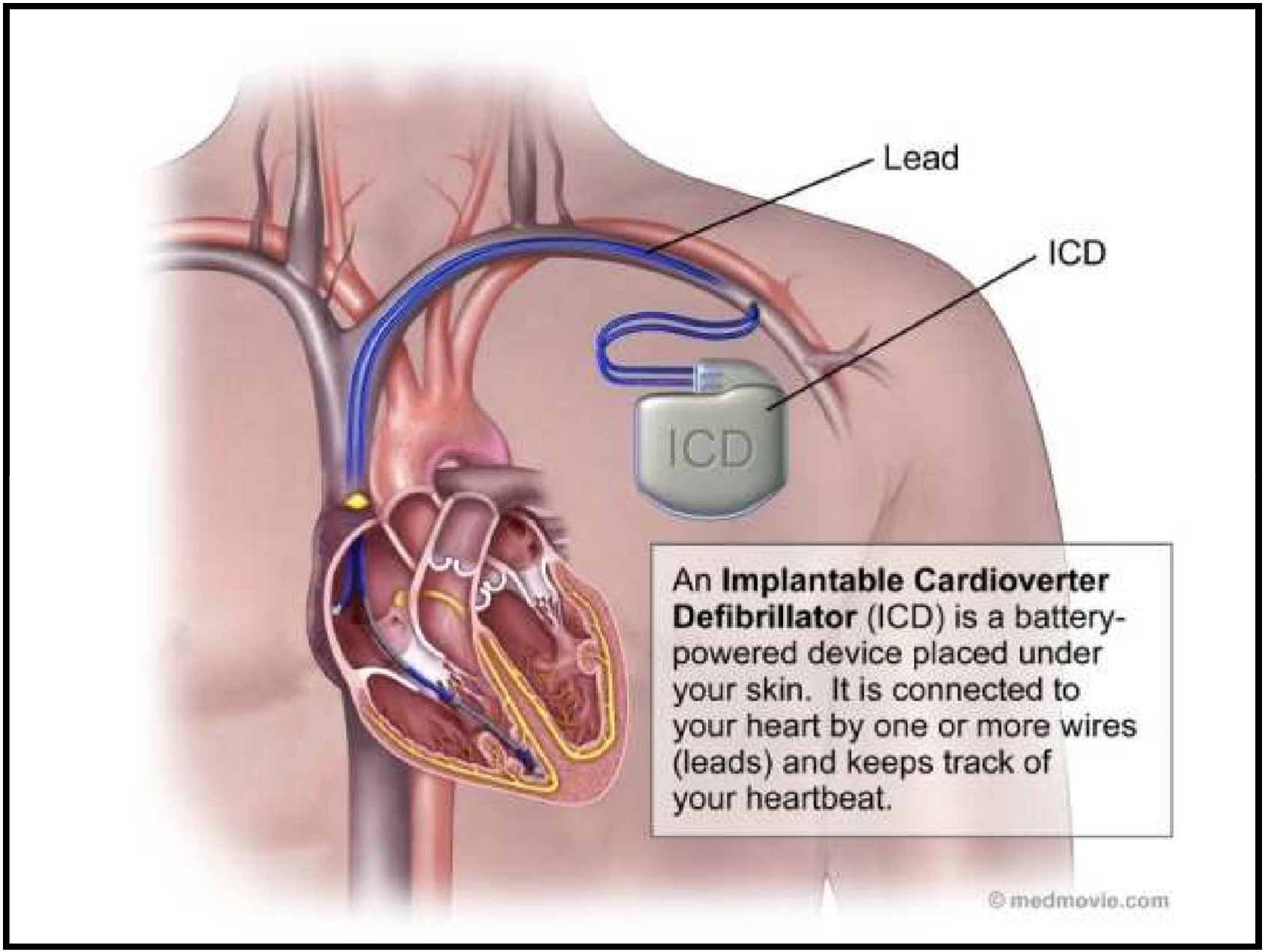
Cardiac Resynchronization Therapy

Congestive heart failure doesn't have to limit quality of life

2. Implantable cardioverter defibrillator (ICD)

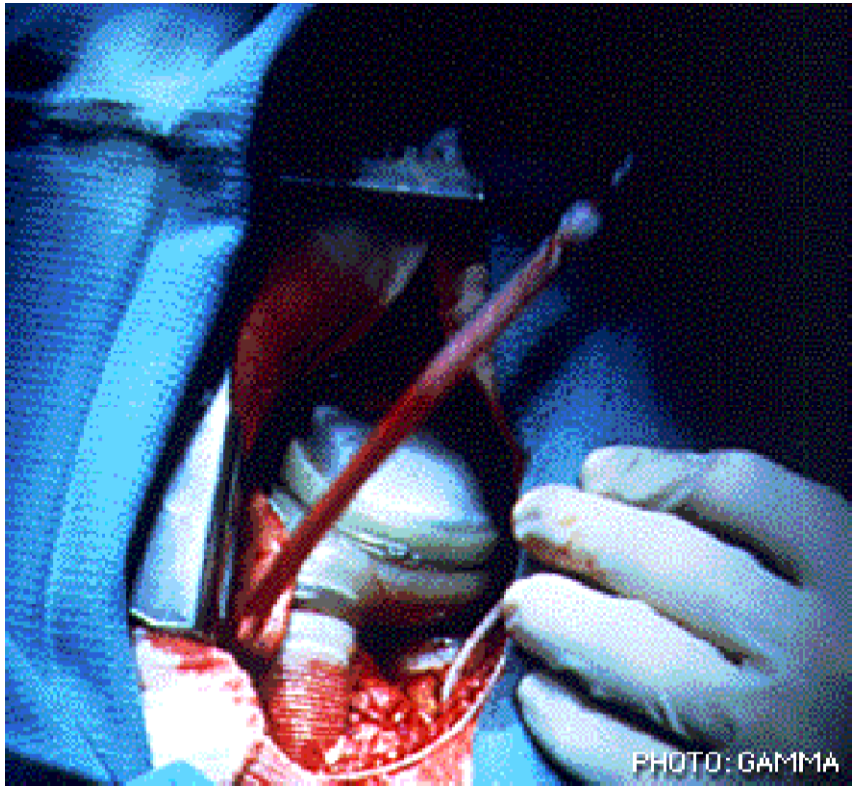
- placed to prevent sudden cardiac death caused by symptomatic and asymptomatic arrhythmias, which are seen frequently in patients with heart failure
- a primary prevention to reduce mortality for patients with an EF of less than 35%
- a secondary prevention for patients who survived a ventricular tachycardic event.


Pulse generator
(battery inside)
Leads
Left ventricle
lead
Right atrial
lead
Right ventricle
lead


Lead
ICD
ICD
An **Implantable Cardioverter Defibrillator** (ICD) is a battery-powered device placed under your skin. It is connected to your heart by one or more wires (leads) and keeps track of your heartbeat.
© medmovie.com

3. Left ventricular assist devices and artificial hearts

- Approved for both bridge-to-transplant and destination therapy
- are gaining more popularity as technology advances.
- Devices that are implanted under the skin have been developed that help monitor the patient's fluid status and then transmit the data back to the healthcare provider, which is helpful in monitoring patients remotely.
- These devices will hopefully prove to reduce hospitalizations for heart failure in the future.



Artificial Heart Transplant Surgery

4. Heart transplantation
or Cardiac transplant

- Because the prognosis for patients with heart failure is so poor, the option continues to be a viable choice.
- When reached point of end-stage heart failure, transplantation is commonly addressed.
- There's a very detailed, complex process by which the patient qualifies for transplantation; therefore, it may not be an option for every patient.

Managing the stages of heart failure

- The American College of Cardiology/American Heart Association 2005 guideline update classifies heart failure into four stages and makes specific recommendations for each.

Stage A

- identifies patients at high risk for heart failure because of conditions such as hypertension, diabetes, and obesity.
- Treat each comorbidity according to current evidence-based guidelines.

Stage B

- includes patients with structural heart disease, such as left ventricular remodeling, left ventricular hypertrophy, or previous MI, but no symptoms.
- Provide all appropriate therapies in Stage A.
- Focus on slowing the progression of ventricular remodeling and delaying the onset of heart failure symptoms.
- Strongly recommended in appropriate patients: Treat with ACE inhibitors or beta-blockers unless contraindicated; these drugs delay the onset of symptoms and decrease the risk of death and hospitalization.

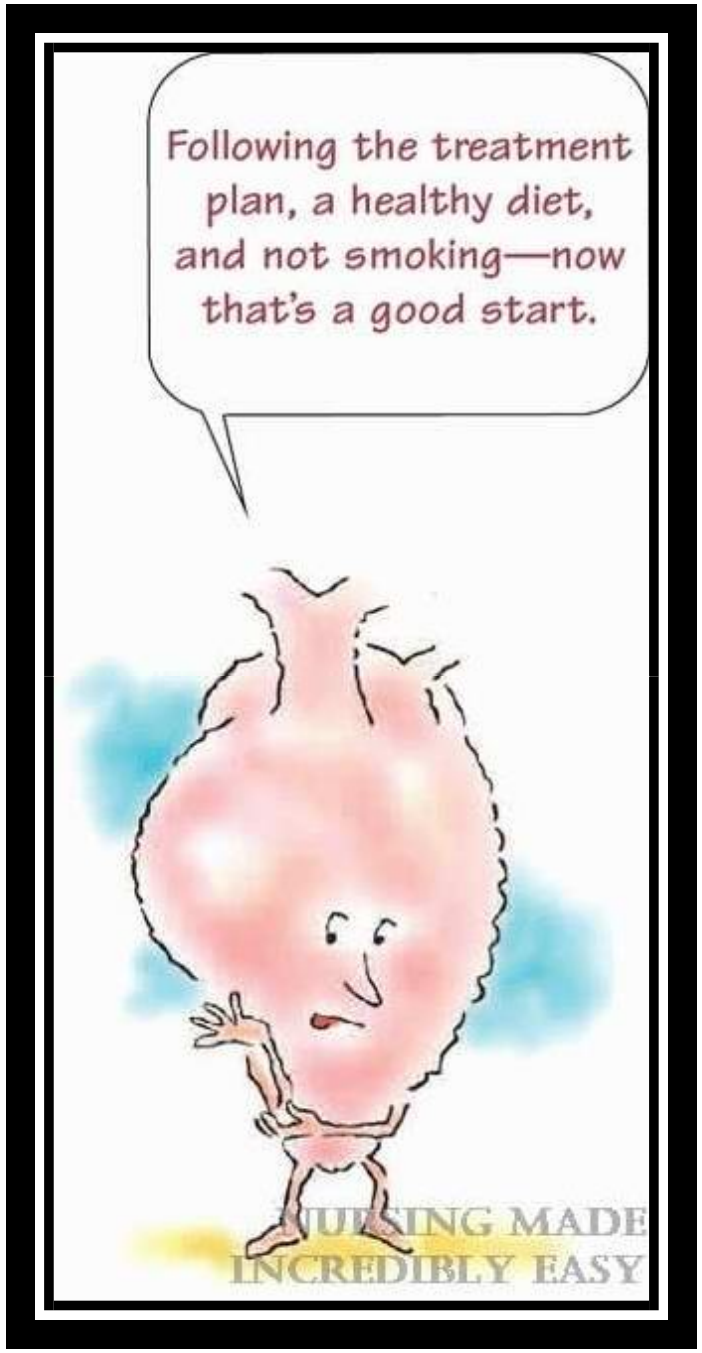
Stage C

- includes patients with past or current heart failure symptoms associated with structural heart disease such as advanced ventricular remodeling.
- Use appropriate treatments for Stages A and B.
- Modify fluid and dietary intake.
- Use additional drug therapies, such as diuretics, aldosterone inhibitors, and ARBs in patients who can't tolerate ACE inhibitors, digoxin, and vasodilators.
- Treat with nonpharmacologic measures such as biventricular pacing, an ICD, and valve or revascularization surgery.
- Avoid drugs known to cause adverse reactions in symptomatic patients, including nonsteroidal anti-inflammatory drugs, most antiarrhythmics, and calcium channel blockers.
- Administer anticoagulation therapy to patients with a history of previous embolic event, paroxysmal or persistent atrial fibrillation, familial dilated cardiomyopathy, and underlying disorders that may increase the risk of thromboembolism.

Stage D

- includes patients with refractory advanced heart failure having symptoms at rest or with minimal exertion and frequently requiring intervention in the acute setting because of clinical deterioration.
- Improve cardiac performance.
- Facilitate diuresis.
- Promote clinical stability.
- Achieving these goals may require I.V. diuretics, inotropic support (milrinone, dobutamine, or dopamine), or vasodilators (nitroprusside, nitroglycerin, or nesiritide). As heart failure progresses, many patients can no longer tolerate ACE inhibitors and beta-blockers due to renal dysfunction and hypotension and may need supportive therapy to sustain life (a left ventricular assist device, continuous I.V. inotropic therapy, experimental surgery or drugs, or a heart transplant) or end-of-life or hospice care.

Lifestyle management


Following the treatment plan, a healthy diet, and not smoking—now that's a good start.
NURSING MADE INCREDIBLY EASY

Lifestyle management

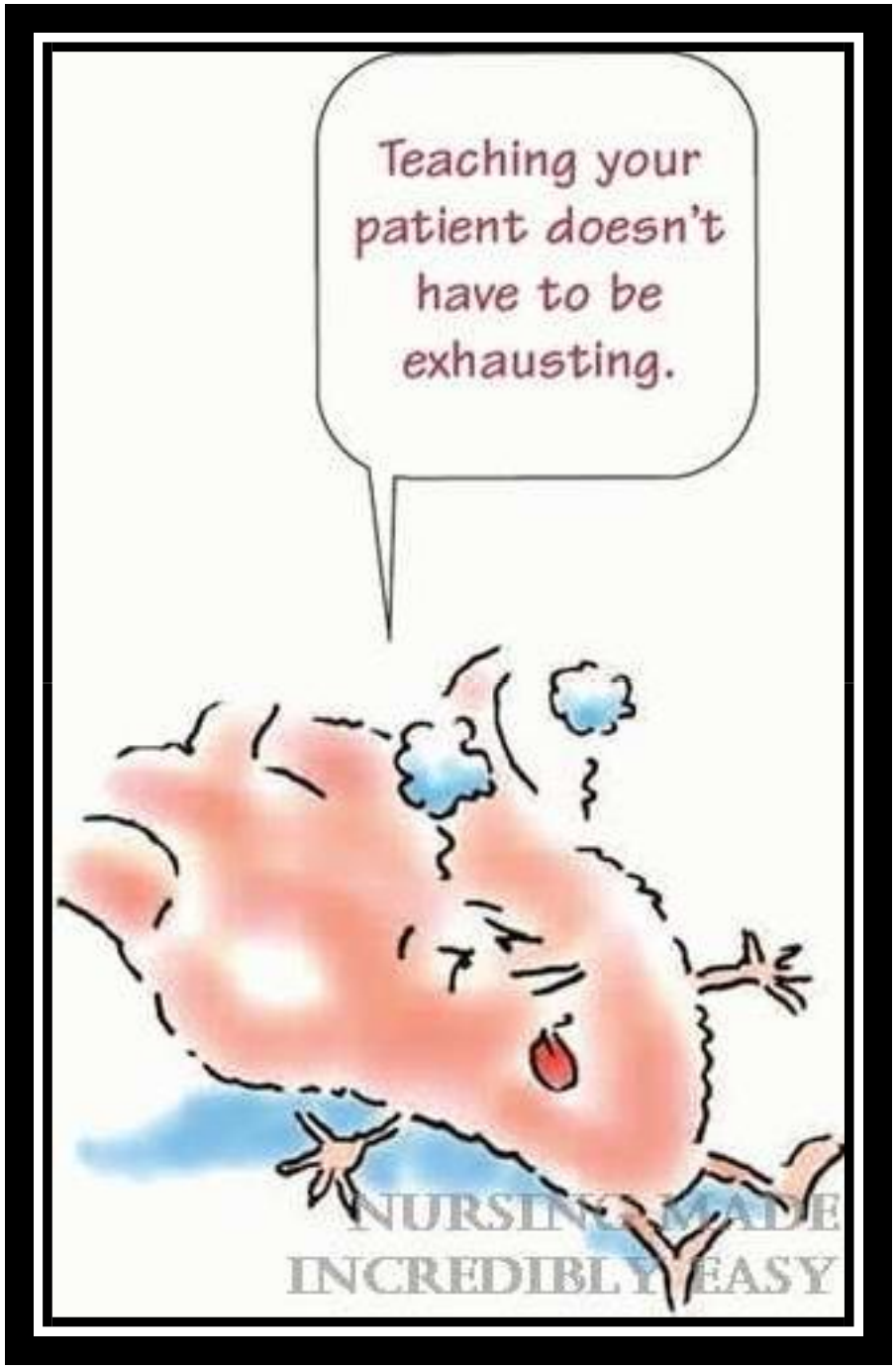
- As a nurse, the most important piece of heart failure management is helping your patients understand the lifestyle modifications that are necessary when living with this disease.
- Nurses must help patients learn how to change their lives to benefit their health.

Lifestyle management

- first step - stress the importance of **adherence to the treatment regimen.**
  - must follow through with taking medications
  - coming to follow-up appointments.
  - Data have shown that 20% to 60% of patients with heart failure don't adhere to their prescribed treatment plan. You play an important role in educating your patients on this topic.

Lifestyle management: Educate

- Symptom recognition (what to do if symptoms worsen)
- Follow-up appointments
- Activity: (Physical activity, Sexual activity)
- Diet and nutrition, Fluid intake
- Medications
- Weight monitoring, Weight loss
- Alcohol cessation, Smoking cessation
- Pregnancy


Teaching your patient doesn't have to be exhausting.
NURSING MADE INCREDIBLY EASY

By empowering the patient to embrace self-management, you can make the difference in your patient's prognosis

Thank You For Your Attention!