MEDIBEATS
The Medical Bulletin

In Syndrome

Pulmonary Edema

Definition:

It can be defined as an abnormal accumulation of extravascular fluid in the lung parenchyma.

Etiology:

- It can be broadly classified into cardiogenic and noncardiogenic pulmonary edema.
- Cardiogenic or volume-overload pulmonary edema arises due to a rapid elevation in the hydrostatic pressure of the pulmonary capillaries.
- ***Seen in disorders :-***
  - acute myocarditis
  - acute myocardial infarction
  - aortic/mitral regurgitation and stenosis
  - atrial fibrillation with a rapid ventricular response
  - ventricular tachycardia
  - third-degree heart block
  - Noncardiogenic pulmonary edema is caused by lung injury with a resultant increase in pulmonary vascular permeability leading to the movement of fluid, rich in proteins, to the alveolar and interstitial compartments.

Epidemiology:

- More than 1 million patients are admitted each year.

Clinical Features:

- Progressively worsening dyspnea, tachypnea, and rales (or crackles) with hypoxia are the clinical features common to both.

Cardiogenic pulmonary edema :-

- Cough with pink frothy sputum noted due to hypoxemia from alveolar flooding and auscultation of an S3 gallop, the presence of murmurs, elevated jugular venous pressure, peripheral edema.

Non-cardiogenic pulmonary edema :-

- Fever, cough with expectoration, dyspnea pointing to likely pneumonia, recent trauma, blood transfusions.

- Auscultation - fine or coarse crackles. Fine crackles are heard in cardiogenic pulmonary edema. They are exclusively heard in the inspiratory phase.

Diagnosis:

- Thorough history and physical examination.
- Electrocardiogram
- Troponin elevation is commonly noted in patients with damage to myocytes, such as acute coronary syndrome.
- Hypoalbuminemia (≤3.4 g/dL)
- Radiographic Testing - Both posteroanterior and lateral views.
    - ✦ Cardiogenic pulmonary edema is characterized by the presence of central edema, pleural effusions, Kerley B septal lines, peribronchial cuffing, and enlarged heart size.
    - ✦ In non-cardiogenic etiologies, the edema pattern is typically patchy and peripheral that can demonstrate the presence of ground-glass opacities and
    - ✦ consolidations with air bronchograms. Pleural effusions are more commonly seen in the cardiogenic type.
    - ✦ Echocardiography
    - ✦ Pulmonary Artery Catheterization - A gold standard in the determination of the etiology of pulmonary edema.

Treatment:

- Diuretics - furosemide being the most commonly used .
- Vasodilators - IV nitroglycerin (NTG) is the drug of choice.
- Nifedipine has been utilized in the prophylaxis and treatment of high altitude pulmonary edema (HAPE).
- Inotropes, such as dobutamine and dopamine, are used in the management of pulmonary congestion when associated with low SBP and signs of tissue hypoperfusion.
- Morphine reduces systemic vascular resistance and acts as an analgesic and anxiolytic.
- Ventilatory support.

Dr. C. Naveen Kumar
Kangayam