Scientist warns over pandemic flu vaccine 6-month time lag

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New research published today (Monday April 27) from the University of Leicester and University Hospitals of Leicester NHS Trust warns of a six-month time lag before effective vaccines can be manufactured in the event of a pandemic flu outbreak.

By that time, the first wave of pandemic flu may be over before people are vaccinated, says Dr Iain Stephenson, Consultant in Infectious Diseases at the Leicester Royal Infirmary and a Clinical Senior Lecturer at the University of Leicester.

In his paper published in PNAS- Proceedings of the National Academy of Sciences of the USA- Dr Stephenson makes the first case for a pre-pandemic vaccine to mitigate the worst effects of pandemic flu.

He said: "This study is the first to show an effective pre-pandemic vaccine approach. This means that we could vaccinate people potentially many years before a pandemic, to generate memory cells that are long lasting and can be rapidly boosted by a single dose of vaccine when needed."

Dr Stephenson, of the Department of Infection, Immunity and Inflammation at the University of Leicester, said: "If an influenza pandemic occurs, vaccination will to be the main way to protect the population. The major current threat seems to be from avian influenza H5N1 (bird flu) which has spread rapidly around the world and causes human infections and deaths.

"Unfortunately, if a pandemic occurs, it will take up to six months to manufacture effective vaccine, so the first waves of the pandemic may be over before people are vaccinated. Furthermore, most people need two doses of H5 pandemic vaccine to get protection- so this adds a further delay.

"To reduce any delay, we could consider stockpiling vaccine or immunizing people with vaccine prepared in advance -(a so called 'pre-pandemic vaccine' - to protect them before a future pandemic.

"However, we don't know which strain of influenza will cause the pandemic. There are several strains of H5N1 virus, so we can't be sure of which virus strain to make pre-pandemic vaccine from. Therefore a 'pre-pandemic' vaccine needs to give cross protection to as many H5 strains as possible."

Dr Stephenson and his team conducted a study comparing the effect of a single H5 bird flu vaccine dose to people who had been vaccinated with an H5 vaccine previously with people who had not previously received vaccine. The aim was the test out the idea of a pre-pandemic vaccination approach.

He said: "We found that those people who received H5 vaccine between 1999 and 2001 responded very well to a single dose of a newer H5 vaccine. They had memory cells that gave a rapid protective response within 7 days of the repeat vaccine. Also the response was very broad and able to protect against all known strains of H5N1 virus.

"In contrast, those people who had not been previously vaccinated with H5 vaccine, behaved as we had expected. They required 2 doses of vaccine and got good antibody responses up to 6 weeks after the first dose."

Dr Stephenson added that this was the first study to show an effective pre-pandemic vaccine approach.

The trial subjects were all recruited at the University of Leicester or University Hospitals of Leicester.

Source: University of Leicester (news : web)