

## Myocardial Infarction Interventions

Interventions in myocardial infarctions (MI) are aimed at reducing further myocardial tissue damage by improving oxygenation and decreasing workload of the heart. The mnemonic MONA is often used but should not be confused with the order in which to give the medications as aspirin is recommended to be given first. If medications alone cannot return blood flow, surgical techniques can be used. The best method of care for myocardial infarctions is prevention. Other medications and surgical interventions may also be used in myocardial infarction. These include beta blockers to decrease heart rate, Glycoprotein IIa/IIIb inhibitors (abciximab & tirofiban) to decrease clotting, and ACE inhibitors or ARBs to decrease myocardial remodeling of tissue within 48 hours.



PLAY PICMONIC

### MONA

#### Morphine

##### Morphine-ranger

Morphine is an opiate analgesic medication which is used to decrease pain. It is important to remember that pain medication is often given secondarily. Giving that analgesic medications decrease pain and stress, which decreases sympathetic activity thus lowering heart rate and this lower heart rate decreases tissue oxygen demand.

#### Oxygen

##### O2-tank

Oxygen increases the percentage of oxygen available to the alveoli. Providing high flow O<sub>2</sub> maximizes the oxygenation potential of the lungs.

#### Nitrates

##### Nitro-tank

Nitroglycerin is given via tablet sublingually and also via IV in some cases. This medication causes venous dilation which decreases preload and workload of the heart. This decrease of workload causes less oxygen demand from the cardiac tissue. Ask the patient if they are taking medications such as sildenafil (Viagra) prior to administering these medications.

#### Aspirin

##### Aspirin

Aspirin commonly abbreviated ASA decreases platelet aggregation and to a lesser extent decreases vasoconstriction. It is typically given as 325 mg by mouth. It is important to know that you should give non-enterically coated chewable “baby” aspirin, which is 81 mg. If using enterically coated aspirin in an emergent situation, it should be crushed or chewed.

#### Thrombolytics (tPA)

##### Trombone-light

Thrombolytics such as tPA (tissue plasminogen activator), Alteplase, or reteplase (Retevase) can be administered within 6 hours of a myocardial infarction. These medications break down clots that have already formed in coronary arteries. They have a long list of contraindications and precautions, which mostly include a history of prior bleeding or recent surgery.

### Invasive Procedures

## Cardiac Catheterization

### Heart Catheter-cat

Also called "Cardiac Cath" or "Coronary Angiography," this procedure involves placing a long tube through an artery into the coronary arteries to evaluate the extent of coronary artery disease blockages. This procedure will indicate the need for further interventions such as stent placement or CABG.

## Stent Placement

### Stent

Stents are tubular mesh-like structures placed inside blood vessels to increase blood flow. They are placed via cardiac catheterization or PTCA through large arteries. Stents are coated with medications like clopidogrel (Plavix) to reduce clots from forming on the mesh.

## Angioplasty

### Angel-pastry

Angioplasty, otherwise referred to as percutaneous transluminal angioplasty (PTCA) is a minimally invasive procedure that is used for stent placement through a large artery like the femoral. A stent is introduced over a balloon which is inflated in place pressing the stent into the walls of the vessel increasing the lumen size.

## Coronary Artery Bypass Grafting (CABG)

### Cabbage

Coronary Artery Bypass Graft (CABG) commonly pronounced "cabbage" is an invasive procedure that involves removing a vein such as the saphenous vein from the leg and creating an artificial graft for blood flow around blocked coronary arteries.

## Considerations

### Decrease Modifiable Risk Factors

#### Down-arrow Risk Factors

Educate the patient on the importance to reduce modifiable risk factors like smoking cessation, diet modifications, and the addition of exercise into the daily routine. A sedentary lifestyle is a major cause of coronary artery disease which leads to MI. It is important to remember that modifiable risk factors may be different with patients of varying cultural backgrounds. Patients should also abstain from excessive alcohol use and attempt to decrease stress as both increase the risk for MI.

### Resuming Activity (Physical, Sexual)

#### Getting Physical before Sexual

Commonly patients will inquire about when they are able to resume sexual activity. Post myocardial infarction, they should be advised it is safe to engage in sexual activity once they are able to climb two flights of stairs successfully.