

Prevalent Features of Human Infections with Highly Pathogenic Avian Influenza A(H7N9) Virus, China, 2017

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Abstract : Since the first human infections with avian influenza A(H7N9) virus were identified in early 2013, 1533 cases of laboratory-confirmed A(H7N9) virus infections were reported and confirmed as of September 13, 2017. The fifth epidemic was defined as starting from September 1, 2016, and the number of A(H7N9) cases has surged since the end of December in 2016. On February 18, 2017, the A(H7N9) cases who were infected with highly pathogenic avian influenza (HPAI) virus was reported from Southern China. The HPAI A(H7N9) cases were identified and then an investigation and analyses were conducted to assess whether disease severity in humans has changed with HPAI A(H7N9) compared with low pathogenic avian influenza (LPAI) A(H7N9) virus infection. **Methods:** All confirmed cases with A(H7N9) virus infections reported throughout mainland China from September 1, 2016, to September 13, 2017, were included. Cases' information was extracted from field investigation reports and the notifiable infectious surveillance system to describe the demographic, clinical, and epidemiologic characteristics. Descriptive statistics were used to compare HPAI A(H7N9) cases with all LPAI A(H7N9) cases reported during the fifth epidemic. **Results:** A total of 27 cases of HPAI A(H7N9) virus were identified infection from five provinces, including Guangxi (44%), Guangdong (33%), Hunan (15%), Hebei (4%) and Shangxi (4%). The median age of cases of HPAI A(H7N9) virus infection was 60 years (range, 15 to 80) and most of them were male (59%) and lived in rural areas (78%). All 27 cases had live poultry related exposures within 10 days before their illness onset. In comparison with LPAI A(H7N9) case-patients, HPAI A(H7N9) case-patients were significantly more likely to live in rural areas (78% vs. 51%; $p = 0.006$), have exposure to the sick or dead poultry (56% vs. 19%; $p = 0.000$), and be hospitalized earlier (median 3 vs. 4 days; $p = 0.007$). No significant differences were observed in median age, sex, prevalence of underlying chronic medical conditions, median time from illness onset to first medical service seeking, starting antiviral treatment, and diagnosis. Although the median time from illness onset to death (9 vs. 13 days) was shorter and the overall case-fatality proportion (48% vs. 38%) was higher for HPAI A(H7N9) case-patients than for LPAI A(H7N9) case-patients, these differences were not statistically significant. **Conclusions:** Our findings indicate that HPAI A(H7N9) virus infection was associated with exposure to sick and dead poultry in rural areas when visited live poultry market or in the backyard. In the fifth epidemic in mainland China, HPAI A (H7N9) case-patients were hospitalized earlier than LPAI A(H7N9) case-patients. Although the difference was not statistically significant, the mortality of HPAI A (H7N9) case-patients was obviously higher than that of LPAI A(H7N9) case-patients, indicating a potential severity change of HPAI A(H7N9) virus infection.

Keywords : Avian influenza A (H7N9) virus, highly pathogenic avian influenza (HPAI), case-patients, poultry

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