

# BACTERIOLOGY AND INFECTIOUS DISEASES

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## MECHANISMS AND MANAGEMENT OF INFLUENZA AND ITS RELATED PNEUMOCOCCAL PNEUMONIA IN JAPAN

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Influenza-related pneumonia is an important complication of influenza and it has been suggested that excessive inflammatory reactions, including “cytokine storm”, may contribute to the mechanisms underlying severe pneumonia. Human data and mouse model which co-infected with influenza virus and *Streptococcus pneumoniae* show increased severity of illness caused by the elevation of cytokines/chemokines and mice with genetic knock-out of immune molecules such as Toll-like receptor-related IRAK-M also show hyper-immune responses and reduced survival following influenza virus infection. Such findings suggest that innate immune responses and excessive neutrophil activation might be related to severe inflammatory changes in the lungs, and immune-modulatory therapy, including macrolides may thus be effective against severe influenza-related pneumonia. In Japan, author had five anti-influenza agents and could choose each agent dependent on influenza and pneumonia severity. Among them, peramivir can be administered by drip infusion and used not only for the most severe patients but also for the ambulatory outpatients who have some medical issues. In addition, new anti-influenza agent: ‘Baloxavir marboxil’ which is ‘Cap-dependent endonuclease inhibitor’ has been started to use. The insurance system supports early administration of them with antibiotics and as a result, they might be able to have very low influenza-related mortality. Today, their management style for influenza, including vaccination and infection control team activity will be introduced.