Nursing care on pulmonary edema *

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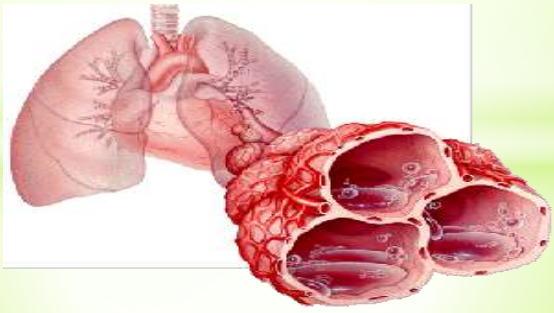
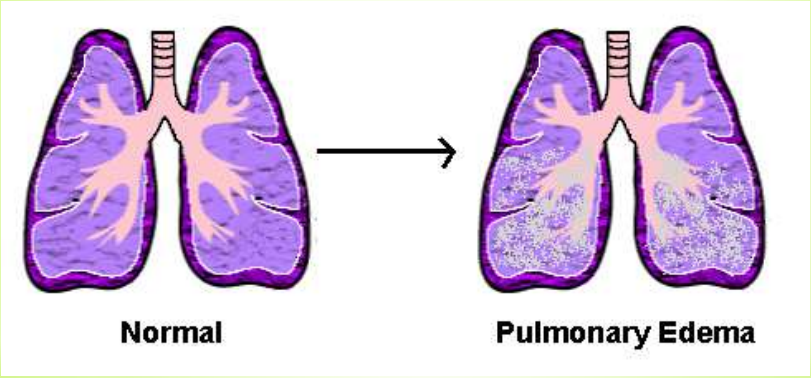
Definition: *

Pulmonary edema *

is an accumulation of fluid in the alveoli and interstitial spaces of the lungs *





Types:*

Cardiogenic pulmonary edema*

Non cardiogenic pulmonary edema*

Cardiogenic pulmonary edema*

Cardiogenic pulmonary* edema is either* due to direct * damage to cardiac tissue * **or** * a result of inadequate * functioning of the heart* or circulatory system *

Causes*

Congestive heart failure
Severe arrhythmias
Hypertensive crisis
Fluid overload due to kidney failure
or intravenous therapy

Non cardiogenic pulmonary edema*

Defined as the radiographic evidence of alveolar fluid accumulation Without hemodynamic evidence to suggest cardiogenic etiology

Causes

Inhalation of toxic gases
Aspiration e.g. Gastric fluid or incase drowning
Multiple blood transfusions
Severe infection

Clinical Manifestations

- Coughing and restlessness during sleep (premonitory symptoms).
- Sudden onset of dyspnea
- Severe anxiety, restlessness, irritability
- Cool, moist skin
- Tachycardia
- Orthopnea
- Distended Jugular viens
- Noisy, wet respirations that do not clear with coughing Cough with Frothy, blood-tinged sputum.

*Diagnostic Evaluation

- *Clinical findings on assessment
- *Oxymetry orABG Values
- *Chest X-ray (may reveal fluid in/around lung space or enlarged heart)

Echocardiogram to detect valvular disease

- *Measurement of pulmonary artery wedge pressure by swan ganz catheter
- *Blood culture in suspected infection
- *Cardiac markers in suspected MI

Management

The immediate objective of treatment is to improve oxygenation and reduce pulmonary congestion

Medical treatment for Pulmonary Edema is considered an emergency

If possible, find and treat the underlying cause of Pulmonary Edema

Identification and correction of precipitating factors and underlying conditions are then necessary to prevent recurrence

Cont'd .Management

Oxygen therapy :high flow either by non rebreathe mask or ETT intubation and mechanical ventilation.

High fowlers position (HOB 90 degrees)

Morphine Reduces Anxiety and reduces resistance which the heart must pump.

Diuretic therapy (Lasix) reduces fluid overload and pulmonary congestion by producing diuresis.

Vasodilator therapy (Nitroglycerin): Reduces the amount of blood returning to the heart and reduces resistance which the heart must pump

Cont'd . Management

Contractility enhancement therapy (digoxin [Lanoxin], dopamine [Intropin], dobutamine [Dobutrex]

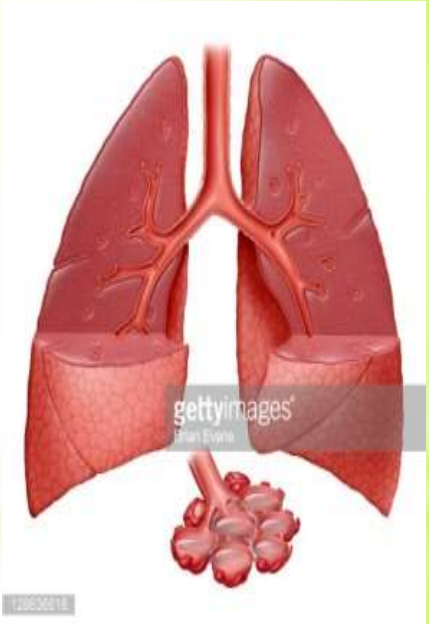
Improves the ability of the heart muscle to pump more effectively, allowing for complete emptying of blood from the ventricle an subsequent decrease in fluid backing up into the lungs.

Aminophylline may prevent bronchospasm associated with pulmonary congestion. Use with caution because it may also increase heart rate and induce tachydysrhythmias

Complications

Dysrrhythmias

Respiratory failure



NURSING ALERT

Acute pulmonary edema is a true medical emergency; it is a l**ife-threatening** condition.

Act promptly to assess patient and

notify health care provider of findings

Nursing Diagnosis

- Impaired Gas Exchange related to excess fluid in the lungs
- Anxiety related to sensation of suffocation and fear

Initial Nursing Management ER

- Supplementary oxygen with face
- Elevate the head side or keep in sitting posture
- Monitor Vital Signs
- I/v line
- Catheterization
- Cardiac monitoring
- ECG
- Pulse oxymetry

NURSING INTERVENTION

- Help the patient **relax** to promote oxygenation
- Place the patient in high **Fowler's** position to enhance lung expansion
- Administer **oxygen** as ordered
- Carefully record the time **morphine** is given and the amount administered

- **Assess** the patient's condition frequently
- Be alert to development of a new nonproductive **cough**.
- Auscultate the lung fields for **breath sounds** and be alert for crackles (Rales)
- Watch for **complications of treatment** such as electrolyte depletion
- Monitor **oxymetry** and report the findings of <92% to the AP

- Monitor **ABG** results for presence of hypoxemia(decrease PaO2) and hypercapnia(Increase PcO2)
- . Assess for **signs of hypoxia**: restlessness, confusion, headache
- Monitor **ECG** for dysrrhythmia development that may be related to hypoxemia, acid-base imbalance, or ventricular irritability
- Kept ready the **emergency equipments** (Airway, Ambu bag, Intubation tray)

- Closely monitor **I/O chart**
- Record **weight** daily and report if steady gaining. Monitor **vital signs** every 15 to 30 minutes or more often as indicated
- Provide frequent **mouth care** to reduce dryness of mucous membrane.
- Keep **environment** calm and quiet.
- Be alert for signs of increasing **respiratory distress**

Assess for edema especially in dependent areas such as the ankles and sacrum

Patient Education and Health Maintenance

- Teach the patient about **early symptoms** before onset of acute pulmonary edema If coughing develops (a wet cough), sit with legs dangling over side of bed
- Teach the patient to take **slow and deep breath** to Increase the oxygenation.
- Teach the patient to take **sodium restricted diet**
- Watch for **gain weight**

Outcome Criteria

- RR 12 to 20 breaths/min
- Eupnea
- Lungs clear to auscultation
- pH 7.35 to 7.45
- Pao2 80 to 100 mm Hg
- Paco2 35 to 45 mm Hg
- O2 sat > 95%
- Appears calm; rests comfortably

Thank you