Adults with obesity more likely to develop H1N1 influenza

July 10 2020, by Nardy Baeza Bickel

Credit: CC0 Public Domain

Adults with obesity are more susceptible to influenza A/H1N1pdm—the swine flu virus, according to a new study that did not, however, find a similar association with the seasonal flu.

The results could be relevant in understanding the mechanisms by which infectious diseases such as influenza or the ongoing coronavirus pandemic might affect different segments of the population, the researchers say.

"This research is important because obesity around the whole world is increasing rapidly. It's approximately tripled since the '70s," said first author Hannah Maier, a postdoctoral fellow at the University of Michigan School of Public Health.

"We're having a lot more obesity, right now we're dealing with the pandemic, and it was just announced that there might be another potential swine flu pandemic. If obesity is associated with increased risk and there's a lot more obesity, that could mean a lot more infections."

Maier and colleagues looked at data from more than 1,500 individuals in 330 households enrolled in the Nicaraguan Household Transmission Study, an ongoing community-based study tracking the health of a community in Managua, Nicaragua. Study participants were followed 10 to 15 days and given swab tests and blood tests to confirm infection.

The study found that adults with obesity had twice the odds of symptomatic H1N1 infection compared to those without obesity. The association was not seen with the H3N2 seasonal influenza strain.

While the mechanism linking obesity to increased disease severity is not yet known, chronic inflammation increases with age and is associated with chronic diseases. Separate studies have shown that obesity increases proinflammatory and decreases anti-inflammatory cytokine levels, the researchers say. Obesity can also impair wound healing and lead to mechanical difficulties in breathing and increased oxygen requirements.

In 2009, a strain of flu affecting pigs jumped to humans. This virus,

H1N1pdm, infected many people around the world.

Just this week, a new study states that a new strain of H1N1 in swine in China has the potential to become a pandemic, highlighting the importance of continuing this type of research even while facing the coronavirus pandemic, said senior author Aubree Gordon, an epidemiologist at U-M's School of Public Health.

"This underscores that although we are in the middle of a pandemic, we cannot stop being vigilant for the emergence of other viruses, particularly influenza," she said. "In addition, this highlights that the U.S. needs to participate in the World Health Organization. The WHO influenza program provides a critical service to the world monitoring influenza circulation to make vaccine strain recommendations and surveilling for potential emergence of new influenza viruses."

More information: Hannah E Maier et al. Obesity is associated with increased susceptibility to influenza A (H1N1pdm) but not H3N2 infection, *Clinical Infectious Diseases* (2020). DOI: 10.1093/cid/ciaa928

Provided by University of Michigan