

H1N1 Influenza disturbingly similar to 1918 Flu Pandemic

Monday, 13 July 2009

The new H1N1 influenza virus bears a disturbing resemblance to the virus strain that caused the 1918 flu pandemic, with a greater ability to infect the lungs than common seasonal flu viruses, researchers reported on Monday.

Tests in several animals confirmed other studies that have shown the new swine flu strain can spread beyond the upper respiratory tract to go deep into the lungs — making it more likely to cause pneumonia, the international team said.

In addition, they found that people who survived the 1918 pandemic seem to have extra immune protection against the virus, again confirming the work of other researchers.

"When we conducted the experiments in ferrets and monkeys, the seasonal virus did not replicate in the lungs," said Yoshihiro Kawaoka of the University of Wisconsin, who led the study.

The H1N1 virus replicates significantly better in the lungs."

Separately, a top official at the World Health Organization said Monday a fully licensed swine flu vaccine might not be available until the end of the year. The report could affect many countries' vaccination plans.

But countries could use emergency provisions to get the vaccines out quicker if they decide their populations need them, Marie-Paule Kieny, director of WHO's Initiative for Vaccine Research, said during a news conference.

The swine flu viruses currently being used to develop a vaccine aren't producing enough of the ingredient needed for the vaccine, and WHO has asked its laboratory network to produce a new set of viruses as soon as possible.

So far, the swine flu viruses being used are only producing about half as much "yield" to make vaccines as regular flu viruses.

The new swine flu virus has caused the first pandemic of the 21st century, infecting more than a million people, according to estimates, and killing at least 500. The World Health Organization says it is causing mostly moderate disease but Kawaoka said that does not mean it is like seasonal flu.

Pregnant women have been vulnerable to serious effects and obesity has been linked as a risk factor for severe complications.

"There is a misunderstanding about this virus," Kawaoka said in a statement. "There is clear evidence the virus is different than seasonal influenza."

Writing in the journal *Nature*, Kawaoka and colleagues noted that the ability to infect the lungs is a characteristic of other pandemic viruses, especially the 1918 virus, which is estimated to have killed between 40 million and 100 million people.

Old protection

They tested the virus in blood samples taken from nursing home residents and workers in 1999 in California, Wisconsin, the Netherlands and Japan.

People born before 1920 had a strong antibody response to the new H1N1 virus, meaning their body "remembered" it from infection early in life. This finding supports a study published in *Nature* in August that also found people who survived the 1918 pandemic still had immune protection against that virus.

Flu viruses change constantly, which is why people can be re-infected and why the vaccine must be changed regularly. Current seasonal strains of H1N1 are distant cousins of both the 1918 pandemic strain and the new H1N1 strain.

"Our findings are a reminder that swine-origin influenza viruses have not yet garnered a place in history, but may still do so, as the pandemic caused by these viruses has the potential to produce a significant impact on human health and the global economy," the researchers wrote.

Other tests showed the virus could be controlled by the antiviral drugs Relenza, made by GlaxoSmithKline, and Tamiflu,

made by Roche AG, the researchers said.

The World Health Organization said on Monday that vaccine makers should start making immunizations against H1N1 and that healthcare workers should be first in line to get them.

Companies working on an H1N1 vaccine include Sanofi-Aventis, Novartis AG, Baxter International Inc., GlaxoSmithKline, Solvay and nasal spray maker MedImmune, now part of AstraZeneca.

The WHO has previously estimated that the world could have as many as 4.9 billion doses of H1N1 swine flu vaccine ready for the next flu season — but this assumes people only need one shot and production yields are similar to seasonal vaccine.

The WHO is now reviewing its numbers in light of the latest yield results and Kieny said it was not possible yet to give a revised forecast.

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