Beat: Health

Chinese woman diagnosed with H7N9 bird flu, first case since May

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USPA News - A Chinese woman has been diagnosed with the H7N9 bird flu virus that emerged in China earlier this year, the government said on Saturday, making it the first confirmed case since May when the closure of live poultry markets and higher temperatures led to a decrease in cases. China`s National Health and Family Planning Commission said laboratory tests confirmed a 61-year-old woman from northern Hebei province is suffering from the new strain of avian influenza.

She developed cough and fever on July 10 and sought treatment at a local hospital on July 13, before being transferred on Thursday to a Beijing hospital where she remains in a critical condition. It is the first confirmed case of the new bird flu virus in Hebei province, and the first case overall since May 29. It raises the number of laboratory-confirmed cases since the outbreak began in February to 133, all but one of them in China, and includes 43 fatalities. Four people are believed to remain in hospital. The closure of live poultry markets, public awareness and warmer weather are believed to have ended the initial outbreak, but health authorities fear the disease may follow a seasonal outbreak pattern and return later this year when the colder weather will allow more frequent transmission in poultry and to humans. Earlier this week, researchers warned that some strains of the new bird flu virus have developed resistance to the only antiviral drugs available to treat the infection, and misleading test results could help hasten the spread of these resistant strains. The results were published in the online journal of the American Society for Microbiology on Tuesday. The study characterized viruses taken from the first persons known to be stricken with H7N9 influenza and found that 35 percent of those viruses are resistant to oseltamivir (Tamiflu) and zanamivir (Relenza), both front line drugs used to treat patients suspected or diagnosed with H7N9. But the authors found that lab testing of the viruses, which detects the activity of a viral enzyme, fails to detect that these strains are resistant. Robert Webster of St. Jude Children`s Research Hospital in Memphis, Tennessee said resistant strains of H7N9 can flourish in patients who are treated with oseltamivir or zanamivir, inadvertently leading to the spread of resistant infections. In the study, the authors tested antiviral susceptibility of an H7N9 strain isolated from the first confirmed human case of H7N9 bird flu using a method that tests the activity of the neuraminidase enzyme. The results showed the strain was susceptible to NA inhibiting antiviral drugs, but it is not. A closer look at the viral isolate revealed it is actually made up of two distinct types of H7N9 viruses. Roughly 35 percent of the viruses carry the R292K mutation, making them resistant to NA inhibitors, and 65 percent are sensitive to these same drugs. Webster said the enzyme-based testing gave misleading results because the functioning wild-type enzymes masked the presence of the non-functioning mutant enzymes. Using NA inhibitors to treat a patient infected with a resistant strain of H7N9 only encourages the virus to proliferate and can lead to enhanced spread of the resistant strain, according to the researchers. They wrote that these results prove that it is crucial to use a gene-based surveillance technique that can detect these resistant influenza strains in a mixed infection. "If H7N9 does acquire human-to-human transmissibility, what do we have to treat it with until we have a vaccine? Oseltamivir," Webster said. "We would be in big trouble." A recent study found that antiviral treatment failed in two patients infected with a strain of H7N9 influenza that carries a mutation called R292K, and that these patients had a poor clinical outcome. The mutation causes a change in the neuraminidase gene and makes the virus resistant to neuraminidase (NA) inhibitors, including Tamiflu and Relenza. NA inhibitors have been the front line therapeutic option for treating H7N9 influenza because the virus is already resistant to M2 ion channel blockers Amantadine (Symmetrel) and its methyl derivative Rimantadine (Flumadine). The authors of the study have urged experts to continue to evaluate the sensitivity of clinical isolates to NA inhibitors and to monitor for the emergence of resistant variants. Webster said that, if the history of the well-known H5N1 variant is a guide, then H7N9 could rapidly evolve the ability to spread from person to person. He said the situation could become `quite serious` if the virus evolves to spread from person to person and re-emerges this fall. In the event of a widespread outbreak, Webster said Tamiflu and Relenza will `work alright` as treatments, but the development of the R292K mutation puts those options in jeopardy. However, he also pointed out that antiviral resistance is something of a burden for influenza viruses, making the spread of fitter wild-type H7N9 strains more likely. But regardless of whether H7N9 will return in the fall, Webster said the lack of suitable drugs for influenza is a grave cause for concern. "The great need at the moment are additional drugs aimed at additional sites in the influenza genome. There are some in the pipeline, but they are still under testing at the moment," he said. "We`d better get some vaccine seed stocks up and ready. The antiviral option for controlling H7N9 isn`t too good."

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