

Chinese scientists report first human death associated with new bird flu virus

February 4 2014

Tests on tracheal swab samples established that the virus was a new genetic reassortment avian-origin H10N8 virus (JX346). Whole genome sequencing indicated that all the genes of the virus were of avian origin, with six internal genes derived from avian H9N2 viruses that are circulating in poultry in China.

"A genetic analysis of the H10N8 [virus](#) shows a virus that is distinct from previously reported H10N8 viruses having evolved some genetic characteristics that may allow it to replicate efficiently in humans. Notably, H9N2 virus provided the internal genes not only for the H10N8 virus, but also for H7N9 and H5N1 viruses", explains author Dr Yuelong Shu from the Chinese Center for Disease Control and Prevention, Beijing.

The woman, from Nanchang City in China, presented to hospital with fever and severe pneumonia on November 30, 2013. Despite antibiotic and antiviral treatment she deteriorated rapidly, developed multiple organ failure, and died 9 days after illness onset.

"[The results suggested that] JX346 might originate from multiple reassortments between different [avian influenza](#) viruses. The H10 and H8 gene segments might have derived from different wild bird influenza viruses reassorted to give rise to a hypothetical H10N8 virus in wild birds, which infected [poultry](#) and then reassorted with H9N2 viruses in poultry to give rise to the novel reassortant JX346 (H10N8) virus", said Dr Shu.

"Importantly, the virus had a mutation in the PB2 gene that is believed to be associated with increased virulence and adaption in mammals, and could enable the virus to become more infectious to people", explains co-investigator Dr Qi Jin from the Chinese Academy of Medical Sciences and Peking Union Medical College in Beijing.

Further investigation revealed the women had visited a live poultry market a few days prior to infection, suggesting the incubation time was about 4 days, similar to other [avian influenza virus](#) infections. However, no H10N8 virus was found in samples collected from the poultry site the patient visited, and the source of the infection remains unknown.

The H10N8 strain was previously isolated from a water sample taken from China's Dongting Lake in Hunan Province in 2007, and detected at a live [poultry market](#) in Guangdong province in 2012. But human infection with an N8 subtype has never been reported before.

Co-author Dr Mingbin Liu from Nanchang City Center for Disease Control and Prevention concludes by warning that that the pandemic potential of this [novel virus](#) should not be underestimated, "A second case of H10N8 was identified in Jiangxi Province, China on January 26, 2014. This is of great concern because it reveals that the H10N8 virus has continued to circulate and may cause more human infections in future."

More information: [www.thelancet.com/journals/lan ... \(14\)60111-2/abstract](http://www.thelancet.com/journals/lan... (14)60111-2/abstract)

Provided by Lancet

Citation: Chinese scientists report first human death associated with new bird flu virus (2014,

February 4) retrieved 25 April 2024 from <https://medicalxpress.com/news/2014-02-chinese-scientists-human-death-bird.html>

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