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Lung alert

A new vaccine to reduce the incidence of pneumococcal pneumonia?

It is well known that viral infection predisposes the host to subsequent bacterial infection. It is thought that viruses reduce host immunity and thus help to facilitate and exacerbate secondary bacterial infection.

In this study, mice were exposed to influenza A or human metapneumovirus (hMPV) and then subsequently exposed to *Streptococcus pneumoniae* 5 days later. Singly infected mice acted as controls. Large increases in host immunological responses were noted. These rises were similar in both dual-infection groups and were significantly greater than those in mice with a single infection. The dual-infected groups showed greater airway obstruction, significant weight loss, increased pulmonary destruction (especially interstitial and alveolar inflammation) and higher pneumococcal titres in the lungs. In both co-infection models, the mortality at day 5 was 100%. Interestingly, contrasting with data on influenza, delayed superinfection 14 days after hMPV infection did not increase clinical symptoms, implying that there is no long-lasting effect on host response with hMPV.

The authors suggest that hMPV, like influenza, predisposes to secondary bacterial infection and that local inflammation and tissue damage which occurs may contribute to the increased morbidity and mortality in this group. Targeting viruses by preventing infection or minimising the inflammatory response may therefore be an important means of treatment in the future to help to minimise bacterial infection.

► Kukavica-Ibrulj I, Hamelin ME, Prince GA, *et al*. Infection with human metapneumovirus predisposes mice to severe pneumococcal pneumonia. *J Virol* 2009;**83**:1341–9.

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