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Structural Changes Associated with Pneumonia and its Classification

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Short Communication

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ABOUT THE STUDY

Pneumonia or pneumonitis with consolidation is the result of an inflammatory process that primarily affects the gas exchange area of the lung. In response to the inflammation fluid and some red blood cells from the adjascent pulmonary capillaries pour into the alveoli. This process of fluid transfer is called effusion. Poly-morphonuclear leukocytes move into the infected area to engulf and kill invading bacteria on the alveolar walls, and this process is also termed as surface phagocytosis. Increased number of macrophage also appear in the infected area to remove cellular and bacterial debris. If the infection is overwhelming the alveoli become filled with fluid, Red blood cells, poly-morphonuclear leukocytes and macrophages. When this occurs the lungs are said to be in consolidation providing a microscopic view of bacterial pneumonia. Atelectasis is often associated with patients who have aspiration pneumonia.

Structural changes

The major pathologic or structural changes associated with pneumonia are inflammation of the alveoli, alveolar consolidation, atelectasis. Pneumonia and influenza are combined are the eight leading cause of death among individuals and the sixth leading cause of death over age of 65 years. It is estimated that about 50,000 people die of pneumonia each year. Pneumonia and influenza are especially life threatening in individuals whose lungs are already damaged by chronic obstructive pulmonary disease, asthma or smoking. The risk for death from pneumonia or influenza is also higher among people with heart disease, diabetes or a weekend immune system.

Pneumonia is the leading cause of morbidity and mortality in children beyond the neonatal period. It accounts for an estimated 9,00,000 deaths world-wide, and its effect on outpatient visit rate is extremely high. The chest X-ray which is often used as a clinical reference standard to guide management, does not differentiate viral from bacterial disease or predict clinical course, particularly in children.

Causes of pneumonia include bacteria, viruses, fungi protozoa, parasites, tuberculosis, anaerobic organisms, aspiration, and the inhalation of irritating chemicals such as chlorine. Pneumonia is an insidious disease because its symptoms vary greatly, depending on the patients specific underlying condition and the type of organism causing the pneumonia. Pneumonia often mimics a common cold or the flu. For example, the patient may suddenly experience chills, shivering, high fever, sweating, chest pain and a dry and non-productive cough. Often what initially appears to be a cold or the flu, however can be a much more serious pulmonary infection. The early recognition and treatment of pneumonia provide the best chance for a recovery.

Pneumonia appears as an area of increased density that may involve a small lung segment a lobe or one or both lungs. When both lungs are involved the condition sometimes called as double pneumonia by laypersons. Although the lay term which is known as walking pneumonia has no clinical significance it is often used to describe as a mild case of pneumonia.

Classification of Pneumonia

- Mycoplasma pneumonia is commonly seen among children and young adults. This type of pneumonia spreads easily in areas where people congregate such as child care centres, schools and homeless shelters. Currently, the Pneumocystis pneumonia is the major pulmonary infection seen patients with AIDS and HIV infection. In vulnerable hosts, the disease spreads rapidly throughout the lungs.
- Chronic pneumonia is typically a localized lesion in patients with a normal immune system, with or without regional lymph node involvement. Patients with chronic pneumonia usually have granulomatous inflammation.
- Chronic eosinophilic pneumonia is characterized by infiltration of eosinophils and to lesser extent macrophages into the alveolar and interstitial spaces.
- Community acquired pneumonia is one of the most common cause of acute respiratory distress syndrome that develops outside of the hospital.

Treatment

The treatment of pneumonia is based on the specific cause of the pneumonia and the severity of symptoms demonstrated by the patient. For bacterial pneumonia the first line of defense is usually an antibiotic prescribed by the attending physician.

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