

Lecture 9 : Critical Care Nursing

Myocardial infarction

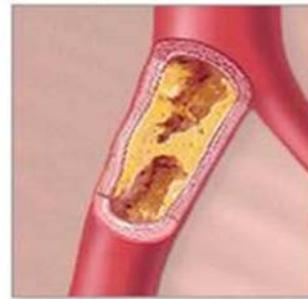
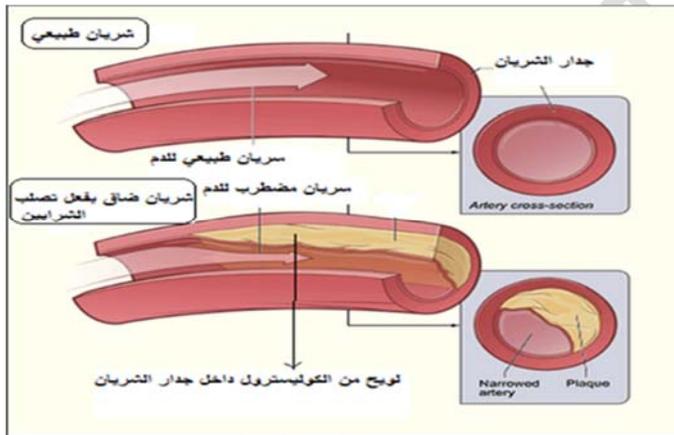
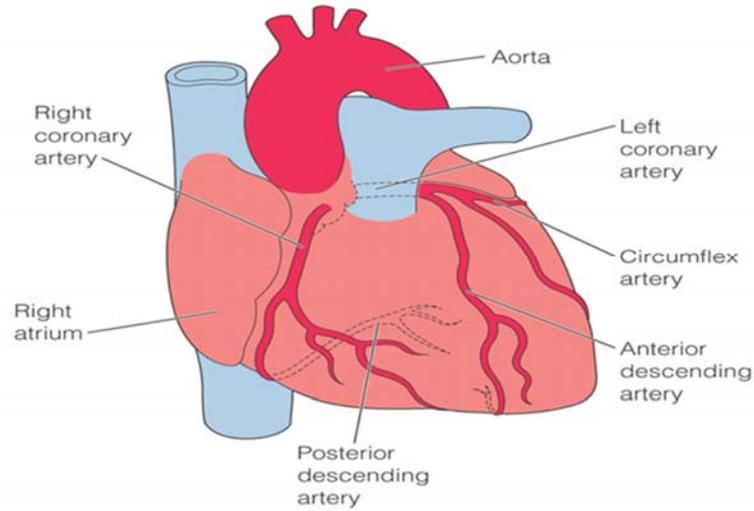
Definition:

Other names: coronary occlusion- heart attack

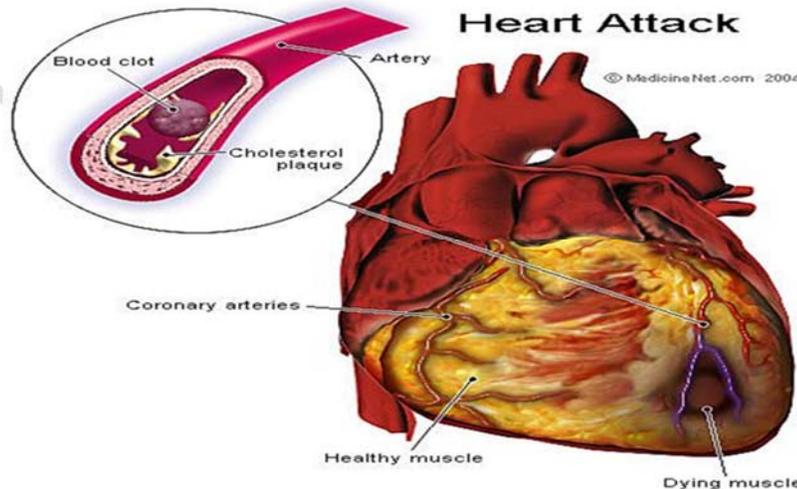
- **Myocardial infarction** refers to the process by which myocardial tissue is destroyed in regions of the heart that are deprived of an adequate blood supply because of a reduced coronary blood flow (a prolonged lack of myocardial oxygenation leading to necrosis of a portion of the heart muscle).

Pathophysiology and Etiology of Myocardial infarction :

MI almost always occurs in patients with coronary atheroma as a result of plaque rupture with superadded thrombus. This occlusive thrombus consists of a platelet-rich core ('white clot') and a bulkier surrounding fibrin-rich ('red') clot. About 6 hours after the onset of infarction, the myocardium is swollen and pale, and at 24 hours the necrotic tissue appears deep red owing to haemorrhage. In the next few weeks, an inflammatory reaction develops and the infarcted tissue turns grey and gradually forms a thin, fibrous scar.



Blockage in right coronary artery

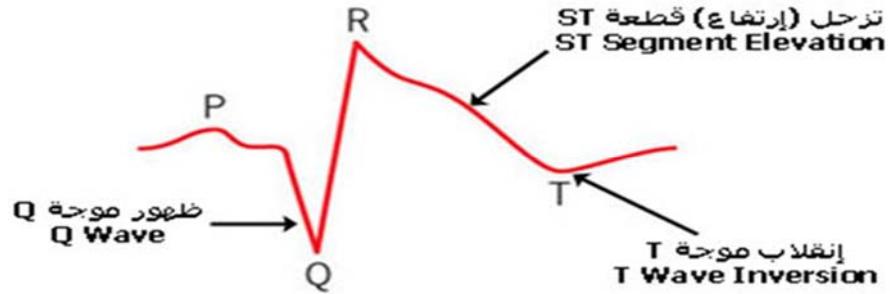


Clinical manifestations of Myocardial infarction:

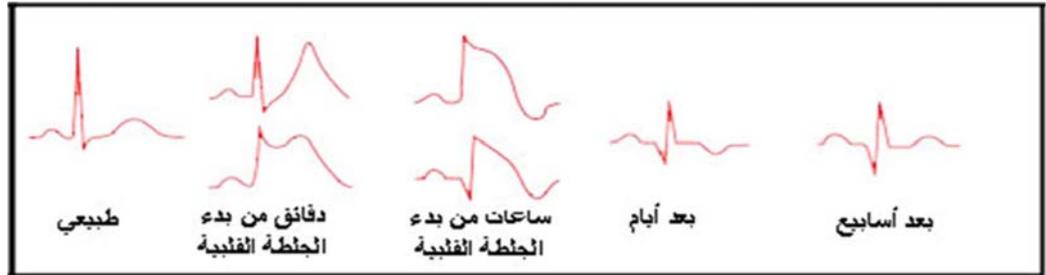
- Pain is the cardinal symptom of an MI
- Anxiety and fear of impending death
- Nausea and vomiting
- Breathlessness
- Collapse/syncope
- Signs of sympathetic activation: pallor, sweating, tachycardia
- Bradycardia
- Hypotension, oliguria, cold peripheries

Diagnostic evaluation:

- A history of ischaemic-type chest pain (Clinical features).
- Electrocardiogram (ECG)
showing a Q wave, ST elevation and T wave inversion.



تغيرات تخطيط القلب الكهربائي الناتجة عن الجلطة القلبية



- Blood test (Cardiac enzymes) troponins, C Reactive Protein, and creatine kinase,
- Echocardiogram
- Chest radiographs
- Exercise stress test

Medical management:

■ Beta Blockers

- Beta 1 → cardiac muscle → increase rate and contraction
- Beta 2 → dilates bronchial smooth muscle

■ Ca⁺⁺ Channel Blockers

Acts on vasculature blocking Ca⁺⁺ and causing vasodilation , and Vasculature vasodilation

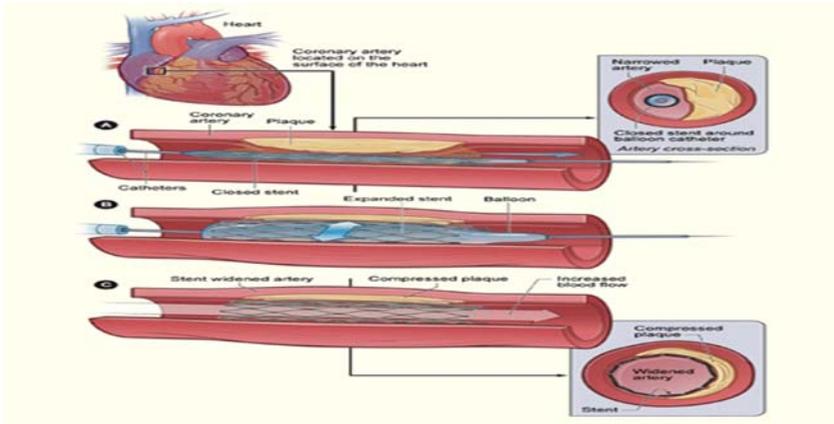
■ Anti-Hypercholesterolemia

Reduction in cholesterol thus helping to reduce atheroma formation

■ Antiplatelet Medication: (Plavix, Aspirin).

■ Analgesic (morphin sulphate) & antiemetic

■ **Surgical therapy :Angioplasty (balloon) and cardiac catheterization .**



● **Lifestyle:**

- Diet
- Exercise Preventive treatment
- Low fat, low cholesterol diet
- Cessation of smoking

Nursing process:

Assessment:

- A careful history
- Description of symptoms (chest pain, palpitation, dyspnea, syncope or sweating). Each symptoms must be evaluated with regard to time, duration, precipitating & relieving factors. In addition complete physical assessment for:

*level of consciousness

*Heart sounds

*Peripheral pulses

*Lung sound

Nursing diagnosis:

- Chest pain related to reduced coronary blood flow.
- High risk for breathing pattern ineffective related to fluid overload.
- Anxiety related to fear from death
- High risk for tissue perfusion alteration related to decreased cardiac output
- Health maintenance alteration related to no adherence to therapeutic regimen

Patient's goals:

- Report that pain is decreased
- Breath effectively
- Experience less anxiety level
- Have improved tissue perfusion
- Adhere to the self-care program

Nursing intervention:

- Relief or control of chest pain
- Alleviate respiratory difficulties
- Reduce the anxiety level
- Maintain adequate tissue perfusion
- Help the patient to adhere to the self-care program

Complication of Myocardial infarction:

1. Acute pulmonary edema .
2. Heart failure .
3. Cardiogenic shock .
4. Dysrhythmias and cardiac arrest .
5. Pericardial effusion
6. Myocardial rupture .

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