

## Myocardial Infarction: A Global Disease Burden

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### Introduction

Myocardial infarctions are one of the leading causes of death in the developed world which is also termed as heart attacks. Myocardial Infarction (MI) is an irreversible death which occurs due to the necrosis (cell death) of heart muscles and secondarily prolonged lack of nutrients and oxygen supply to the heart for its functioning, which is considered as ischemia [1].

### Symptoms

The most common symptom in myocardial infarction is chest pain or discomfort which may travel into the shoulder, arm, back, neck or jaw. Often the pain may occur at the center or left side of the chest and lasts for more than a few minutes. The discomfort may occasionally feel like heartburn. Other symptoms may include Shortness of Breath (SOB), nausea, feeling faint and tired. About 30% of people experiences atypical symptoms [2]. Women more often have the symptoms like neck pain, arm pain or feel tired instead of feeling discomfort. MI may cause heart failure, arrhythmias, cardiac arrest or cardiogenic shock (Figure 1).

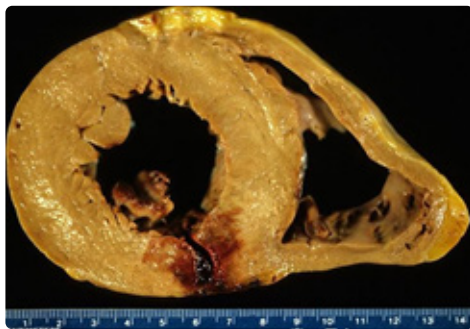


Figure 1: Myocardial Infarction (MI).

### Treatment

Treatment of an MI (Myocardial Infarction) depends on the patient condition.

- Aspirin is an appropriate immediate treatment for a suspected myocardial infarction which reduces the inflammation, relief the pain and prevents the blood clotting [3].
- Nitroglycerin or opioids may be used to relieve the chest pain; however, it is not significant for overall treatment.
- Supplemental oxygen is recommended to the patients with low oxygen levels (shortness of breath).
- In a STEMI, treatments attempt to restore blood flow to the heart and include Percutaneous Coronary Intervention (PCI) formerly known as angioplasty with stent) is a non-surgical procedure where catheter is placed to make a small structure called a stent, where the blockage is removed using medications [4].

- People who have a Non-ST Elevation Myocardial Infarction (NSTEMI), they were treated by using blood thinner called heparin, along with PCI treatment who are at high risk.

- Rather than angioplasty, Coronary Artery Bypass (CABG) surgery is recommended to the people who have multiple coronary arteries blockages with diabetes.

### Diagnosis

#### 12-lead ECG

The 12-lead ECG (also known as EKG or electrocardiogram) can help to assess the location of heart got damaged and we can watch the heart rate and rhythm.

#### Blood studies

Blood may be drawn from the patient to measure levels of biochemical markers.

#### Echocardiogram (echo)

An echo can be performed during and after a heart attack to assess the heart pumping function; through this we can identify the condition of the heart. The echo is also used to learn the injured parts of the heart like valves, septum, etc. which have been injured during the heart attack.

#### Cardiac catheterization (cath)

Cardiac catheterization (cath) may be performed during the first hours of a heart attack if medications are not relieving the ischemia. The cardiac cath guide to choose the method of treatment that might be performed.

### Medications

The goals of performing medication therapy are to break the blood clots, prevent platelets aggregation to the plaque formation, stabilize the plaque, and prevent further ischemia or symptoms. Thrombolytic medications are used to clear the arterial blocks. Medications like aspirin, thrombolytic therapy ("clot busters") heparin and other antiplatelet drugs were used [5].

### Prevention

There are many prevention measures to reduce the risk of a heart attack:

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- Exercise regularly
- Quit smoking
- Weight management
- Eat a healthy diet, such as low carbohydrate and low fat diet.
- Monitor lipid profile.

After an MI, the patient is suggested to take the healthy diet, lifestyle modifications, along with taking continue medications of aspirin, beta blockers and statins.

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