Acute respiratory distress syndrome (ARDS)

- ARDS associated with diffuse alveolar damage and lung capillary endothelial injury.
- Early ARDS is characterized by an increase in the permeability of the alveolar – capillary barrier, leading to an influx of the fluid into the alveoli.
- Hence, a variety of insults resulting in damage either to the vascular endothelium or to the alveolar epithelium could result in ARDS.

- Injury to the alveolar lining cells also promotes pulmonary edema formation.
- ARDS is uniformly associated with pulmonary hypertension.
- Pulmonary artery vasoconstriction likely contributes to ventilation – perfusion mismatch and is one of the mechanisms of hypoxemia in ARDS.

Etiology

- **Multiple risk factors exist for ARDS. Approximately 20% of patients with ARDS have no identified risk factor.**
- **ARDS risk factors include direct lung injury (most commonly, aspiration of gastric content) systemic illnesses, and injuries.**
- **The most common risk factors for ARDS is sepsis.**

Most common risk factors includes

- Bacteremia
- Sepsis
- Trauma with or without pulmonary contusion
- Fractures, particularly multiple fractures and long bone fractures
- Burns
- Massive transfusion
- Pneumonia
- Aspiration
- Drug overdose
- Near drawing
- Postperfusion injury after cardiopulmonary bypass
- Pancreatitis
- Fat embolism

- ARDS may occur in people of any age.
- Its incidence increase with advancing age.
- Clinical presentation
- History
- ARDS is characterized by the development of acute dyspnea and hypoxemia within hours to days of an inciting event, such as trauma. Sepsis drug overdose etc.
- Patient developing ARDS are critically ill. Often with multisystem organ failure.
- With the onset of lung injury, patients initially note dyspnea on exertion. This rapidly progresses to severe dyspnea at rest, tachycardia, anxiety, agitation, and the need for increasingly high concentrations of inspired oxygen.

Physical examinations

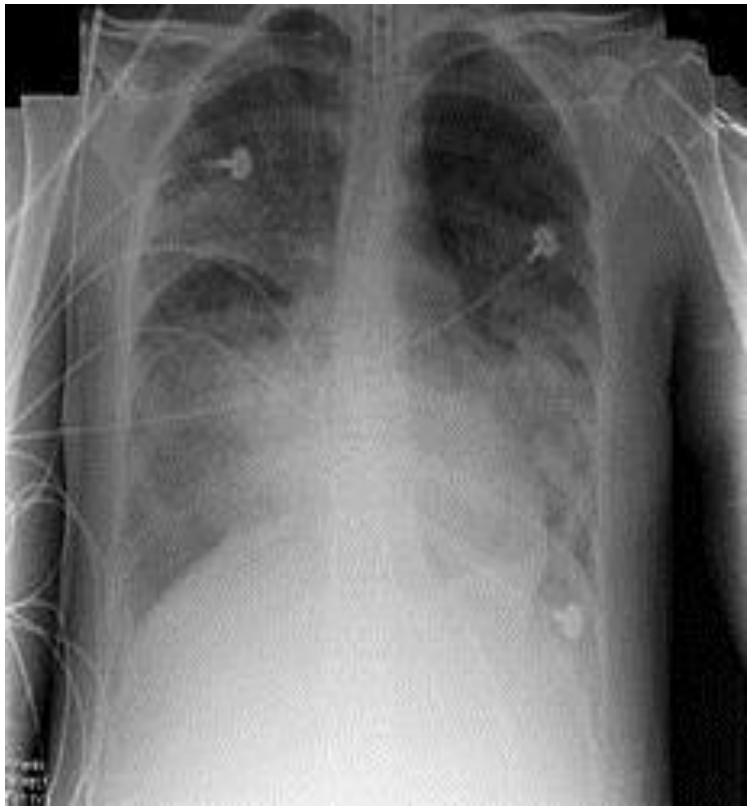
- **Physical finding often are nonspecific and include tachycardia, tachypnea, and the need for a high fraction of inspired oxygen.**
- **The patient may be febrile or hypothermic, hypotensive cold extremities. Cyanosis of the lips and nail beds may occur.**

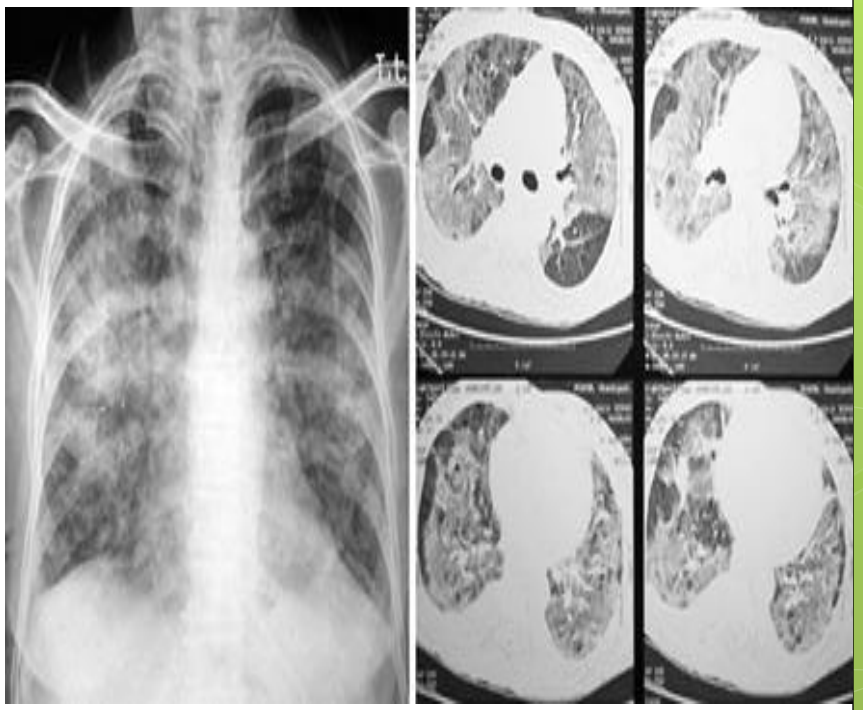
Laboratory tests

- Blood gases analysis
- (pao2= partial pressure of oxygen in the patient arterial blood, FIO2= fraction of oxygen in the inspired air)
- Pao2/FIO2 less than 200
- Partial pressure of carbon dioxide elevated.
- Abnormal renal and liver function test
- Leukocytosis and thrombocytopenia

Radiological findings

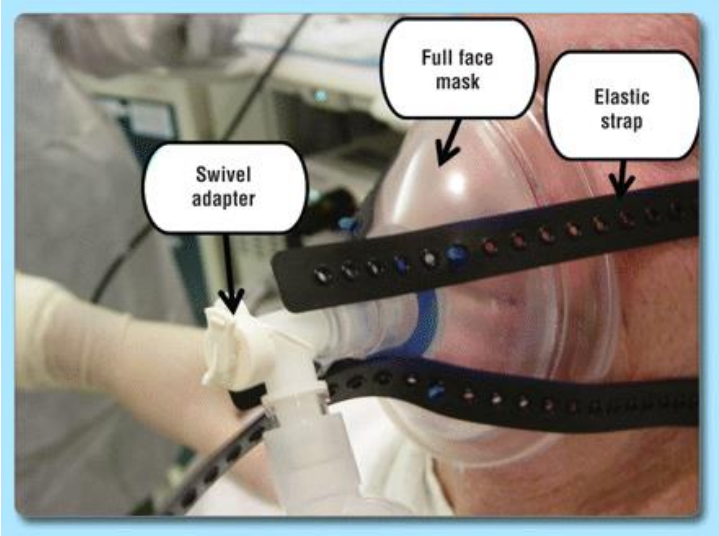
- **Bilateral pulmonary infiltrates.**
- **CT-scan may be indicated in some situation**
- **Central line insertion**
- **Bronchoscopy may help in taking biopsy and analysis of the bronchial secretions**
- **Histological analysis of the alveolar exudate**





Treatment

- Intravenous fluids
- Noninvasive positive pressure ventilation
- Mechanical ventilation
- Nutritional support either enteral via the nasogastric tube which is better than parenteral nutrition.
- Activity restriction
- Treatment of the underlying causes if present
- Methylprednisolone may be used in patient with pulmonary infiltrate and high fever.


Full face mask
Elastic strap
Swivel adapter

Thanks