Pneumonia

Dr. Narendra Kumar Garg
MD,PhD
Professor of Kayachikitsa
Shri Bhanwar Lal Duggar Ayurved Visha Bharti, Gandhi vidya Mandir, Sardarshahar, Churu, Raj.

Definition: Pneumonia is inflammation of the parenchyma of the lung.

Etiology

1. **Bacteria**l: Pneumococcus, Staphylococcus, Streptococcus, H. influenza, E. coli, Klebsiella, Pseudomonas, etc.
2. **Atypical:** Viral, Rickettsial, Mycoplasmal.
3. **Protozoal**: E. histolytica.
4. **Fungal:** Actinomycosis, Aspergillosis, Histoplasmosis, Nocardiosis,
5. **Allergic**: Loeffler's syndrome.
6. **Radiation**
7. **Collagenosis:** SLE, Rheumatoid arthritis, Polyarteritis nodosa.
8. **Chemical:**

   a. Aspiration of vomitus or due to dysphagia as in hiatus hernia and achalasia cardia.

   b. **Toxic**: Gases and smokes.

   c. **Lipoid**: Kerosene, paraffin and petroleum.

Predisposing Factors (Alter Host Defense)

1. Exposure to cold facilitates the passage of mucus containing pneumococci from the upper respiratory tract to the lower.
2. Postoperative especially after abdominal operations, because anesthetic agents suppress respiratory defenses, diaphragmatic movements are decreased and cough is limited due to pain and sedation.
3. Smoking, chronic bronchitis, alcohol.
4. Infection of the upper respiratory tract, sinuses and bronchi.
5. Debilitating illnesses and poor nutrition
6. Immunological deficiencies
7. Corticosteroid therapy
8. Uncontrolled diabetes
9. Chemotherapy and immuno-suppressive therapy

Organisms in Specific Situations

l. Young, previously healthy individual: Pneumococci, Mycoplasma, Legionella, Chlamydia, Coxiella

2. Elderly with chronic lung disease: Pneumococci, H. influenza, Legionella, Mycoplasma and Chlamydia

3. Hospitalized patients: Pseudomonas, Proteus, Klebsiella, E. coli, Staphylococcus aureus, anaerobic organisms

Site of Pneumonia

1. Right lung is commonly involved because it is in continuity with the trachea
2. Recumbent patient: Posterior segment of upper lobe and superior segment of lower lobe are involved.
3. In sitting up position: Basal segments of lower lobe are involved.
4. Apical: Tuberculosis or Klebsiella

lung infiltrated, suggestive of pneumonia

normal lungs

Clinical Features

A. **Pneumococcal**

l . History of common cold or upper respiratory tract infection

2. Fever with rigors

3. Dry painful cough with rusty sputum

4. Pleuritic pain

5. Labial herpes simplex

6. Patient may be flushed and cyanosed

7. Temperature, pulse and respiration are raised

8. Signs of consolidation in the chest

9. Radiologically, hazy, relatively uniform density

B. Staphylococcal

1 It commonly occurs during epidemics of influenza.

2. Pneumonia can be very severe. It may be fatal within a few hours.

3. Abscesses, looking like a thin-walled cyst on X-ray are common. In children these may rupture to form pyopneumothorax.

C. Klebsiella

1. This is common in middle aged or elderly alcoholics.
2. It commonly involves the upper lobes or more than one lobe.
3. There is a strong tendency to abscess formation.
4. Sputum is viscid, jelly-like, blood stained, rusty or purulent.
5. It may clear up with or without residual fibrosis or may end fatally.

D. Gram-negative bacilli

(H influenza, E. coli, Coliform bacilli, Proteus and Pseudomonas aeruginosa).

It arises mainly in hospitals in patients receiving corticosteroids or immunosuppressive drugs, those with tracheostomy, urinary tract infections or debilitating disease.

E. Viral

1. The presenting symptoms are headache, general aches, prostration and fever.
2. There may be no respiratory symptom or sign and it is often discovered when a routine X-ray of the chest is taken.
3. Paroxysmal cough and mucoid sputum may be present.
4. Localized diminished breath sounds and scattered rales may be present.

F. Legionella

I. Legionella is a small aerobic, gram-negative coccobacillus. Infection is acquired through water shower and air-conditioning system.
2. It is more common in males.
3. Febrile flu like illness with URTI for about 5 days is followed by cough, mucopurulent sputum and sometimes hemoptysis.
4. X-ray: Bilateral patchy involvement with pleural effusion.

G. Mycoplasma

1. It affects children of 5-15 years age.
2. There is mild fever with coryza.
3. X-ray shows patchy infiltration.
4. IgM cold agglutinin by ELISA or complement fixation test may be detected during first week of infection and up to 2-4 weeks.

Treatment

A. General Measures

I. Position should be most comfortable.

2. Diet: Initially light diet. With improvement the patient may gradually return to full diet.

3. Fluids: Copious fluid intake is advised as patient loses fluid from sweating and over breathing.

B. Chemotherapy

1. Pneumococci: Procaine penicillin 8 lakh I.M. daily or Ampicillin or Tetracycline 0.5 gm 8 hourly orally.
2. Staphylococci: Crystalline penicillin 10 lakh IM 6 hourly or Cloxacillin 0.5 gm 6 hourly orally.
3. Klebsiella: Chloramphenicol 0.5 gm 6 hourly orally or

   Ciprofloxacin 500 mg 8 hourly orally or

   Cefotaxime 1gm IV 6 hourly.
4. E. coli, Proteus, Pseudomonas;

   Carbenicillin 100-300 mg/kg/day in an IV drip or

   Gentamicin 80 mg 1M 8 hourly or

   IV Ciprofloxacin 200 mg 12 hourly or IV Ceftazidime 1 gm 6 hrly.
5. H. influenza: Crystalline penicillin 10 lakh units I.M. 6 hourly with Streptomycin 0.5 gm IM twice a day.
6. Legionella

   I. Erythromycin 1 gm 8 hourly IV for13 wks followed by 500 mg qds for 2 wks.

   2. Doxycycline 100mg twice a day orally for 3 weeks.

   3. Rifampicin 600 mg twice a day orally for 3 weeks.

Other drugs are Ciprofloxacin and Cotrimoxazole. In Legionella endocarditis, the treatment with antibiotics has to be continued for 3-12 months.

C. **Symptomatic:** For pain, cough etc.

D. **Convalescence**

I. Once the fever subsides, the patient may sit up in the chair.

2. Breathing exercises must begin as soon as possible to clear the lungs of inflammatory products

Ref.- Practical Medicine by P.J.Mehta 18th edition 2007

Thank you