Flu Vaccine Grown in Insect Cells Called a Promising Alternative

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TUESDAY, April 10 (HealthDay News) -- The latest buzz in flu vaccine development could be the use of an insect-cell-based vaccine, rather than egg-based immunizations, to speed up production and maintain effectiveness, particularly in the case of a pandemic flu outbreak.

An experimental vaccine was tested in about 300 people and produced an immune response strong enough to fight off the flu, while only causing minimal side effects, such as pain at the site of the injection, researchers reported in the April 11 issue of theJournal of the American Medical Association.

"All currently licensed influenza vaccines in the United States are produced in embryonic hen's eggs," wrote the study authors, from Cincinnati Children's Hospital Medical Center, the University of Rochester and the University of Virginia. The authors also pointed out that "eggs require specialized manufacturing facilities and could be difficult to scale up rapidly in response to an emerging need such as a pandemic."

Each year, as many as 20 percent of the American population gets infected with the flu virus, resulting in about 200,000 hospitalizations annually. More than 35,000 Americans die each year from complications of the flu, according to the U.S. Centers for Disease Control and Prevention. The influenza vaccine is the only known way to try to prevent the flu.

But, as the authors pointed out, developing a vaccine from eggs can be difficult. Millions and millions of eggs have to be kept at the right temperature, and flu viruses don't always grow well in eggs. Also, people who are allergic to eggs can't use egg-based vaccines.

But, one of the biggest difficulties stemming from the use of egg-based vaccines is the time it takes to manufacture these immunizations.

"It takes about six to nine months to make a batch, so you have to anticipate what will be the emerging flu strains almost a year ahead of time," explained Dr. Marc Siegel, an internist at New York University Medical Center and author ofBird Flu: Everything You Need to Know About the Next Pandemic.

"One advantage of this new vaccine technology -- assuming that it's clinically useful -- is that it would allow you to choose what the emerging strain is much closer to when it is actually emerging," he said.

The new vaccine, currently called FluB1OK, is produced by Protein Sciences Corp. of Meriden, Conn. A virus that normally infects insects called baculovirus and cells from caterpillars are used to manufacture the vaccine.

For this study, which was funded by Protein Sciences Corp., the researchers compared a placebo to two different versions of the new vaccine. One contained 75 micrograms of the vaccine, the other 135 micrograms. The actual vaccines were designed to protect against three strains of flu that were expected to be most active during the 2004-05 flu season, when the study was conducted.

One hundred and fifty-four people received a placebo injection, while 153 received the smaller dose of vaccine, and another 153 received the largest dose.

The vaccine was well-tolerated. Pain around the injection site was the most commonly reported "adverse event."

More important, no one who received the largest vaccine dose contracted the flu, compared to almost 5 percent of those who received a placebo and slightly more than 1 percent of those on the smaller dose of vaccine.

"In this study, (the new vaccine) was safe and immunogenic in a healthy adult population," wrote the study authors.

"This is a very promising, but early, finding," said Siegel, who added that "we need more studies that look at non egg-based technologies."

More information

To learn more about influenza, read this flu fact sheet from the U.S. Centers for Disease Control and Prevention.