

Underlying Illnesses Responsible for Persistent/ Recurrent Pneumonia in Children

Persistent/Recurrent pneumonia is still a diagnostic dilemma in paediatrics. *Persistent pneumonia* implies non-resolving pneumonias characterized by the persistence of symptoms and radiological abnormalities for more than 1 month. *Recurrent pneumonia* (RP) is defined as at least two episodes of pneumonia in 1 year or three episodes in any time frame, with the clearance of radiographic densities in between the episodes. Incidence of recurrent pneumonia is 7.7%–9% of all community acquired pneumonia (CAP) in children.^{1,2}

Globally, pneumonia kills more children than any other infectious disease, claiming the lives of over 700,000 under-5 children every year (around 2,000 every day), with the highest incidence in South Asia (2,500 cases per 100,000 children). Almost all of these deaths are preventable.³

Pneumonias that fail to resolve at the expected rate are commonly due to derangements in host defenses, inadequate or inappropriate antimicrobial therapy, highly virulent pathogens or noninfectious causes.⁴ The common risk factors of persistent/recurrent pneumonia are prematurity, bronchopulmonary dysplasia, overcrowding, atopy, congenital malformations of airways, immunodeficiency, indoor and outdoor pollution. Pathogens causing acute LRTI may also be responsible for persistent/recurrent pneumonia even in an immunocompetent child if he/she is treated with inappropriate antibiotics in inadequate dose and duration. Tuberculosis is an important cause of persistent pneumonia in high burden countries of South Asia region especially in Bangladesh.⁵

Early onset of symptoms after birth may be due to the presence of congenital malformations of the upper or the lower respiratory tract, tracheoesophageal fistula, cystic adenomatoid malformation, congenital lobar emphysema, congenital heart disease, recurrent aspiration, defects in the clearance of airway secretions especially cystic fibrosis, ciliary abnormalities, disorders of systemic/local immunity. Foreign body inhalation is

also an important cause of persistent/recurrent pneumonia. Repeated infections at different sites other than respiratory tract may suggest systemic immunodeficiency.^{6,7,8}

Plan of investigations depends on clinical judgment based on a careful history and physical examination. Persistent/Recurrent pneumonia in the same location is mainly due to middle lobe syndrome, localized airway obstruction/compression, endobronchial foreign body or parenchymal disease, while persistent/recurrent pneumonia affecting different/multiple sites is associated with systemic disorders. The investigations commonly performed are chest radiograph, studies for aspiration syndromes, MT, Gene Xpert, sweat chloride test, fiberoptic bronchoscopy (FB) and bronchoalveolar lavage (BAL), CT scan of chest and immunological studies.^{2,4-10}

Studies have concluded that the common underlying causes of persistent/recurrent pneumonia are pulmonary TB, congenital anomalies of airways, inadequate or inappropriate antimicrobial therapy for community acquired pneumonia, recurrent aspiration, cystic fibrosis, ciliary abnormalities, foreign body inhalation, immunodeficiencies, asthma and post-tubercular bronchiectasis.

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