

- a. **Angina**
 - i. Crushing pressure
 - ii. Feeling of constant indigestion
 - iii. Radiating pain (down arm—usually left) and/or to the jaw
- b. **Dyspnea** - Especially climbing stairs
- c. **Tachycardia**
- d. Fatigue
- e. Cardiac **palpitations**
- f. **Diaphoresis**
- g. **Edema** in extremities
- h. Nausea and/or vomiting
- i. **Cyanosis**

IV. Common diagnostic tests for cardiovascular disease:

A. Non-invasive procedures:

- a. **Auscultation** – use of a stethoscope to listen to blood flow
- b. **Doppler** study – device placed over arteries to magnify sound of blood flow
- c. Blood pressure screening – use of sphygmomanometer to measure systolic and diastolic pressure
- d. Electrocardiogram – procedure in which electrical impulses of heart are measured
- e. Echocardiography – procedure that used sound waves to produce pictures of heart and great vessels

B. Invasive procedures

- a. **Cardiac catheterization** – procedure where a catheter is placed into heart via an artery or vein
 - i. Contrast media (radiopaque dye) is injected through catheter into great vessels, heart chambers, or coronary arteries to determine:
 1. abnormalities of valves and chambers
 2. **patency** and abnormalities of great vessels & coronary arteries
 - ii. Procedure is performed under **fluoroscopy** to verify correct catheter placement
 - iii. As the contrast media is injected, x-rays pictures are taken
- b. **venipuncture** – blood drawn from veins in order to test **enzyme** levels
 - i. After a **myocardial infarction** (MI), part of the heart muscle can die at which time enzymes are released
 - ii. Enzyme levels help determine time and degree of infarction
 - iii. Common enzymes are: creatinine phosphokinase (CPK) and lactic dehydrogenase (LDH)

IV. Common Diseases of the Cardiovascular System

A. Arterial Disease (the most common among all cardiovascular diseases)

- a. **Hypertension** - high blood pressure (BP)
 - i. Chronic disease
 - ii. Leading cause of stroke and heart failure
 - iii. Normal BP = 120/80 mm Hg
 1. top number is **systolic**, which measures pressure when ventricles contract
 2. bottom number is **diastolic** relax
 - iv. Causes of hypertension
 - heredity – higher incidence in certain families and ethnic groups
 - diet – high salt and fat intake increases risk of hypertension
 - age – BP tends to rise with age

- obesity - increases
 - 1. Effects of hypertension may take years to develop
 - 2. As result of hypertension, left ventricle works harder to pump blood
 - a) results in left ventricle **hypertrophy** (enlargement of heart)
 - b) extra tissue does not have adequate blood supply—can lead to heart failure
 - c) result of long-term hypertension is referred to as hypertensive heart disease
 - v. Hypertension also has adverse effects on vessels - over period of years vessels become _____ and lose elasticity - sclerotic vessels more likely to form **thrombi**
- Treatment of hypertension:
- 1. For mild hypertension: lifestyle changes
 - a. low-salt, low-fat diet
 - b. stress reducing exercise
 - c. smoking cessation
 - d. weight reduction
 - 2. For extremely high hypertension: anti-hypertensive medications
 - loss of elasticity and thickening of arterial walls
- b.
- i. Most common cause of arteriosclerosis is
 - 1. Atherosclerosis is a narrowing of vessel **lumen**
 - 2. This condition is characterized by fatty deposits (**plaque**

occlude

- 3. Plaque can ulcerate vessel or break loose and form an _____
 - iii. Narrowing from plaque buildup leads to:
 - 1. High blood pressure
 - 2. Slowing or stoppage of blood flow to tissues and organs
 - a. organs can become _____ and eventually die
 - b. the increased pressure stretches hardened arteries causing more artery damage
 - iv. Four major areas that are often effected by atherosclerosis
 - 1. Coronary arteries – arteries that feed heart muscle - damage leads to coronary artery disease (myocardial infarction)
 - 2. Cerebral arteries – arteries which feed brain - damage leads to cerebrovascular accidents (CVA), also known as strokes
 - 3. Aorta – largest artery in body; distributes oxygenated blood to body - damage can lead to aneurysm
 - 4. Peripheral arteries – feed extremities - damage may lead to vascular problems with arms and legs
- c. **Peripheral Vascular Disease (PVD)**

claudication
Chronic

1. Medications:
 - a. **vasodilators**
 - b. **angioplasty**
 - c. **coronary stent(s)**
 - d. **coronary artery bypass**

- f. Cardiomyopathy (primary)
 - i. heart muscle becomes dilated enlarged and flabby
 1. unable to contract efficiently
 2. limits circulation
 - ii. cause: idiopathic
 - iii. symptoms: fatigue, shortness of breathe (SOB) when walking, climbing stairs
 - iv. treatment: rest, medications, heart transplant
 - v. secondary cardiomyopathy
 1. due to chronic hypertension or coronary artery disease
 - vi. hypertrophic cardiomyopathy
 1. heart muscle is enlarged and thick
 2. inherited disease

- g. Carditis
 - i. General term that describes inflammation of heart
 - ii. Different forms of inflammation:
 1. pericarditis - inflammation of outer membrane of heart
 2. myocarditis – inflammation of the heart muscle
 3. endocarditis – inflammation of inner lining of heart
 - iii. causes:
 1. bacteria, viruses, rheumatic fever,
 2. secondary infection (respiratory system, urinary tract, gums and teeth)
 3. sometimes the cause is unknown
 - iv. treatment:
 1. bed rest
 2. antibiotics
 3. analgesic

- h. Valvular heart disease (related to malfunction of heart valves)
 - i. Malfunctions due to:
 1. **stenotic** valve
 2. inability to close properly
 - a. scaring from infection
 - b. prolapsed valve
 - ii. complication of valve defects
 1. tendency to form clots
 2. overworks heart and can lead to congestive heart failure
 3. bacterial endocarditis
 - iii. common causes of defective valves
 1. congenital
 2. rheumatic fever
 3. endocarditis

- i. **Arrhythmias**
 - i. Disturbance of heart's conduction system leading to abnormal heart rhythm
 - ii. Heartbeats that are too fast:
 1. Normal sinus rhythm is usually between 60 and 100 beats per minute

2. Tachycardia is when heartbeat goes over 100 beats per minute (generally not serious)
 3. **Flutter** is when the heart is regular, but beats up to 350 beats per minute
 4. is when the heart pumps in an uncoordinated, nonproductive fashion
 - a. atrial fibrillation – not deadly
 - b. ventricular fibrillation (V-fib; V-tach) – very dangerous; require **defibrillation**
-
2. degrees of heart blockage: 1st, 2nd, 3rd
 3. 3rd is the most serious and may be treated with placement of man-made pacemaker
- iv. Premature Ventricular Contractions (PVCs)
 1. early ventricular contractions are serious and may lead to ventricular fibrillation
 - v. Causes of conduction problems:
 1. some are idiopathic
 2. known causes: medications, ischemia of myocardium, previous MI
 - vi. Diagnostic Tests
 1. auscultation, electrocardiography, electrophysiology
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- j. Phlebitis (inflammation of veins)
 - i. Inflammation that commonly occurs in superficial veins of extremities
 - ii. Symptoms of phlebitis include: pain, swelling
 - iii. Causes: some are unknown; known causes are:
 1. injury, obesity, poor circulation, prolonged bed rest, infection
 - iv. Treatment: analgesics, compression stockings, exercise, warm compresses, elevation of inflamed part (above heart level)
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- k. Deep vein thrombosis (DVT)
 - i. Complication of phlebitis
 - ii. Development of clot(s) in the inflamed vessel
 1. clots will commonly occur in pelvis, thighs, and lower legs
 2. clots are asymptomatic until embolization takes place - these clots are often fatal if they embolize the circulation to lungs
 3. threatening factor for deep vein thrombosis include:
 - a. prolonged bed rest
 - b. dehydration (increases blood viscosity)
 - c. varicose veins
 - d. leg or pelvic surgery
 - e. pregnancy
 - f. obesity and sedentary lifestyle
 4. Treatment – reduce formation of clots
 - a. Bed rest with elevation of affected area
 - b.
-
- l. Varicose veins
 - i. Dilated, convoluted veins (usually in legs)
 1. Flow of blood back to heart is slowed and will collect in veins causing increased pressure, dilation, and pain - Condition eventually leads to incompetent venous valves (which normally contract to prevent backflow of blood)

Key Terms: Cardiovascular Pathology

Answers: Key Terms

Acute

Aneurysm

Angina

Angiogram

Angioplasty

Anticoagulant

Arrhythmia

Arteriosclerosis

Atherosclerosis

Atrioventricular node

Auscultation

BP

Bundle of HIS

CAB *coronary artery bypass*

Catheterization

Chronic

Claudication

Collateral circulation

Coronary artery disease

Cyanosis

Defibrillation

Diaphoresis

Diastolic

Doppler

Dyspnea

Edema

Embolus

Endarterectomy

Fibrillation

Gangrene

Hypertension

Hypertrophy

Ischemia

Lumen

Myocardial infarction MI

Necrosis

Occlusion

Palpitations

Patency

Pericardium

Peripheral Vascular Disease

Plaque

Purkinje fibers

Sclerosis

Sinoatrial SA node

Stenosis

Stent

Systolic

Tachycardia

Thrombus

Vasodialator

Venipuncture

Patient History Interview Form

Patient Name _____

DOB _____

Sex F M

FAMILY HISTORY:

	Hypertension	Coronary Artery Disease	Other
Mother	___	___	___
Father	___	___	___
Sibling(s)	___	___	___
Maternal Grandmother	___	___	___
Maternal Grandfather	___	___	___
Paternal Grandmother	___	___	___
Paternal Grandfather	___	___	___

CARDIOVASCULAR HISTORY:

Yes No

- Shortness of breath ___ ___
- General fatigue on exertion ___ ___
- Chest pain ___ ___
- Heart palpitations ___ ___
- Rapid heart beat ___ ___
- Episodes of fainting ___ ___
- Swelling of hands and/or feet ___ ___
- Leg fatigue ___ ___
- High blood pressure ___ ___
- Gum infections ___ ___
- Scarlet or rheumatic fever ___ ___

CHIEF COMPLAINT (upon seeing physician):

DIAGNOSED AS:

TREATMENT:

YOUR PRESENT HEALTH STATUS: