

## **Antiviral Treatment for H5N1 Infection**

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Since December 2003, outbreaks of avian influenza (H5N1) in poultry and humans have been reported in several countries in Asia. H5N1 infections in domestic and wild birds become endemic in these areas and may spread to other areas through migratory birds. Cross species transmission has highlighted the increase threat of pandemic influenza.

Ventilatory support and antiviral therapy are the mainstay of therapy for influenza A (H5N1). H5N1 influenza strains isolated in 2004 & 2005 are highly resistant to M2 inhibitors (amantadine, rimantadine), but are susceptible *in vitro* to neuraminidase inhibitor (oseltamivir, zanamivir). Every government should define the goals in pandemic response and a subsequent treatment or prophylaxis policy of antiviral agents. Based on recent murine studies, higher doses and a longer duration of oseltamivir are considered in treating severe infections during the pandemic.

1. If the number of affected persons is small, or in the countries where neuraminidase inhibitors are not in short supply, neuraminidase inhibitors should be given as soon as possible to any patients with suspected or proven H5N1 influenza. If treatment is not started within 48 hours, it may not be effective.
2. In the countries where neuraminidase inhibitors are in short supply, neuraminidase inhibitor should be restricted to high-risk group, professionals and the otherwise healthy people with complications.

Current supply of neuraminidase inhibitors is inadequate for any proposed strategy for pandemic response. The emergence of resistant H5N1 variants during oseltamivir treatment should raise our concern about the judicious use of neuraminidase inhibitors and the development of additional anti-H5N1 agents. Chinese herb drugs have been used for thousands of years to treat respiratory tract infections. By plaque reduction method and colorimetric MTT assay, we have found Ma-Xing-Shi-Gan-Tang, Da-Qing-Long-Tang and Yin-Chyan-San to be potent inhibitors of influenza A/WSN (H1N1) virus replication in MDCK cell culture. The antiviral activity against other subtypes and the potential mechanism are under investigation. The effects of Chinese herb on the cytokine responses of human peripheral mononuclear cells induced by the H5N1 structure protein will be presented as well.