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Immunity to Swine Flu May Be Broader Than Thought

And that may explain why the disease hasn't posed more problems, study says

By **Ed Edelson**
HealthDay Reporter

MONDAY, Nov. 16 (HealthDay News) -- The swine flu virus that's sweeping across the United States isn't a total stranger to your immune system, a new study shows -- a finding that should ease the most drastic worries about the lethality of the pandemic.



"What has been widely reported in the general press is that the swine flu is totally new, so there is no immunity to it," said study lead author Bjoern Peters, an assistant member of the division of vaccine discovery at the La Jolla Institute for Allergy and Immunology in La Jolla, Calif. "But the severity of infections that have been seen is not greater than usually seen in seasonal flu."

The reason why the swine flu virus -- officially designated H1N1 -- isn't the killer it was feared seems to be that the various protective mechanisms of the immune system have been primed by exposure to previous flu viruses, said study co-author Alessandro Sette, director of the La Jolla Institute's Center for Infectious Disease.

Peters, Sette and their colleagues used a major flu database funded by the U.S. National Institutes of Health to look at the reaction of immune system cells to the H1N1 swine flu virus. They found that 17 percent of the B cells that attack viruses in the bloodstream recognized H1N1 because of exposure to other flu viruses.

"They produce antibodies in the bloodstream and try to find the virus before it ends up in cells, so they are what prevents the disease," Peters said.

And 69 percent of T cells, which attack the virus in infected cells, were alerted by those previous infections, the study found.

"They recognize the virus inside cells, so they are responsible for clearing the infection once you have it," Peters said. "Nobody knows what level of immunity is sufficient for protection. But if infected, our data suggest that T cells in those who have previously been exposed to influenza may make the infection less severe."

The research, published in this week's *Proceedings of the National Academy of Sciences*, helps in understanding why the swine flu pandemic is not as deadly as was originally feared, Sette said. "We provide an explanation for observations that the disease severity is not greater," he said. "Maybe it is even less than ordinary seasonal flu."

Still, the research doesn't negate advice to get vaccinated against the H1N1 virus, Peters said. "From our findings, we see that it is necessary to get a shot," he said. "Yet it provides an explanation why you do not have to be absolutely concerned if you have not been able to get a shot yet."

Dr. Marc Siegel, associate professor of medicine at New York University, said the new study "gives more substance to something we already know, that infection with H1N1 is not an all-or-nothing situation."

But it's also clear that some people are more vulnerable to the H1N1 virus than others, Siegel said. "Immunity to influenza viruses varies," he said. "The older we are, the more likely we are to have immunity to this virus."

Since the H1N1 virus first surfaced last spring in Mexico and the United States, doctors have learned that younger people are more susceptible to the disease, probably because it's been decades since an H1N1 virus was the dominant flu strain.

The U.S. Centers for Disease Control and Prevention estimates that there were between 14 million and 34 million cases of H1N1 infection between April and October in the United States this year, with as many as 153,000 hospitalizations and between 2,500 and 6,000 deaths. In a normal flu season, there are more than 200,000 hospitalizations and 36,000 deaths, the CDC estimates.

More information

The [U.S. Centers for Disease Control and Prevention](#) provides the latest news on the H1N1 swine flu outbreak.

SOURCES: Bjoern Peters, Ph.D., assistant member, division of vaccine discovery, La Jolla Institute for Allergy and Immunology, La Jolla, Calif.; Alessandro Sette, director, Center for Infectious Disease, La Jolla Institute for Allergy and Immunology; Marc Siegel, M.D., assistant professor of medicine, New York University, New York City; Nov. 16-20, 2009, *Proceedings of the National Academy of Sciences*

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