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LUNG ALERT

Severe infantile lower respiratory tract illness may be characterised by a reduced, rather than increased, immune response

▲ Welliver T, Garofalo R, Hosakote Y, *et al*. Severe human lower respiratory tract illness caused by respiratory syncytial virus and influenza virus is characterized by the absence of pulmonary cytotoxic lymphocyte responses. *J Infect Dis* 2007;**195**:1126–36.

The pathogenesis of severe infantile respiratory illness due to respiratory syncytial virus (RSV) and influenza virus is not fully understood. Some evidence suggests there is an increased T lymphocyte and cytokine response to infection. However, this cross-sectional study found otherwise.

Nasopharyngeal secretions from 72 infants <12 months' of age, who had survived infection with RSV (n = 36) or influenza virus (n = 36), were examined for cytokine content. Post mortem lung specimens from 20 infants who had died of bronchiolitis caused by RSV (n = 9) or influenza virus (n = 11) underwent immunohistochemical staining to look for evidence of an immune response. In those who survived RSV infection, there was a significantly reduced immune response with regard to the classical T lymphocyte cytokines, compared with infants who had had influenza virus infection (interleukin 2 (IL2), $p = 0.04$; IL4, $p = 0.0001$; interferon γ, $p<0.0001$; and IL17, $p<0.0001$). Results from the group who had died from infection showed that there were substantially reduced amounts of CD4, CD8 and CD56 antigen-positive lymphocytes regardless of the infecting virus.

This study suggests that failure to develop a cytotoxic T lymphocyte immune response is key in the pathogenesis of viral respiratory illness in infants. These findings may be important in the development of possible treatments.

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