

③ Myocardial Infarction

definition :- It is a heart attack abbreviated MI. It focus on myocardium & changes that occur in it due to sudden deprivation of circulating blood.

- main change is necrosis of myocardial tissue
Infarction refer to the clogging of artery

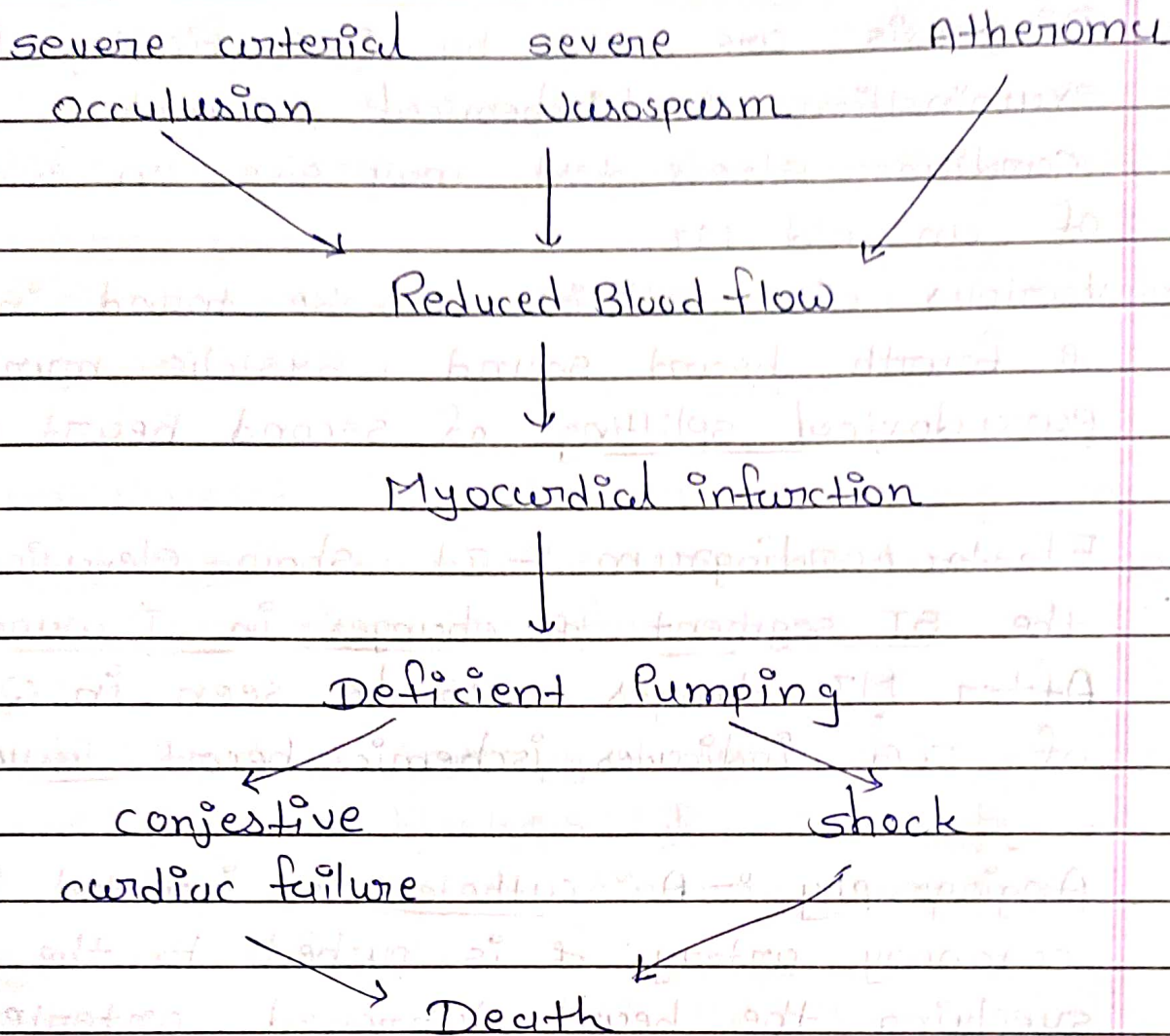
Introduction :- It is a disease that occur when blood supply to a part of heart is interrupted which result in oxygen shortage cause damage & death to heart tissue.

- Myocardial infarction started when a small amount of collateral blood begins to enter into infarcted area.

Etiology :-

- Chest pain is the most common symptom of acute myocardial infarction & described as sensation of tightness, pressure or squeezing.
- Pain radiate to left arm but may also radiate to lower jaw, neck, right arm, back & epigastrium where it may cause heartburn.
- Chest pain originating from sudden interruption of blood flow to the heart is called an acute coronary syndrome.
- Associated symptoms include :
- shortness of breath
 - left ventricular failure with pulmonary edema
 - diaphoresis (sweating)
 - weakness
 - light headedness
 - nausea
 - Vomiting
 - palpitation
 - loss of consciousness

Pathophysiology



- common cause of MI is narrowing of epicardial blood vessels due to atheromatous plaques.
- Plaque gets ruptured with exposure of basement membrane resulted in platelet aggregation, thrombus formation, fibrin accumulation & hemorrhage.
- These can result in partial or complete occlusion of blood vessel which result into myocardial infarction.

Diagnosis

Diagnosis are made by EKG findings, Physical examination & biochemical parameters.
Cardiac stress test may give an evidence of an old MI.

Various abnormalities can be found in third & fourth heart sound, systolic murmurs, paradoxical splitting of second heart sound.

Electrocardiogram :- It show elevations of the ST segment & changes in T wave.
After MI changes can be seen in Q waves of ECG indicates ischemic heart tissue.

Angiography :- A catheter is inserted into an coronary artery & is pushed to the vessels supplying the heart. Narrowed arteries can be identified.

Treatment

- first line treatment is : oxygen, aspirin, glyceryl trinitrate & analgesic (morphine) are administered as soon as possible.

Reperfusion :- In acute phase of disease it is necessary to salvage as much myocardium as possible to restore function of heart chambers. This is achieved with thrombolytic

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drugs such as Streptokinase, urokinase.
Aspirin is standard therapy for all reperfusion

Monitoring for arrhythmias :- Is to prevent life-threatening arrhythmias or conduction disturbance.

This require monitoring by anti-arrhythmic agents.

Antiplatelet drug therapy :- Aspirin or clopidogrel should be continued to reduce risk of thrombus formation.

beta-blocker therapy :- metoprolol or carvedilol are given. β -blockers ↓ se mortality & morbidity. They also improve symptoms of cardiac ischemia.

ACE inhibitors therapy :- are given within 24-48 hours post MI in hemodynamically stable patients with a history of MI, diabetes mellitus, hypertension, anterior location of infarct, tachycardia & evidence of left ventricular dysfunction.

Statins therapy :- Has been shown to reduce mortality & morbidity during post-MI, irrespective of patient's cholesterol level.

Aldosterone antagonist agent :- Eplerenone has been shown to further reduce the risk of cardiovascular death during post-MI in patients with heart failure & left ventricular dysfunction