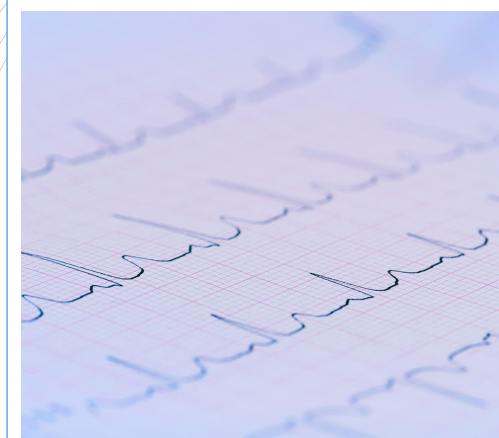


Chapter 24 Nursing Care of Patients with Occlusive Cardiovascular Disorders

Audra Xenakis, BSN, RN
Health & Illness III

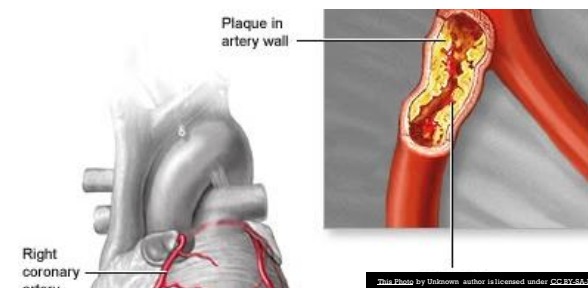


Objectives

- Explain etiologies, signs, symptoms, therapeutics of:
 - Coronary artery disease
 - Angina pectoris
 - Myocardial infarction
 - Peripheral vascular disorders
- List data to collect for patients and describe therapeutic measures to treat coronary artery disease, angina pectoris, peripheral vascular disorders, and myocardial infarction
- Plan nursing care for patients with peripheral vascular disorder

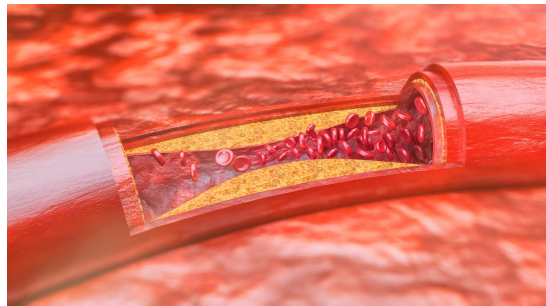
You are at
risk...
I can help!

You are at Risk...I can help you!		
Occlusive Disorder	You are at risk	I can help you!
Coronary Artery Disease—Angina Pectoris	<ul style="list-style-type: none"> • Total cholesterol levels above 200 mg/dL • Elevated LDL, VLDL and low HDL 	Encourage: <ul style="list-style-type: none"> • Healthy Diet • Quit Smoking • Exercise • Medications • Lowering lipids
Myocardial Infarction	<ul style="list-style-type: none"> • Men older than 50 • Women after menopause • African Americans • Diabetics • Hypertension • Elevated LDL and low HDL • Excessive alcohol use • Obesity • Sedentary lifestyle • Emotional stress • Smoking 	Type of Medications:
Acute Coronary Syndrome—Myocardial Infarction	<ul style="list-style-type: none"> • Conditions caused by lack of oxygen to heart • Silent Ischemia: <ul style="list-style-type: none"> • Occurs without pain; older adults, hypertension, diabetics • Myocardial Infarction <ul style="list-style-type: none"> • Also known as Heart attack • Death of heart muscle • Caused by blockage of coronary arteries • Women: heart disease remains leading cause of death in women in U.S. 	First hour after symptoms is crucial administering: Oxygen: Medications: Monitor for:



Arteriosclerosis
Formation of plaque (fatty buildup) in arteries

Causes coronary heart disease by obstructing blood flow in cardiac vessels



Diagnostic test-
increased risk:

Total cholesterol levels
above 200 mg/dL

Elevated LDL, VLDL and
low HDL

Therapeutic measures

Healthy Diet

Quit
Smoking

Exercise

Medications

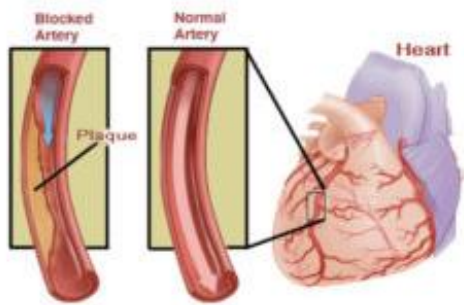
Lowering
lipids

Coronary artery
diseases

Obstruction of blood flow to coronary arteries

Those at risk

- Men older than 50
- Women after menopause
- African Americans
- Diabetics
- Hypertension
- Elevated LDL and low HDL
- Excessive alcohol use
- Obesity
- Sedentary lifestyle
- Emotional stress
- Smoking



Angina Pectoris

Chest pain due to ischemia from reduced coronary blood flow and oxygen to heart muscle

Types of Angina

STABLE ANGINA

- Occur moderate exertion
- Lasts only a few minutes
- Relieved with rest and nitroglycerin

UNSTABLE ANGINA

- Increases unpredictably with less exertion
- Not relieved by rest or medication
- Serious condition can lead to Myocardial infarction (MI)

Types of Angina

VARIANT OR VASOSPASTIC ANGINA

- Caused by coronary artery spasms
- Occurrence is cyclical-happens at same time each day
- Pain occur with exercise or rest, Often at night
- Serious

MICROVASCULAR ANGINA

- Spasms of tiniest arteries of heart
- Reduces blood flow
- Pain is more severe and last longer

Signs and symptoms



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Chest pain that is...

- Discomfort
- Burning
- Fullness
- Heaviness
- Pressure
- Squeezing

Can radiate down

- Arm
- Shoulder
- Neck
- Jaw
- Back

May be

- Pale
- Diaphoretic
- Dyspneic



Diagnostic Tests

ECG

Exercise stress test

Echocardiogram

Coronoary angiography

Therapeutic Measures

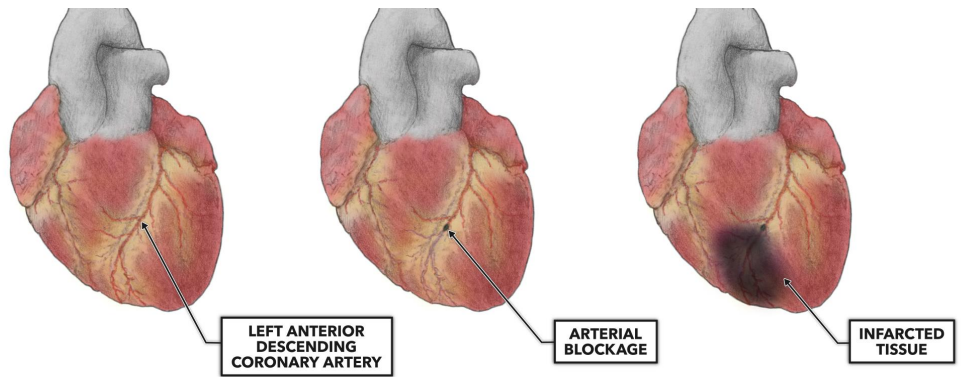
- **Vasodilators**
 - Nitroglycerin-nitrate vasodilates to increase oxygen to myocardium and peripheral vessels...heart does not have to work so hard
 - Sublingual tablet in buccal pocket-decreases burning and tingling sensation
 - Education:
 - rise slowly
 - call 911 if doesn't relieve
 - replace nitroglycerin every 3-6 months
 - keep in original container-inactive with light
 - use of erectile dysfunction medication is contraindicated-can cause hypotension
 - avoid alcohol
- **Calcium Channel Blockers**
 - Dilates peripheral arteries, decrease myocardial contractility and workload
 - Norvasc, cardizem, if pulse is less than 60 or systolic BP less than 90mmHg-hold medication

Therapeutic Measures

- **Beta Blockers**
 - Decrease pulse, BP, cardiac output; Tenormin, Lopressor; contraindicated in asthma, heart block, bronchoconstriction; if pulse less than 60 or 90 BP-hold medication
 - Education abrupt withdrawal may result in diaphoresis, palpitations, headache and tremors
- **Angiotensin-converting enzyme inhibitors**
 - Blocks angiotensin (vasoconstrictor)
 - Capoten, vasotec,
 - if pulse less than 60 or 90 BP-hold medication
 - Give 1 hour before meals
 - Give capoten on empty stomach
 - Take first dose at night to adjust to lower BP; rise slowly check BP weekly; report cough

Therapeutic Measures

- **Statins**
 - Reduces LDL
 - Lipitor, Crestor, Zocor
 - Monitor liver function; breakdown of skeletal muscle (rhabdomyolysis)
 - Education: take in evening which cholesterol is highest, report muscle pain
- **Antiplatelets**
 - Aspirin
 - Plavix
 - Enteric-coated aspirin daily use
 - Monitor for bleeding

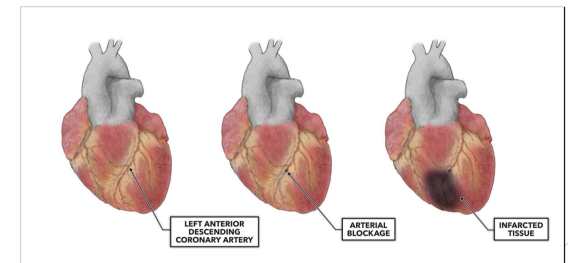


Acute Coronary Syndrome

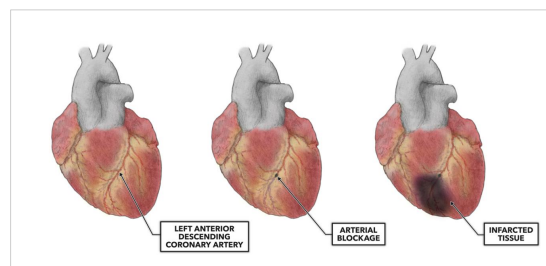
- Conditions caused by lack of oxygen to heart
- Silent Ischemia-
 - Occurs without pain; older adults, hypertension, diabetics

Acute Coronary Syndrome

- Sudden Cardiac Death
 - Cardiac arrest triggered by
 - lethal ventricular arrhythmias
 - asystole from abrupt occlusion of coronary artery

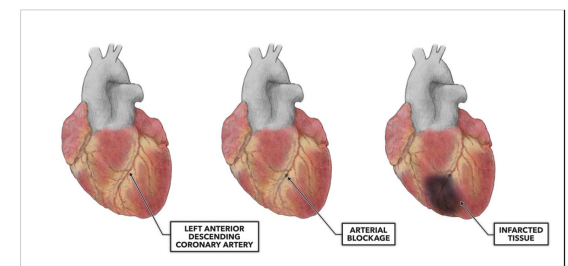


Acute Coronary Syndrome



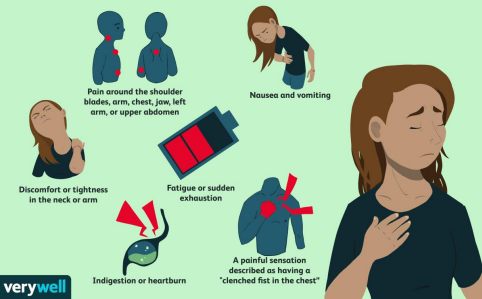
- Myocardial Infarction
 - Also known as Heart attack
 - Death of heart muscle
 - Caused by blockage of coronary arteries

Acute Coronary Syndrome



- Myocardial Infarction
 - Two types:
 - NSTEMI-Non-ST-Segment-Elevation MI (partial blockage)
 - STEMI-ST-Segment-Elevation-MI (deadliest-complete blockage)

Symptoms of ST-Segment Elevation Myocardial Infarction (STEMI)



Myocardial Infarction- Signs & Symptoms

- Chest pain
- Does not get better with rest or nitroglycerin
- Crushing, viselike
- Elephant standing on chest
- Pain radiate to back, arms, shoulders, neck, or jaw
- Shortness of breath, dizziness, nausea, sweating
- Lungs
 - Crackles or wheezing with heart failure

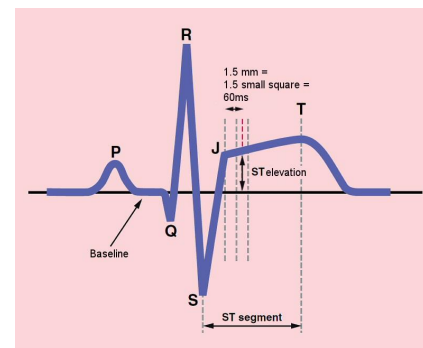
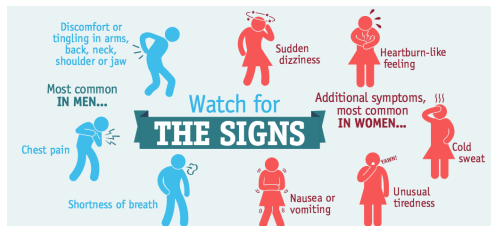


Myocardial Infarction- Timely Treatment

- May fail to recognize MI
- Waiting 2 to 24 hours before seeking medical care is common
- First hour after symptoms is crucial for administering medication to restore blood flow, minimize damage, save life
- Do not drive self to hospital; call 911

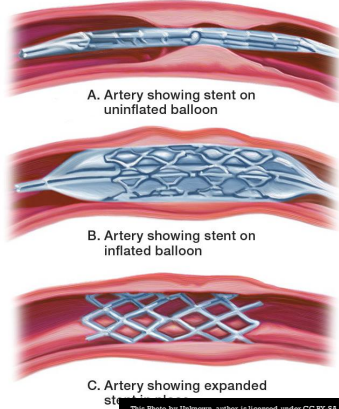
Myocardial Infarction- Women and Heart Disease

- Women: heart disease remains leading cause of death in women in U.S.
- Symptoms may atypical
 - Extreme fatigue epigastric pain, jaw pain, indigestion nausea and vomiting
 - Prodromal symptoms of
 - Fatigue
 - Sleep disturbances
 - Shortness of breath



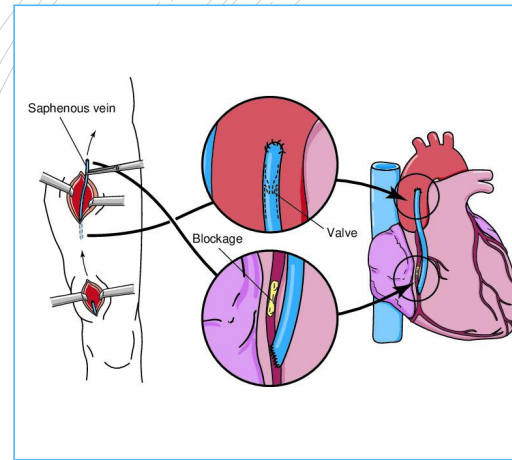
Diagnostic Tests-MI

- Patient history
- ECG-Changes in "Q" "T" and "ST" segments
- Cardiac troponin I or T
- Myoglobin
- Creatine Kinase



Therapeutic Measures

- Coronary Angioplasty
- Coronary Stent
- Thrombolytic Medications-dissolves clot
- Oxygen-2L/min
- Vasodilators
- Antiplatelet
- Analgesics
 - Morphine-most common
 - Given increments of 2 to 8 mg IV every 5 to 15 minutes
 - Monitor for
 - Hypotension
 - Respiratory depression
 - Oversedation
 - Morphine sensitivity



Treatment of MI: Coronary Artery Bypass Graft (CABG)

- During surgery
- Saphenous vein from leg or mammary artery from chest wall is used to reroute blood around segment of narrowed coronary artery
- Two Types
 - Arrested Heart Surgery
 - Heart is stopped
 - Cardiopulmonary bypass machine in use
 - Beating Heart Surgery
 - Heart continues beating during surgery
 - Cardiopulmonary bypass machine is not used

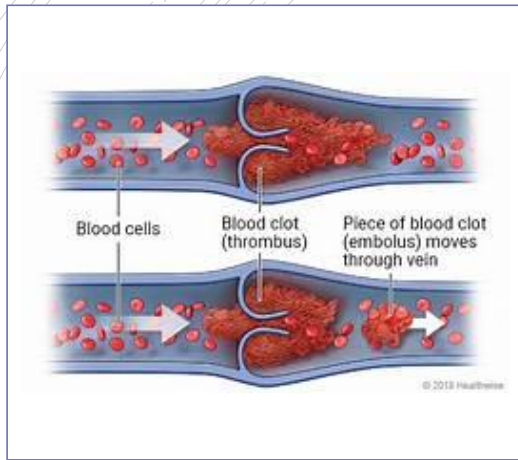
Peripheral Vascular Disease

Arterial or venous

Common in elderly and diabetic population

Peripheral Artery Disease-Treatment

- Diet
 - Low fat, cholesterol
- Medications
 - Vasodilators
 - Thrombolytics
- Invasive Therapies
 - Percutaneous transluminal angioplasty; peripheral atherectomy-removes plaque
 - Stents



Arterial Thrombosis and Embolism

- Sudden and dramatic
- Thrombus (clot) in artery
 - Normally in legs
- Embolus (clot breaks off and travels)



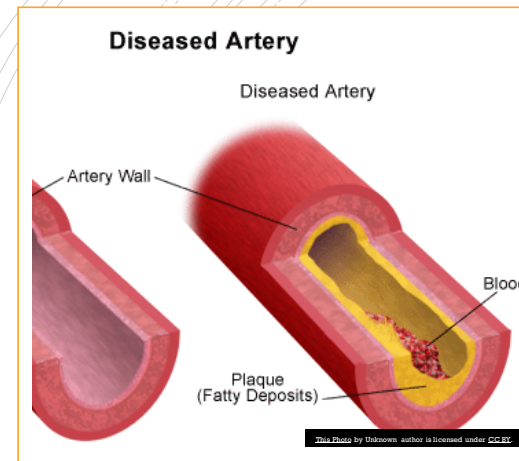
Arterial Thrombosis and Embolism Signs and Symptoms

Six P's	Pain
	Pallor
	Pulselessness
	Paresthesia
	Paralysis
	Poikilothermia



Arterial Thrombosis and Embolism Treatment

- Treat ASAP or necrosis can occur
- Goal is to save affected limb
- Anticoagulant therapy
 - IV heparin followed by Coumadin
- If loss of limb is imminent
 - Surgery or thrombolytic



Peripheral Artery Disease

- Chronic, progressive narrowing of arteries that lead to obstruction or occlusion
- Lower extremities
- Atherosclerosis-most common

PAD-Signs and Symptoms

- May not have symptoms
- Symptoms often occur late
- Changes in extremities
 - Pain in calves with activity-intermittent claudication
- Blood supply to muscle is decrease, muscles are unable to receive adequate oxygen
 - Ischemia develops
 - Skin color changes-decreased blood supply
 - Extremity is pale when leg is elevated
 - Leg in dependent position-reddish-purple or cyanotic
 - Cool to touch
 - Hair loss
 - Dry, flaky, scaly, pale, mottled skin



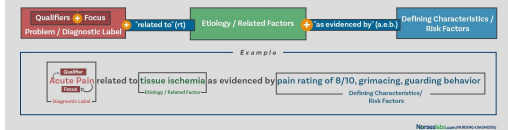
- ### Raynaud's Disease
- Vasoconstriction from cold and stress
 - Mainly affects women and hands
 - Caused by spasms in arteries in fingers and toes
 - When exposed to cold
 - Vessels constrict
 - Causing ischemia
 - Hyperemia (redness of hands from dilation of vessels)
 - Over time vessels can remain constricted leading to gangrene and necrosis

Raynaud's Disease-Treatment

- Education
 - Keep hands warm
 - Gloves
 - Preparing food
 - No smoking, caffeine, alcohols or stress
- Vasodilators

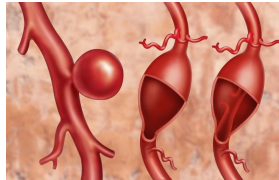
Nursing Diagnosis for Peripheral Arterial Occlusive Disorders

Components of a NANDA-I Nursing Diagnostic Statement



- Acute pain
 - Pain assessment
 - Administer pain medications, monitor for intermittent claudication
- Ineffective tissue perfusion
 - Monitor peripheral pulses
 - Report absent pulses
 - Monitor skin for ulcerations/breakdown
 - Activity intolerance
 - Walking program

Aneurysms



- Bulging, ballooning, dilation at a weakened point of an artery
- Cause is unknown
- Risk factors:
 - Atherosclerosis, hypertension, smoking, trauma, congenital abnormalities, hereditary
- Most common type is abdominal aorta aneurysm (AAA)
- Survival rates are higher with elective surgery



Aneurysms-Signs & Symptoms

- Very few until AAA grows
- Classic sign is back or flank pain
- Severe, sudden back, flank, or abdominal pain and a pulsating abdominal mass-rupture!
- If an aneurysm ruptures
 - Immediate surgery, mortality is high

Aneurysms-Diagnostic Test and Treatment

CT scan and abdominal ultrasound

Treatment

- Lower blood pressure
- Monitor for growth
- Surgical intervention
- Bypass graft

Educate

- Avoid heavy lifting
- Gentle exercise
- Stop smoking
- B/P control

Aneurysm over 5 cm-rupture risk is greatest



Varicose Veins

- Elongated, tortuous, dilated veins
- Cause is unknown
- Thought to be structural defect in vessel walls and vein valves being incompetent
- Causes
 - Heredity
 - Pregnancy
 - Prolonged standing
 - Obesity

Varicose veins- Signs and Symptoms

Disfigurement of lower extremities

- Dull pain relieved by walking or elevating leg

Treatment

- Improve circulation
- Relieve pain
- Avoid complications

Cosmetic concerns

- Compression stocking
- Surgical intervention
- Laser treatment
- Stripping
- Ablation

Venous Stasis: Ulcers

Result of chronic venous insufficiency

Reduce venous blood return leads to

Blood flow congestion leads to

Decreased circulation leads to

Discoloration of lower extremity and leathery appearance

Ulcers develop due to increased pressure and rupture of small veins

Difficult to cure



Venous Stasis Ulcers- Treatment

Focus to decrease edema and heal ulcers

- Compression stockings, bandages
- Start at foot and go up, rewrap twice a day
- Bedrest with elevation of feet above heart
- Avoid long periods of standing
- Exercise and walk

Don't cross legs or wear constrictive clothing

Topical antibiotic

Unna Boot with Zinc

Skin grafting



Vascular Surgery

Embolectomy and Thrombectomy

Used to restore blood flow

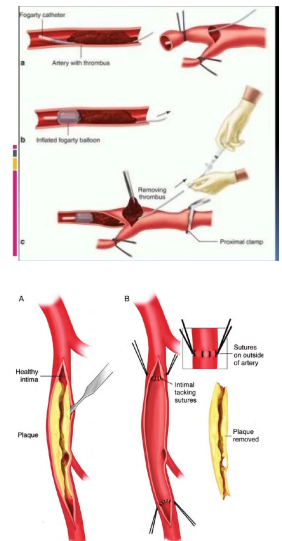
Vascular bypass and grafts

Used for aortic aneurysms

Endarterectomy

Arteriosclerotic plaques are dissected from the lining of the arterial wall

Most used for carotid artery



Vascular Surgery-Complications

Hemorrhage

- Manual pressure applied to site of bleeding
- Notify HCP immediately

Drainage may cause swelling and hematoma

- Drain can be placed to help

Extensive surgeries may result in significant blood loss

- Fluid volume deficit or shock

Assess pedal pulses

Nursing Process for Patient After Vascular Surgery

Head-to-toe assessment

- Patent airway
- Vital signs monitored
- Address pain
- IV and drains
- Abdominal girth
- Neurovascular checks
- Extremity movement and sensation
 - Pulses
 - Temperature
 - Color, capillary refill

Intake and Output

Labs

- CBC
- INR
- PTT
- Electrolytes

Report abnormalities immediately to HCP