Viral Aetiology in Children Diagnosed with Acute Bronchiolitis

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Acute respiratory viral infections (ARVI) leading to bronchiolitis are a leading cause of death in children < 5 y of age. Paediatric hospitalisation due to respiratory syncytial virus (RSV) infections is very common in many parts of the world. In the UK, RSV-attributed death rate was 8.4 per 100,000 and viral aetiology for ARVI in Sri Lanka has not been studied.

Objectives of the current study were to screen nasopharyngeal aspirate (NPA) from children diagnosed with bronchiolitis using a mixture of antibodies to detect 7 viruses and characterise the positive NPAs to individual viruses (RSV, Influenza A, B, Parainfluenza 1, 2, 3 and adenoviruses). The NPAs in children between the age of 1 month to 3 years presented to the paediatric ward, Kegalle Teaching Hospital (July to September 2011) with bronchiolitis suspected to be due to ARVI were tested for viral aetiology using immunoflurescence (IF) antigen tests.

Out of the 99 NPAs tested 32 (32%) gave positive results for IF indicating one of seven viruses tested were present in those children suspected having a viral aetiology for the bronchiolitis. When Imagen typing for individual viruses is considered, of the 32 NPAs typed, 29 (29%) gave positive IF for RSV (n=29), parainfluenza type 2 (n=2) and influenza A (n=1) viruses in the children suspected having a viral aetiology for the bronchiolitis.

Although bronchiolitis suspected to be due to ARVI have been clinically diagnosed in children by paediatricians and general practiceners in Sri Lanka, the aetiologies were not identified. In a recent preliminary study, out of the 70 NPAs from ARVI suspected children tested for influenza A and B during the H1N1 epidemic (June to December 2010), only 5 NPAs were positive for influenza A and B antigens and 65 without the suspected aetiology. The current study has found three different types of viruses including RSV in predominance, parainfluenza 2 and influenza A in children suspected of ARVI, suggesting the prevalence of diverse viral aetiologies in the study population. However, NPAs of 67 children that were clinically diagnosed with ARVI did not show positivity to the common respiratory screening, indicating one of the seven viruses tested were absent. Those children would have had ARVI due to other viral causes such as human metapneumovirus, rhinoviruses and enteroviruses that we have not tested. Large scale studies spread out throughout the year will help us to understand the diversity of these viruses in children with ARVI in Sri Lanka.

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