Update on Av

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The deadly avian virus has remerged again this summer into the heart of Europe starting with outbreaks in the Czech Republic, followed by Germany, France and Austria in July and August. Bird flu has continued in Asia, India and a number of West African nations. This year there were 58 confirmed human avian cases (which occurred in China, Cambodia, Egypt, Indonesia, Lao, Nigeria and Vietnam), of which 36 have died.

Dynamic patterns of avian and human influenza in east and southeast Asia

An article in last August's issue of the *Lancet Infectious Diseases* by Park and Glass, shows that outbreaks of the seasonal human influenza in tropical and sub-tropical zones of Asia are temporarily less constrained than those in temperate zones (Australia, Europe and North America). Hence, there may be greater opportunity for interaction between human and avian viruses than previously assumed. Thus the possibility of an emergence of potentially pandemic viruses does not necessarily decline during the summer months.

Genetic markers in influenza viruses

Scientists have found key features that distinguish influenza viruses found in birds from those that infect humans. A mathematical technique has been used to identify specific amino acid building blocks that are statistically more likely to appear in avian influenza virus proteins and those that are more likely to be in human influenza virus proteins. The differences in these amino acids can be used as markers to track changes in H5N1 avian influenza strains that threaten humans and roughly measure the distance between an avian influenza and a pandemic.

This discovery gives a better understanding of the genetic properties of the influenza A viruses that differentially infect birds and humans. Comparison of the inferred amino acid sequences of 10 671 proteins from avian influenza viruses and 13 757 proteins from human influenza viruses has revealed 32 distinguishing locations (genetic markers), 26 of which involve the replication proteins NP, PB2 and PA, whilst the other six involve the M1 and NS1 proteins involved in replication and host response to virus infection.

New promising drugs to fight influenza

An American Company, Tallin Group LLC has discovered a promising broad spectrum influenza drug which targets the Avian flu (H5N1). The compound called "C46132" has been found to be effective against a number of influenza strains including H5N1 and is well tolerated when administered to live laboratory animals.

Another new antiviral drug Peramivir, developed by the US pharmaceutical company BioCryst, is currently being trialled on influenza-infected patients in New Zealand. A single injection of the drug, which like oseltamivir is a neuraminidase inhibitor, stunts the growth of the enzyme neuraminidase needed for the flu virus to flourish in the body. If found to be effective, this antiviral injection could decrease the severity of flu symptoms and the length of time people are sick.

Presently companies like Canopus BioPharma of the US and Ireland, Biocryst of the US, SmithKline of England, Novartis AG of Switzerland, Novavax, Inc. of the US, Sanofi Pasteur of France, and Sinovac Biotech Ltd of China, are all developing drugs to compete with oseltamivir in the fight against various influenza strains like the Avian Flu (H5N1).

A new device to detect quickly bird flu viruses

Carlsbad, a division of Isis Pharmaceuticals, has been working on a device that can quickly detect 92 different viruses, including several strains of H5N1. This new detector, called the T5000, can identify the precise strain in just 4 hours. It was found to be 97% accurate in identifying the flu strain. It uses polymerase chain reaction to amplify the genetic material and then uses advanced mass spectrometry to identify the sample. The major disadvantage is that it is an expensive test and the device is not portable.

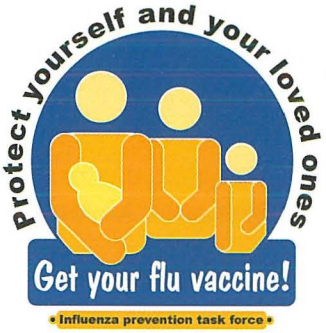
Oseltamivir

The US Food and Drug Administration has approved oseltamivir capsules for sale at 30 mg and 45 mg doses, which will be available this autumn, for the treatment and prevention of influenza types A and B, in patients one year and older. The shelf life is 5 years, unlike the 24 months of the suspension formulation.

Experts predict oseltamivir could halve the pandemic influenza death toll

Modeling research done at the University of Toronto has shown that a stockpile of oseltamivir sufficient to cover 65% of a country's population, used as treatment and prophylaxis, could potentially reduce the illness rates and deaths by half when compared

ian Influenza



to no intervention. Adding other strategies such as school closures further reduce illness and deaths and provides a health benefit at a reasonable cost.

Influenza season in 2007 for Australia and New Zealand

Influenza activity in Australia has been particularly severe in several states this winter especially in Queensland and New South Wales where there were reports of high numbers of influenza cases. There have also been 6 deaths in children with influenza A under 5 years of age. The predominant strain circulating in Australia was A(H3) although in Queensland there has been an equal mix of A(H3) and A(H1) viruses, whilst H1 viruses have also circulated widely in New South Wales and to a lesser extent in Victoria. In contrast low levels of influenza B activity have been reported.

2007-2008 vaccine composition

WHO has recommended that the 2007-2008 influenza vaccine composition should be:

- An A/ SolomonIslands/3/2006/(H1N1)-like virus
- An A/Wisonsin/67/2005(H3N2)-like virus
- An B/Malaysia/2506/2004-like virus.

Local seasonal influenza vaccination campaign

An influenza preventive task force committee has been set up composed of representatives from the Department of Public Health, Primary Health Care, Health Promotion, the Association of Family Private Doctors, the Chamber of Pharmacists and Pharmaceutical companies in order to spearhead a campaign to encourage the general population to take the seasonal vaccine.