



**SNS COLLEGE OF ALLIED HEALTH SCIENCES**

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai



## **DEPARTMENT OF CARDIAC TECHNOLOGY**

**COURSE NAME: PATHOLOGY**

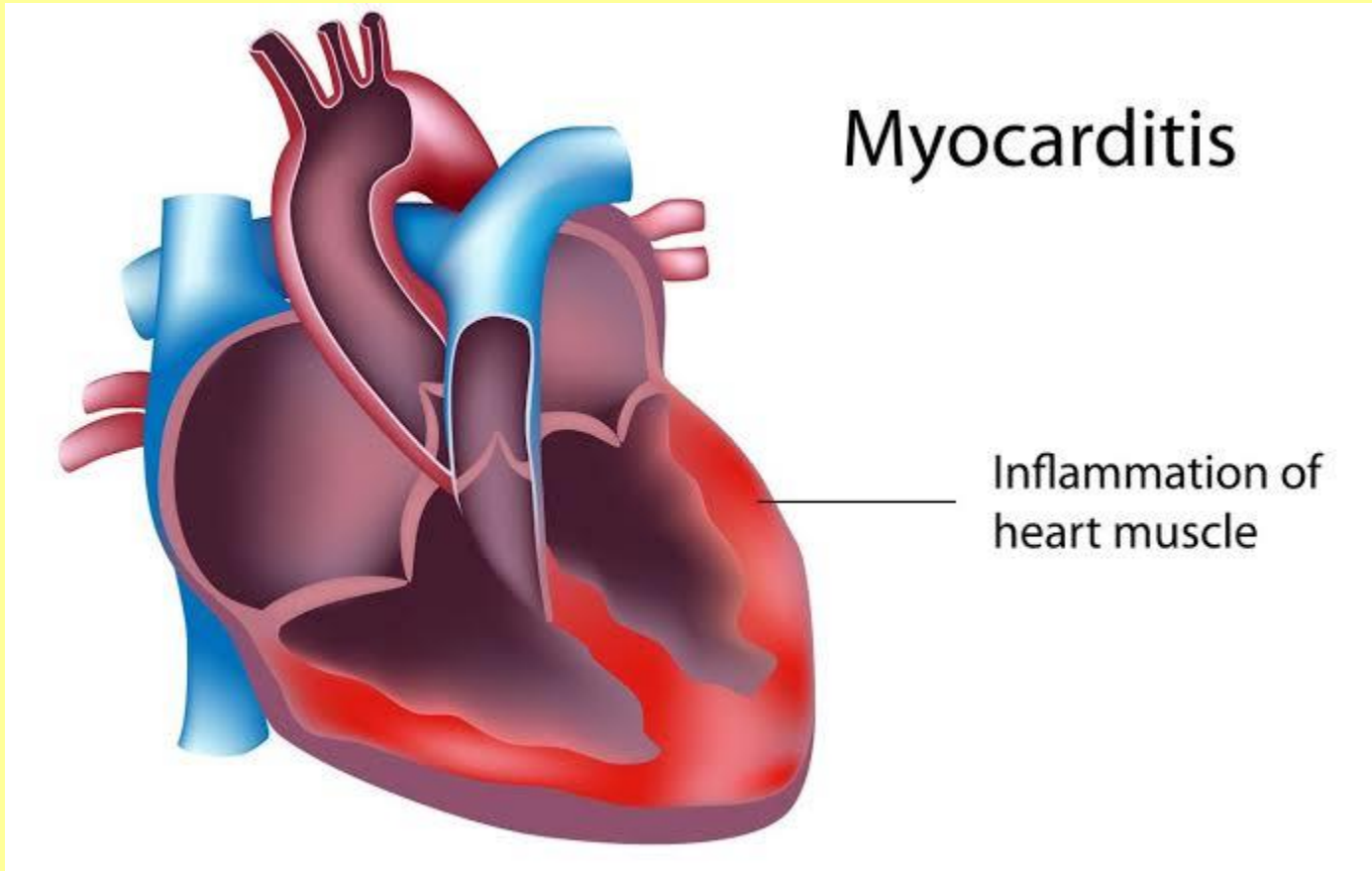
**I YEAR**

**SYSTEMIC PATHOLOGY:**

**TOPIC II: MYOCARDITIS**



# MYOCARDITIS





# Introduction



- Inflammation of the middle layer of the heart wall.
- Myocarditis is usually caused by a viral infection. A severe case can weaken the heart which can lead to heart failure, abnormal heartbeat and sudden death.



# ETIOLOGY



- Alcohol
- Drugs
- Lead
- Spider bites
- Wasp stings
- Snakebites
- Chemotherapy and radiation therapy



# PATHOPHYSIOLOGY



- Due to any causes → genetic mutation

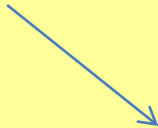
Viral infection

structural protein absence

Persistence of virus

Myocardial dysfunction

Dilated cardiomyopathy





# SIGNS & SYMPTOMS



- Shortness of breath
- Abnormal heartbeat,
- A sharp or stabbing chest pain or pressure, which may spread to your neck and shoulders
- Fatigue

Signs of infection, such as

- Fever
- Muscle aches
- Sore throat
- Headache
- Diarrhea



# COMPLICATION



- Heart failure.
- Heart attack or stroke
- Arrhythmias
- Sudden cardiac death



# DIAGNOSIS



- **Blood tests-** to check for infection, antibodies, or blood cell counts
- In blood test Biomarkers are elevated
- **chest X-ray-** size of the heart
- **electrocardiogram (EKG)-** to record the rhythm
- **ultrasound (echocardiogram)** to make an image of the heart and its structures





# DIAGNOSIS



- **Cardiac catheterization and heart muscle biopsy.**-a thin tube (catheter) through a blood vessel in the arm or groin to an artery in the heart. Dye flows through the catheter to help the heart (coronary) arteries show up more clearly on X-rays. A tiny sample of heart muscle tissue (biopsy) may be taken during this test. The sample is sent to a lab to be checked for inflammation or infection.



# MEDICAL MANAGEMENT



- ACE inhibitors-**captopril, enalapril and lisinopril**-relaxation of blood vessels as well as a decrease in blood volume, which leads to lower blood pressure and decreased oxygen demand from the heart.
- Beta blockers-**atenolol, propranolol, labetalol**-to manage abnormal heart rhythms, and to protect the heart from a second heart attack after a first heart attack.
- Diuretics- increase the excretion of water from the body, long-acting loop diuretic reduces the progression of myocarditis to dilated cardiomyopathy

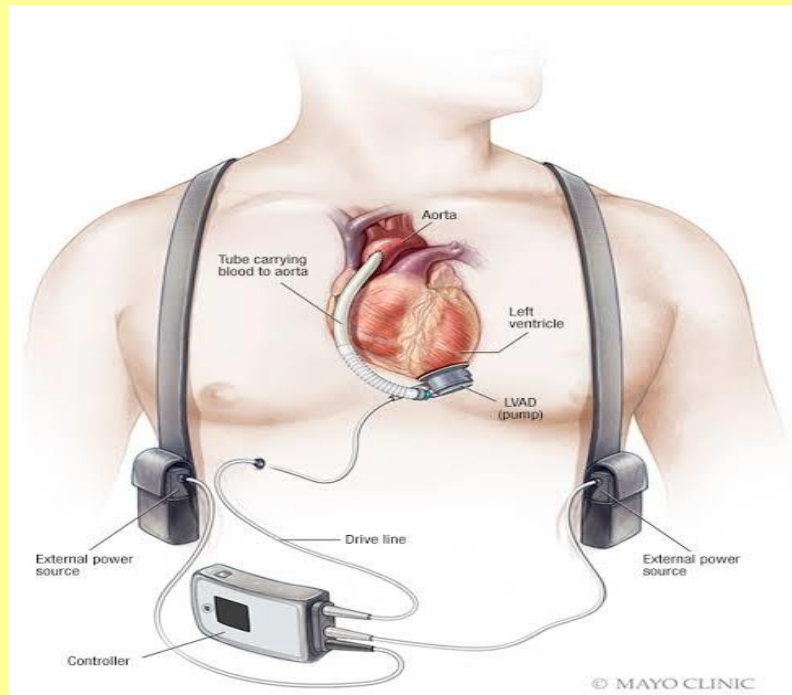


# MEDICAL MANAGEMENT



- Antiarrhythmic agents-**disopyramide, flecainide, mexiletine**- used to suppress abnormally fast rhythms, such as atrial fibrillation, supraventricular tachycardia and ventricular tachycardia
- **Corticosteroids** suppress the immune system. They may be used to treat some rare types of viral myocarditis, such as giant cell and eosinophilic myocarditis

- **Ventricular assist device (VAD).** A VAD helps pump blood from the lower chambers of the heart (the ventricles) to the rest of the body. It's a treatment for a weakened heart or heart failure.



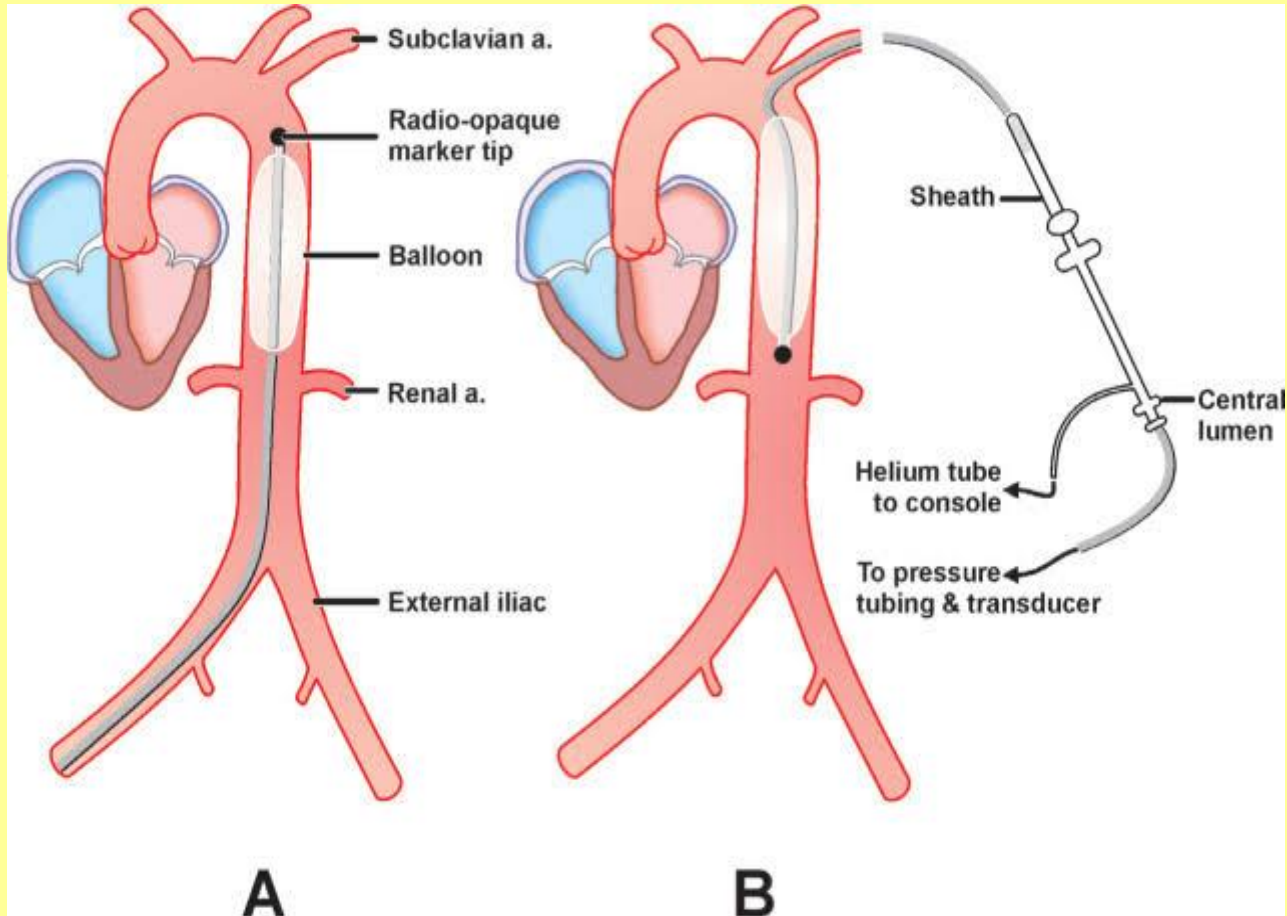


# Intra-aortic balloon pump



**Intra-aortic balloon pump.** This device helps increase blood flow and lower the strain on the heart. To inserts a thin tube (catheter) into a blood vessel in the leg and guides it to the heart. A balloon attached to the end of the catheter inflates and deflates in the main artery leading out to the body from the heart (aorta).

# Intra-aortic balloon pump

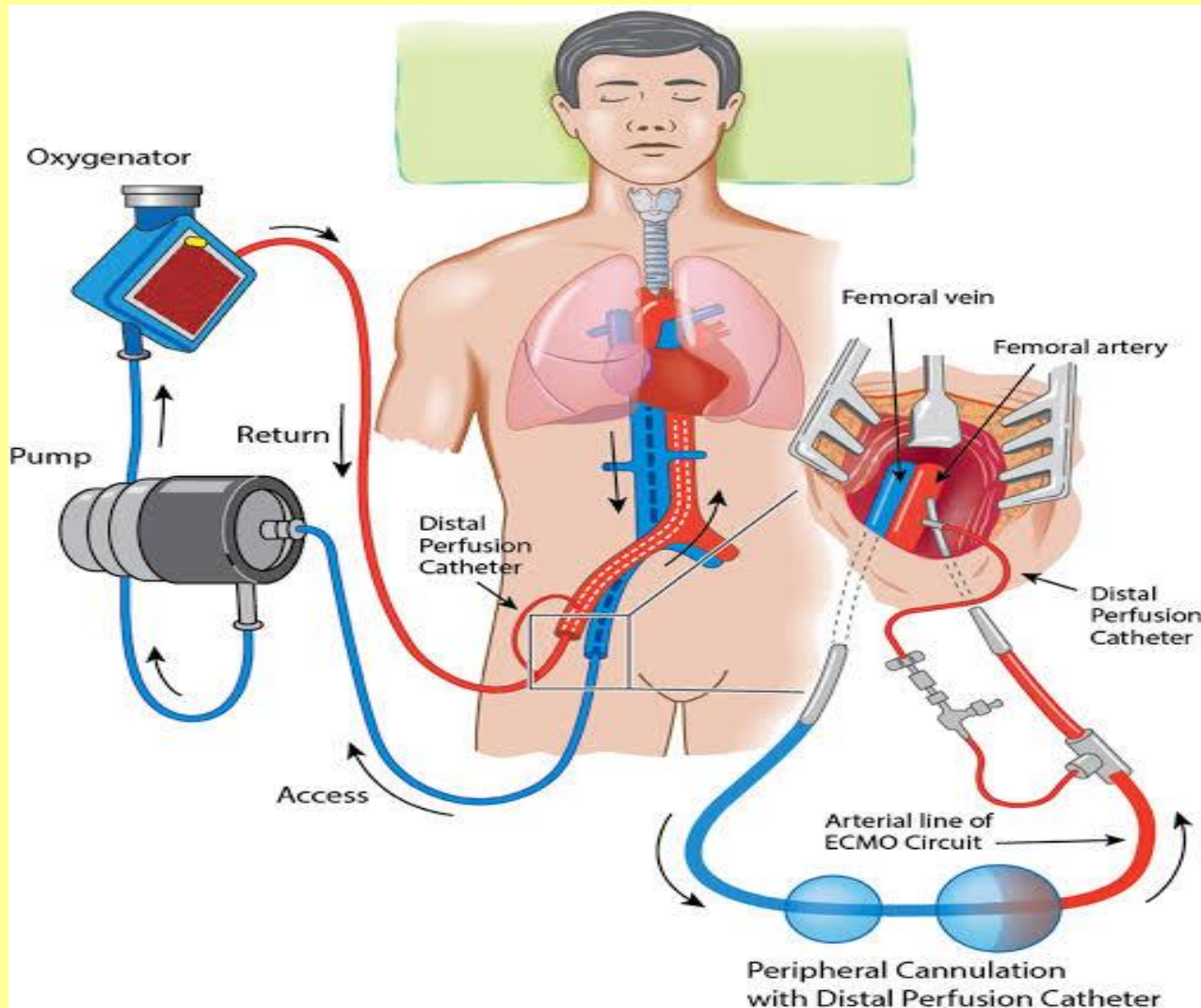




# ECMO & Heart transplant

- **Extracorporeal membrane oxygenation (ECMO).** An ECMO machine works like the lungs. It removes carbon dioxide and adds oxygen to the blood. If the patient have severe heart failure, this device can send oxygen to the body
- **Heart transplant.** An urgent heart transplant may be needed for very severe myocarditis.

# ECMO







# CONSERVATIVE MANAGEMENT



## Lifestyle modifications

- Salt restriction.
- Avoid or limit alcohol.
- Cessation of smoke.
- To avoid competitive sports for at least 3 to 6 months