

S U M M A R Y

Acute Respiratory tract infections (ARI) are a major cause of illness in children throughout the world. In developing countries such as Sri Lanka, it is a major cause of death (8).

The key to the management of ARI, particularly of those involving the lower tract, is the identification and treatment of bacterial disease. Where laboratory facilities are not available, as in a primary health care situation, identification of bacterial disease depends on clinical indicators.

This study was thus designed to identify the causative bacteria in childhood ARI, focusing mainly on Acute Lower Respiratory tract Infection (ALRI) and to find out any clinical indicators of bacterial infection of the lower tract.

Due to the lack of facilities which is a constraint in a study of this nature, simple methods were adopted and reasonably accurate results were obtained. Using the method advocated by Joan Stokes (6) a sample of respiratory secretions was obtained by aspirating the nasopharynx which could be treated as sputum.

Based on the assumption that bacterial disease induces a host inflammatory response in the form of large number of pus cells to pathogenic bacteria, a quantitative microscopic examination of the sample for pus cells was carried out concurrently with the semiquantitative culture of the specimen for pathogenic organisms.

Using an empirically decided cut off level for pus cells to denote a positive inflammatory host response the causative bacteria were identified from those that colonize the nasopharynx.

The clinical aspects of this study were done at the outpatients' department (OPD) and the paediatric ward of the Colombo South General Hospital (CSGH) and the laboratory analysis was performed at the department of bacteriology at the premier Medical Research Institute Colombo from October 1991 to August 1992. The CSGH caters to people of the southern parts of the city of Colombo and its neighbouring suburbs and it serves mostly the poor and the middle income groups of the area. 200 children with cough and difficulty in breathing and 50 asymptomatic controls were selected on predesigned criteria. Their respiratory secretions were tested for pathogens as well as the sensitivity of the pathogens to antibiotics. Using a

questionnaire, data were recorded on child's medical, family and social background. Clinical signs and symptoms were also recorded and treatment instituted on the basis of the clinical diagnosis. Each child was followed up until recovery. The help of the mother was enlisted to manage the child at home.

The laboratory results were interpreted by correlating with clinical observations and clinical indicators of bacterial disease of ALRI were looked for.

The frequency of bacterial infections in ALRI was found to be 58.3% in inpatients and 60.4% in outpatients. The major pathogenic organism identified in the study was *Branhamella catarrhalis*. This organism was earlier thought to be a commensal but has now been recognised as a pathogen (4, 45). The other two major pathogens were *Streptococcus pneumoniae* and *Haemophilus influenzae* which have been reported before in many studies (20, 38, 93). Amoxycillin was found to be the drug of choice to treat these infections.

Among the criteria included for diagnosing an ALRI, respiratory rate and chest indrawing were found to be better indicators of bacterial infection than the auscultatory signs. A history of fever given by the mother too was found to be a useful indicator of bacterial infection. Other information obtained from the mother like rapid breathing, wheezing, refusal of feeds were not

found to be reliable criteria to enable differentiation between bacterial infections and non bacterial disease, nor was it found to be useful to differentiate between Acute Upper Respiratory Infections (AURI) and ALRI.