CORRESPONDENCE

Serologic Study for Influenza A (H7N9) among High-Risk Groups in China

TO THE EDITOR: Human infections with novel avian-origin influenza A (H7N9) virus were recently identified in March 2013, in China.[1] As of May 17, a total of 131 human infections and 36 fatal cases have been reported. Nearly 84% of confirmed human cases (110 of 131) were from eastern China. The epidemiologic and virologic studies have revealed that poultry exposure may be an important risk factor for H7N9 infection in humans.[2-4]

We investigated whether subclinical human infection with the novel H7N9 virus occurred in poultry workers before 2013. To determine this, we detected the prevalence of antibodies to avian-origin influenza A (H7N9) virus using serum samples collected between January 2012 and November 2012 from poultry workers in Shanghai, Zhejiang, Jiangsu, and Anhui provinces, all located in eastern China. The stored serum samples were from a routine national surveillance program on subclinical infection of avian influenza of poultry workers, approved by the Ministry of China since 2008. This is part of national pandemic-preparedness plan, so a requirement for informed consent was waived according to the regulatory policy in China. A total of 1544 single serum samples were collected from key occupational groups, including workers from live poultry markets, farms, poultry yards, slaughterhouses, and wild-bird habitats. The ratio of female-to-male participants in the study ranged from 0.7 to 1.2 in the four provinces, and most participants were 25 to 59 years of age (65.5% to 78.1% in the four provinces) (see the Supplementary Appendix, available with the full text of this letter at NEJM.org). A hemagglutination-inhibition (HAI) assay using turkey red cells was used for preliminary antibody screening. A microneutralization (MN) assay was used for confirmation if an HAI titer of 20 or more was obtained.[5] An MN titer of 20 or more was defined as seropositive. Influenza A/Anhui/1/2013 (H7N9) virus was used for the HAI and MN assays. HAI titers of 20 or more were detected in 7 of 1544 serum samples (5 with an HAI titer of 20 and 2 with an HAI titer of 40), but none of the 1544 samples were positive by the MN assay (MN titer <10). This retrospective serologic study does not find any evidence for human infection of the novel avian-origin influenza A (H7N9) virus in poultry workers before November 2012 in eastern China. It is possible that transmission from poultry to humans was occurring in other populations.

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Supported by the Chinese National Influenza Center–Centers for Disease Control and Prevention (CDC) collaborative project (5U51IP000334-04) and the China–U.S. Collaborative Program on Emerging and Re-emerging Infectious Diseases.

Disclosure forms provided by the authors are available with the full text of this letter at NEJM.org.

This letter was published on May 29, 2013, at NEJM.org.

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DOI: 10.1056/NEJMc1305865