

ACUTE RESPIRATORY INFECTION IN CHILDREN

Only recently, it has been realised that Acute Respiratory infection (ARI) is a major cause of death in children. Out of nearly 15 million children under five, dying each year, four million die of ARI, and two thirds of these are infants, and more than 90% of all these deaths occur in developing countries¹. In India², 15-20% mortality in infants and children are due to ARI. During first five years of life, on an average, a child in urban area and in rural area may suffer from 5-8 episodes³ and 1-3 episodes⁴ of ARI per year respectively. The higher incidence of episodes in urban area may be due to over-crowding and urban air pollution.

Viruses and Bacteria are the main etiological agents in ARI, and in India, as per published evidence, 70% of cases are due to bacteria¹. of which *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Haemophilus influenzae* and *Bordetella pertussis* are the main organisms. Respiratory syncytial virus (RSV), Parainfluenza and Adenoviruses are the most frequent viruses causing acute upper respiratory infections. However, RSV can cause life threatening bronchiolitis and Parainfluenza may cause croup. Low birth weight⁶, malnutrition⁷, antecedent viral infection⁸, out-door air pollution⁹, passive-smoking¹⁰, indoor pollutions of cooking fire¹¹ and over-crowding¹² are the various factors which may predispose to ARI in children. It has also been shown that breast-feeding reduces mortality and morbidity from ARI¹³. Similarly immunisation against measles, German measles, rubella, whooping cough, diphtheria and tuberculosis will also reduce the incidence of ARI in children.

Abnormalities in pulmonary functions, such as bronchial hyperreactivity¹⁴, reduction in lung volumes and compliance¹⁵, reduction in diffusing capacity¹⁶, arterial hypoxemia and hypercarbia¹⁷ and changes in small airways functions¹⁸, have been reported in patients with ARI. Epidemiological studies have shown that those with a history of childhood bronchitis or pneumonia had higher incidence of chronic bronchitis or pulmonary function abnormalities¹⁹ suggestive of chronic obstructive airways disease (COAD) in adulthood. However, there is no conclusive proof for the existence of an association between ARI in childhood and COAD in adulthood. Similarly interstitial pulmonary fibrosis following viral respiratory illness is also reported.^{20,21}

Preliminary studies conducted at Nepal, Costa Rica and Bagamoyo in Tanzania²², had shown that death rates from ARI in children can be reduced by simple health measures such as early recognition of signs and symptoms of severe ARI by mothers, immunisation against measles, whooping cough and diphtheria, treatment at community level by primary care workers with antibiotics such as penicillin or cotrimoxazole for moderate and severe ARI and timely referral of seriously ill patients by village health workers to health centres and hospitals. A pneumococcal vaccine trial in Papua New Guinea has shown that the vaccine can prevent upto 50% of deaths from acute lower respiratory tract infection in young children²³. Magnitude of the problem and the availability of effective control measures make it imperative on the part of health administrators to introduce a National Control Programme for Acute Respiratory infections in India.

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