PRESENTATION BY

MRS.CHANDRALEKHA.K

PROFESSOR

ICON

INDIRANI COLLEGE OF NURSING

B. SC II YEAR

INFLAMMATORY DISEASES OF THE HEART

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A. PERICARDITIS

Definition:

Pericarditis is a condition caused by inflammation of the pericardial sac.

Description

- Pericarditis is an acute or chronic inflammation of the pericardium.
- Chronic pericarditis, a chronic inflammatorythickening of the pericardium, constricts theheart, causing compression.
- The pericardial sac becomes inflamed.
- Pericarditis can result in loss of pericardialelasticity or an accumulation of fluid withinthe sac.
- The pericardial space is the cavity between these two layers. Normally it contains 10 to 15 mL of serous fluid.
- Heart failure or cardiac tamponade may result.

Causes:

Infectious:

• Viral: Coxsackie A and B virus, echovirus, adenovirus, mumps, hepatitis, Epstein-Barr, varicella zoster, human immunodeficiencyvirus

• Bacterial: Pneumococci, staphylococci, streptococci, Neisseria gonorrhea, Legionella pneumophila, Mycobacterium tuberculosis,septicemia from gram-negative organisms

• Fungal: Histoplasma, Candida species• Others: Toxoplasmosis, Lyme disease

Noninfectious:

• Uremia

• Acute myocardial infarction

• Neoplasms: Lung cancer, breast cancer, leukemia, Hodgkin'slymphoma, non-Hodgkin's lymphoma

- Trauma: Thoracic surgery, pacemaker insertion, cardiac diagnosticprocedures
- Radiation
- Dissecting aortic aneurysm
- Myxedema

Hypersensitive or Autoimmune

- Dressler syndrome
- Postpericardiotomy syndrome
- Rheumatic fever
- Drug reactions (e.g., procainamide [Pronestyl], hydralazine[Apresoline])
- Rheumatologic diseases: Rheumatoid arthritis, systemic lupuserythematosu

Clinical manifestation:

- Precordial pain in the anterior chest thatradiates to the left side of the neck, shoulder,or back
- Pain is grating and is aggravated by breathing (particularly inspiration), coughing,and swallowing
- Pain is worse when in the supine positionand may be relieved by leaning forward.
- Pericardial friction rub (scratchy, highpitched sound) is heard on auscultationand is produced by the rubbing of theinflamed pericardial layers.
- Fever and chills
- Fatigue and malaise
- Elevated white blood cell count
- Electrocardiographic changes with acutepericarditis; ST-segment elevation with theonset of inflammation; atrial fibrillation iscommon.
- Signs of right ventricular failure in clientswith chronic constrictive pericarditis.

Diagnostic evaluation:

- History and physical examination: pericardial friction rub, pulsusparadoxus
- Laboratory: CRP, ESR, white blood cell count
- Electrocardiogram
- Chest x-ray
- Echocardiogram

- Computed tomography
- Magnetic resonance imaging
- Pericardiocentesis, pericardial window
- Pericardial biopsy

Management:

Treatment of underlyingdisease

- Bed rest
- Administer oxygen.
- Non-steroidal anti-inflammatory drugs
- Corticosteroids
- Pericardiocentesis (for tamponade)
- Pericardial window (for tamponade or ongoing pericardial effusion.

Administer analgesics,

- Nonsteroidalantiinflammatory drugs (NSAIDs), or corticosteroids for pain as prescribed.
- Administer antibiotics for bacterial infectionas prescribed.
- Administer diuretics and digoxin as prescribed to the client with chronic constrictive pericarditis; surgical incision of thepericardium (pericardial window) or pericardiectomy may be necessary.

B. Myocarditis:

Definition:

Myocarditis is a focal or diffuse inflammation of the myocardium. Possible causes include viruses, bacteria, fungi, radiation therapy, and pharmacologic and chemical factors.

Causes:

- Coxsackie A and B viruses are the most common etiologic agents.
- Autoimmune disorders (e.g., polymyositis) also have been associated with the development of myocarditis.
- It may also be idiopathic.

Clinical manifestation:

- Fever

- Dyspnea
- Tachycardia
- Chest pain
- Pericardial friction rub
- Gallop rhythm
- Murmur that sounds like fluid passing anobstruction
- Pulsusalternans
- Signs of heart failure

Management:

- Assist the client to a position of comfort,such as sitting up and leaning forward.
- Administer oxygen as prescribed.
- Administer analgesics, salicylates, and NSAIDsas prescribed to reduce fever and pain.
- Administer digoxin as prescribed.
- Administer anti dysrhythmias as prescribed.
- Administer antibiotics as prescribed to treatthe causative organism.

Complications:

- Thrombus
- Heart failure
- Cardiomyopathy.

C. Endocarditis

Definition:

- Endocarditis is an inflammation of the innerlining of the heart and valves.
- Occurs primarily in clients who are IV drugabusers, have had valve replacements orrepair of valves with prosthetic materials,or have other structural cardiac defects
- Ports of entry for the infecting organisminclude the oral cavity (especially if the clienthas had a dental procedure in the previous 3to 6 months), infections (cutaneous, genitourinary, gastrointestinal, and systemic), andsurgery or invasive procedures, including Iline placement.

Signs and symptoms:

- Fever
- Anorexia, weight loss
- Fatigue
- Cardiac murmurs
- Heart failure

- Embolic complications from vegetationfragments traveling through the circulation
- Petechiae
- Splinter hemorrhages in the nail beds
- Osler's nodes (reddish, tender lesions) onthe pads of the fingers, hands, and toes
- Jane way lesions (nontender hemorrhagiclesions) on the fingers, toes, nose, or earlobes
- Splenomegaly
- lubbing of the fingers

MANAGEMENT:

- Provide adequate rest balanced with activityto prevent thrombus formation.
- Maintain ant embolism stockingsifprescribed.
- Monitor for signs of heart failure.
- Monitor for splenic emboli, as evidenced bysudden abdominal pain radiating to the leftshoulder and the presence of reboundabdominal tenderness on palpation.
- Monitor for renal emboli, as evidenced byflank pain radiating to the groin, hematuria, and pyuria.
- Monitor for confusion, aphasia, or dysphasia, which may indicate central nervous system emboli.
- Monitor for pulmonary emboli as evidenced by pleuritic chest pain, dyspnea,and cough.
- Assess skin, mucous membranes, and conjunctive for petechial.
- Assess nail beds for splinter hemorrhages.
- Assess for Osler's nodes on the pads of thefingers, hands, and toes.
- Assess for Jane way lesions on the fingers,toes, nose, or earlobes.
- Assess for clubbing of the fingers.
- Evaluate blood culture results.
- Administer antibiotics intravenously asprescribed.
- Plan and arrange for discharge, providingresources required for the continuedadministration of IV antibiotics.

Home Care Instructions for the Client

- With Infective Endocarditis Teach the client to maintain aseptic technique during setup and administration of intravenous (IV) antibiotics.
- Instruct the client to administer IV antibiotics at scheduled times to maintain the blood level.
- Instruct the client to monitor IV catheter sites for signs of infection and report this immediately to the health care provider (HCP).
- Instruct the client to record the temperature daily for up to 6 weeks and to report fever.
- Encourage oral hygiene at least twice a day with a soft toothbrush and rinse well with water after brushing.
- Client should avoid use of oral irrigation devices and flossing to avoid bacteremia.

- Teach the client to cleanse any skin lacerations thoroughly and apply an antibiotic ointment as prescribed. Client should inform all HCPs of history of endocarditis and ask about the use of prophylactic antibiotics prior to invasive respiratory procedures and dentistry.
- Teach the client to observe for signs and symptoms of embolic conditions and heart failure