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EDITORIAL

Clinical observations of new influenza A (H1N1) virus

Masoud Mardani*
Infectious Diseases and Tropical Medicine Research Center, Shahid Beheshti University, M.C., Tehran, Iran

As of 12 June 2009, 29669 laboratory-confirmed cases of new influenza A (H1N1) virus infection, including 135 deaths, had been reported to WHO from 74 countries. Most of these cases were from USA, 13217; Mexico, 6241; and Canada, 2978. The majority of fatal cases were reported from Mexico (1). We summarize the clinical features of human infection with new influenza A (H1N1) virus.

The clinical spectrum of disease caused by new influenza A (H1N1) virus infection ranges from non-febrile, mild upper respiratory tract illness to severe pneumonia leading to death (2,3). Most cases appear to have uncomplicated, typical influenza-like illness and recover spontaneously. The most commonly reported symptoms include cough, fever, sore throat, malaise and headache. Fever has been absent in some outpatients and in up to 1 in 6 surviving hospitalized patients. Gastrointestinal symptoms (nausea, vomiting and/ or diarrhea) have occurred in up to 25 to 38% of outpatients (3).

Approximately, 2-5% of confirmed cases in the United States and Canada, as well as 6% in Mexico (4), have been admitted to hospital, however, among confirmed cases about 10% have been hospitalized and one-third of those hospitalized required mechanical ventilation (4,5).

Almost one-half of the patients hospitalized in the United States and Mexico have had underlying conditions, including pregnancy, asthma and other lung diseases, diabetes mellitus, morbid obesity, autoimmune disorders and associated immunosuppressive therapies, neurological disorders and cardiovascular diseases (3). Of 20 pregnant women in the United Stated confirmed to be infected with new influenza A (H1N1) virus, 3 required hospitalization, one of whom died. This patient had started antiviral therapy 13 days after illness onset (6). Some pregnant women developed complications, including spontaneous abortion and premature rupture of membranes (5).

Among 45 fatal cases in Mexico, 54% were among previously healthy people, most of whom were aged 20-59 years. Case-fatality ratios were lower in children and teenagers than in adults, for reasons to be determined. Rapidly progressive respiratory disease has accounted for most severe or fatal cases (2). In Mexico, the median time from onset of illness to hospitalization was 6 days (a range, 1-20 days) in 45 fatal cases compared with a median of 4 days in hospitalized cases in the United States. In fatal cases, the presenting manifestations were fever, shortness of breath, myalgia, severe malaise, tachycardia, tachypnea, low oxygen saturation and, sometimes, hypotension and cyanosis. Several patients

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Reprint or Correspondence: Masoud Mardani, MD.
Infectious Diseases and Tropical Medicine Research Center
Shahid Beheshti University, M.C., Tehran, Iran.
E-mail: mmardani@hotmail.com

experienced cardiopulmonary arrest shortly after arrival at hospital. Diarrhea was uncommon in hospitalized cases.

In Mexico, clinical evaluations revealed severe pneumonia, multifocal infiltrates including nodular alveolar and, less frequently, basilar opacities on chest radiographs, as well as rapid progression to acute respiratory distress syndrome (ARDS) and renal or multi-organ failure (24% of fatal cases). The median time from symptom onset to death was 10 days (a range, 2-33 days) (5).

Both leukocytosis and leucopenia have been found in hospitalized subjects (5). In Mexico, many hospitalized patients have manifested lymphopenia, elevated aminotransferases, elevated lactate dehydrogenase (100% of 16 fatal cases) and, sometimes, very high levels of creatinine phosphokinase (2). Up to one-half of hospitalized patients have shown some degree of renal insufficiency, perhaps secondary to rhabdomyolysis and myoglobinuria (7), although other causes including hypotension, dehydration and hypoxia may be contributory (7). Acute myocarditis has been suspected in some patients, but encephalitis has not been yet described.

Few patients have had evidence of bacterial infection upon admission, but instances of empyema, necrotizing pneumonia and bacterial coinfection, as well as ventilator-associated pneumonias have occurred.

Supportive treatment (e.g. paracetamol, fluids) based on symptoms should be provided as needed. Salicylates (such as aspirin and aspirin-containing products) should not be prescribed in children and young adults because of the risk of Reye syndrome. Where antiviral medication is available, early administration in at-risk patients (those with co-morbidities or who are pregnant) with a neuraminidase inhibitor (oral oseltamivir or inhaled zanamivir) is advised. The new influenza A (H1N1) virus is susceptible to neuraminidase inhibitors (oseltamivir, zanamivir) but resistant to M2 inhibitors (amantadine, rimantadine). Adequate infection control precautions (cough etiquette, hand hygiene and natural ventilation) at home should also be implemented (1).

REFERENCES

1. Epidemic and pandemic alert and response (EPR), World Health Organization influenza A (H1N1), (update 48; available at http://www.who.int/csr/disease/avain_influenza/guidlines/Clinical Management 07.pdf; accessed May 2009).

2. Update: new virus influenza A (H1N1): regional report 6 (32). Washington DC, Pan American Health Organization, 2009 (available at http://new.paho.org/hq/infex.php?option=com_content&task=view&id=1377&Itemid=1167;accessed May 2009)

3. Novel Swine-Origin Influenza A (H1N1) Investigation Team. Emergence of a novel swine- origin influenza A (H1N1) Virus in humans. New Engl J Med 2009;361. Available at http://content.nejm.org/cgi/content/full/NEJMoa0903810; accessed May 2009).

4. Update: novel influenza A (H1N1) Virus infections-worldwide, May 6, 2009. Morbidity and Mortality Weekly Report 2009;58(17):453-58.

5. Hospitalized patients with novel influenza A (H1N1) virus infection- California, April-May, 2009. Morbidity and Mortality Weekly Report. 2009;58(18). Available at http://www.cdc.gov/mmwr/pdf/wk/mm58e0518.pdf;accssed May2009).

6. Novel influenza A (H1N1) virus infections in three pregnant women- United States, April- May, 2009. Morbidity and Mortality Weekly Report 2009;58(18):497-500.

7. Muscal E. Rhabdomyolysis. Available at http://emedicine.medscape.com/articl 1007814 overview accessed May 2009).