Chapter 25
Drugs for Angina Pectoris and Myocardial Infarction

Coronary Artery Disease
- One of the leading causes of death in United States
- Narrowing or occlusion of a coronary artery
- Narrowing causes myocardial ischemia

Atherosclerosis
- Most common etiology of CAD
- Caused by presence of plaque

The Heart
- Hardest working organ in body
- Needs steady supply of nourishment
- Disturbances in blood flow may result in life-threatening consequences

Blood Flow to Heart
- Myocardium receives blood via coronary arteries
- Diverge into smaller branches around heart
- Provide continuous supply of oxygen and nutrients
Angina Pectoris

- Acute chest pain due to insufficient O2 to myocardium
- Accompanies physical exertion or emotional excitement
- Causes increased myocardial oxygen demand

Signs and Symptoms

- Steady, intense pain in anterior chest
- Pain radiating to left shoulder, left arm, spine, jaw
- Fear of impending death
- Pallor, dyspnea, diaphoresis
- Tachycardia, elevated blood pressure

Duration Usually Short

- Pain diminishes with physical rest and/or stress reduction

Classification

- Stable or unstable
- Pain with stable angina usually relieved by rest
- Unstable angina associated with pain at rest
- Vasospastic angina caused by spasms of coronary arteries
- Silent angina occurs in absence of angina pain

Angina vs. Myocardial Infarction

- Identify and differentiate the two conditions
- Pharmacological treatment differs considerably between conditions
- Myocardial infarction carries a high mortality rate

Role of Nurse

- Monitor client’s condition
- Provide education on prescribed drug treatment
- Obtain vital signs and medical and drug history
- Obtain information on lifestyle and dietary habits
- Obtain description of symptoms and pharmacological treatment initiated by client
Nitrates

- Obtain blood pressure and monitor
- IV nitrates have greatest risk for severe hypotension
- Educate client that alcohol is contraindicated with nitrates
- If hypotension occurs, withhold nitrates

Beta-Adrenergic Blockers

- Assess apical heart rate
- Obtain blood pressure and continue to monitor
- Monitor respiratory status
- Monitor serum-glucose levels
- Educate client not to stop medications abruptly

Calcium Channel Blockers (CCB)

- Assess vital signs
- Hold medication if client hypotensive (heart rate of 60 or below)
- Obtain blood pressure in lying, sitting, and standing positions
- Assess for signs of heart failure
- Obtain daily weights
- Assess bowel functions

Thrombolytics

- Assess for conditions that may place client at increased risk for bleeding
- Start IV and arterial lines, and insert Foley catheter
- Monitor vital signs and intake and output
- Monitor changes in laboratory values
- Assess for changes in neurological status
- Assess for dysrhythmia

Relieve Angina Pain

- Two categories
  – Terminate episode in progress
  – Decrease frequency of episodes

Reduce Myocardial Demand for O₂ by

- Slowing heart rate
- Reducing preload
- Reducing contractility
- Lowering blood pressure (reduced afterload)
Nitrates

- **Prototype drug**: nitroglycerin (Nitrostat)
- **Mechanism of action**: to be potent vasodilator
- **Primary use**: for lowering myocardial oxygen demand
- **Adverse effects**: hypotension, dizziness, blurred vision, dry mouth, headache

Beta-Adrenergic Blockers

- **Prototype drug**: atenolol (Tenormin)
- **Mechanism of action**: to reduce the cardiac workload
- **Primary use**: for prophylaxis of chronic angina
- **Adverse effects**: hypotension, dizziness, fatigue during exercise

Calcium Channel Blockers

- **Prototype drug**: diltiazem (Cardizem)
- **Mechanism of action**: to reduce cardiac workload
- **Primary use**: for lowering blood pressure
- **Adverse effects**: hypotension, bradycardia, heart failure, constipation

Thrombolytics

- **Prototype drug**: reteplase (Retavase)
- **Mechanism of action**: to dissolve clots obstructing coronary arteries
- **Primary use**: for restoring circulation to myocardium
- **Adverse effects**: excessive bleeding

Reteplase Animation

Click here to view an animation on the topic of reteplase.

Nitrates

- Potent vasodilator
- Isobid, Isordil, Sorbitrate
Beta-Adrenergic Blockers

- Reduce cardiac workload
- Prophylaxis for chronic angina
- Lopressor, Toprol-XL, Inderal

Calcium Channel Blockers

- Reduce cardiac workload and dilate coronary arteries
- Bring more oxygen to myocardium
- Norvasc, Vascor, Cardizem

Thrombolytics

- Dissolve clots
- Restore circulation to myocardium
- Reteplase

Drug Therapy for Angina and Myocardial Infarction

- Assessment
  - Monitor client's condition and provide education
  - Obtain and monitor vital signs
  - Obtain history: lifestyle, current drugs, and dietary habits
  - Obtain description of the frequency and severity of symptoms
  - Ascertain any pharmacological treatment initiated by the client

Possible Nursing Diagnoses

- Knowledge deficit regarding condition
- Ineffective regimen management
- Risk for hypotension

Client Goals and Expected Outcomes

- Client's ability to explain angina pectoris
- Client able to verbalize ability to follow prescribed therapy
Implementation

- Encourage compliance with medication regimen
- Provide additional education as needed

Evaluation

- Ideal outcome criteria
  - Free of, or reduced, episodes of angina or MI
  - Clients verbalize importance of taking prescribed medications

Selected Drugs for Angina and Myocardial Infarction

Table 25.1 Selected Drugs for Angina and Myocardial Infarction