Pneumonia

Dr. Mirlohi

Pediatric Pulmonologist

Assistant Professor

Of

Tehran University of Medical Sciences

- The clinical presentation of childhood pneumonia varies depending upon the responsible pathogen, the particular host, and the severity. The presenting signs and symptoms are nonspecific; no single symptom or sign is pathognomonic for pneumonia in children

- Symptoms and signs of pneumonia may be subtle, particularly in infants and young children

- Neonates and young infants may present with difficulty feeding, restlessness, or fussiness rather than with cough and/or abnormal breath sounds

- Older children and adolescents may complain of pleuritic chest pain (pain with respiration), but this is an inconsistent finding. Occasionally, the predominant manifestation may be abdominal pain (because of referred pain from the lower lobes) or nuchal rigidity (because of referred pain from the upper lobes)

- ❑ Fever
- ❑ Cough
- ❑ Tachypnea
- ❑ Auscultation

Tachypnea: Good Predictor of PNEUMONIA

- ✓ Earliest sign
- ✓ Simplicity
- ✓ Reliability
- ✓ Ease in training

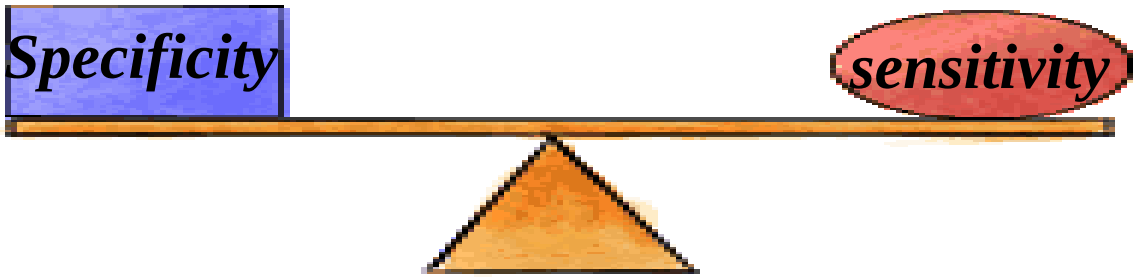
- The World Health Organization uses tachypnea (>60 breaths/min in infants 50 breaths/min in infants 2 to 12 months; >40 breaths/min in children 1 to 5 years; and >20 breaths/min in children ≥5 years) as the sole criterion to define pneumonia in children with cough or difficulty breathing

- In developed countries with a lower prevalence of pneumonia, multiple respiratory signs (eg, hypoxia, grunting, nasal flaring, retractions) are necessary to increase the certainty of pneumonia

❑ Reasonable Sensitivity & Specificity (around 80%)

Example: If in 100 cases of pneumonia, 80 cases were identified by "Fast Breathing", then this would mean that:

- **The sign has a mean sensitivity of 80 %.**
- **20 % would be missed " *false negative* "**



- Low Sensitivity is a more serious problem than low specificity

- Use a timing device
- Count respirations for one full minute
- Best to count rate when the child is alert & quite.
- Fever can affect respiratory rate, but do not wait for fever to subside

- Auscultation:

✓ Babies and young children often cry during the physical examination

✓ Copious upper airway secretions. This creates another potential problem of transmission of upper airway sounds

✓ A subtle finding, particularly one at the pulmonary bases, can be missed due to shallow & rapid breathing

✓ Not all children with pneumonia have crackles

HOSPITALIZATION:

- infants younger than three to six months of age
- Hypoxemia (peripheral capillary oxygen saturation [SpO2]< 90%)
- Dehydration, or inability to maintain hydration orally; inability to feed in an infant
- Moderate to severe respiratory distress: Respiratory rate >70 breaths/minute for infants 50 breaths per minute for older children; retractions; nasal flaring; difficulty breathing; apnea; grunting
- Toxic appearance
- Underlying conditions that may predispose to a more serious course of pneumonia (eg, cardiopulmonary disease, genetic syndromes, neurocognitive disorders), may be worsened by pneumonia (eg, metabolic disorder) or may adversely affect response to treatment (eg, immunocompromised host)
- Complications (eg, effusion/empyema, necrotizing process, abscess)
- Failure of outpatient therapy (worsening or no response in 48 to 72 hours)

Extrapulmonary Manifestations of M pneumoniae Infections

1. A mucocutaneous rash is present in 10% of children with M pneumoniae and is fairly nonspecific. Several other skin manifestations have been associated with M pneumoniae infection, including erythema multiforme (EM), Stevens- Johnson syndrome (SJS), and the new clinical entity M pneumoniae–induced rash and mucositis (MIRM)

MIRM is characterized by more than 2 sites of mucosal involvement; cutaneous involvement itself may or may not be present, distinguishing it from EM and SJS. If cutaneous manifestations are seen, lesions are typically targetoid or vesiculobullous. Patients with MIRM have a more benign disease course than that of EM or SJS and typically make a full recovery, with recurrence in less than 10% of patients

2. M pneumoniae infection can cause anemia(hemolytic anemia). Patients with underlying hematologic diagnoses such as sickle cell anemia are particularly at risk.

3. Central nervous system manifestations can occur in up to 7% of patients hospitalized with M pneumoniae infections.

A wide spectrum of central nervous system disease, including encephalitis, transverse myelitis, and cerebellar ataxia, have been reported

4. Cardiac manifestations of M pneumoniae are rare, occurring in less than 10%, but cases of myocarditis, pericarditis, complete heart block, and hemopericardium have all been reported.