



- Pneumonia is defined as inflammation and consolidation of the lung tissue due to an infectious agent, which may be a bacteria, bacteria like organisms (mycoplasma), viruses (including Covid) and fungi.
- Aspiration pneumonia is non-infectious pneumonia and due to chemical injury and is due to a relatively large amount of material from the stomach or mouth entering the lungs.
- Pneumonia that develops outside the hospital setting is considered community-acquired pneumonia.
- Pneumonia developing 72 hours or more after admission to the hospital is termed nosocomial or hospital-acquired pneumonia, which is more of a concern as the patient is already sick with another ailment that needed hospitalization.
- Community-acquired pneumonia is caused most commonly by bacteria that traditionally have been divided into 2 groups, typical and atypical.
  - Typical organisms include *S pneumoniae* (pneumococcus) and *Haemophilus* and *Staphylococcus* species.
  - Atypical refers to pneumonia caused by *Legionella*, *Mycoplasma* and *Chlamydia* species.

### Risk stratification of community-acquired pneumonia

- Patients with community-acquired pneumonia can be categorized into 1 of 4 groups based on information collected at the time of the initial evaluation.
- The risk factors for stratification include the need for hospitalization, the severity of illness, the presence of coexisting disease, and the patient's age.
- The 4 major categories not only speculate the microbial aetiology but also predict ultimate prognosis and outcome. These categories are
  - Community-acquired pneumonia occurring in patients aged 60 years or younger who have no evidence of comorbidity (diabetes mellitus or coronary artery disease) and who can be treated in an outpatient setting,
  - Community-acquired pneumonia occurring in patients with evidence of comorbidity and/or who are aged 60 years or older who can be treated in an outpatient setting,
  - Community-acquired pneumonia requiring hospitalization but not admission to an ICU, and
  - Severe community-acquired pneumonia requiring ICU care.

### Nosocomial (hospital acquired) pneumonia

- Nosocomial pneumonia remains a prevalent hospital-acquired infection.

- Patients are categorized into 1 of 3 groups because a different microbiologic spectrum is suggested in each group.
  - Patients without unusual risk factors who present with mild-to-moderate nosocomial pneumonia any time during hospitalization or present with severe nosocomial pneumonia at early onset-
  - Patients with risk factors who present with mild-to-moderate nosocomial pneumonia occurring any time during hospitalization, and
  - Patients with severe nosocomial pneumonia either of early onset with specific risk factors or of late onset without risk factors.

### **Severe hospital-acquired pneumonia**

- Admission to the ICU is, usually, indicated.
- Respiratory failure is defined as the need for mechanical ventilation
- Rapid radiographic progression, multilobar pneumonia, or cavitation of a lung infiltrate is present.
- Evidence of severe sepsis with hypotension and/or a target organ dysfunction (kidney, lungs, brain) is present.
- Shock state is present, where patient needs medicines to maintain blood pressure to normal as indicated by a systolic blood pressure of less than 90 mm Hg or a diastolic blood pressure of less than 60 mm Hg.
- Urine output is less than 20 mL/h, or total urine output is less than 80 mL in 4 hours.
- Acute renal failure, if present, may require dialysis.

### **People more at risk**

- Adults more than 65 yrs age
- Children below 2 yr with signs and symptoms
- Those with an co-morbidity (diabetes mellitus, chronic kidney disease, on long terms oral steroids or any auto immune disorder.
- Those receiving chemotherapy
- Pregnant women

### **Medical Management**

Mainstay of management are antibiotics (for bacterial pneumonia), anti virals/ antifungals (based on aetiology) and supportive care (based on age and co-morbidity).