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Original Article

Clinical Profile of Patients in H1N1 Epidemic in a Tertiary Care Hospital

S M Shavana[1], A S Mohan[2], Mohamed Irfan Hassan[3]

[1]Associate Professor, Department of General Medicine, Tirunelveli Medical College Hospital, Tirunelveli, Tamil Nadu, India, [2]Former Professor, Department of General Medicine, Tirunelveli Medical College Hospital, Tirunelveli, Tamil Nadu, India, [3]Senior Resident, Department of General Medicine, Omandurar Medical College Hospital, Chennai, Tamil Nadu, India

Abstract

Introduction: Influenza spreads through droplets from infected individuals while coughing or sneezing. Flu can occur throughout the year, but peak occurrence is in the winter months.

Aim: To study the clinical profile of patients in the H1N1 epidemic admitted to a tertiary care hospital.

Methods: An observational study was conducted in a tertiary care teaching hospital in patients with H1N1 infection, confirmed by reverse transcriptase-polymerase chain reaction. Demographic data, underlying medical disease, clinical signs and symptoms, laboratory tests, therapy details, duration of admission, and disease outcome were documented.

Results: Of 50 patients studied, 16 patients (44% males and 66% females) tested positive. The common admission symptoms were fever, cough, and shortness of breath in 88% and sore throat in 100%. Mean age of patients was 43.18 years. The patients were admitted to the hospital on average 4 days (range 3–5 days) after the symptom onset. Three (19%) patients died on the next day of admission, 3 (19%) patients absconded during the treatment. The mean length of hospital stay was 4.2 days.

Conclusion: Clinical profile of patients in the H1N1 epidemic admitted in a tertiary care hospital are fever, cough, shortness of breath, and sore throat. Tachycardia is present in some of the patients. In addition, rarely gastrointestinal symptoms and central nervous system manifestations are the presenting features in some cases.

Key words: H1N1, Mortality, Pandemic, Swine flu

INTRODUCTION

Human Swine Influenza A (H1N1) is a highly transmissible infection that predominantly affects children and young adults. Influenza A virus is a common pathogen that had caused respiratory illness, pandemics, and death over the past century. The emergence of a novel influenza A virus in 2009 focused attention on influenza viral infection.[1,2] India has recorded nearly 9,000 infections and 882 deaths caused by the H1N1 influenza virus since January 2017. In Gujarat, 33 out of 136 patients with H1N1 have died since the beginning of the year. The largest number of deaths has occurred in the Rajkot district, but officials have not assessed why this one district has had so many deaths.[3] The influenza virus, known to be circulating as a pathogen in the human population since the 16th century, is notable for its unique ability to cause recurrent epidemics and global pandemics. Genetic reassortments in the influenza virus cause fast and unpredictable changes leading to recurrent febrile respiratory disease episodes every 1–3 years consistently. Some strains of H1N1 are endemic in humans and cause a small fraction of all influenza-like illnesses and a small fraction of all seasonal influenza. Other strains of H1N1 are endemic in pigs (swine influenza) and birds (avian influenza). The infection is transmitted from person-to-person by droplet infection from coughing or sneezing.[4,5]

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Aim

To study the clinical profile of patients in the H1N1 epidemic admitted to a tertiary care hospital.

MATERIALS AND METHODS

This observational study was conducted in the Department of Medicine at Tirunelveli Medical College Hospital from

Corresponding Author: Dr. A S Mohan, Department of General Medicine, Tirunelveli Medical College Hospital, Tirunelveli, Tamil Nadu, India.

March 2017 to June 2017. Inclusion criteria: adult patients age <75 years, Exclusion criteria: a known case of chronic obstructive pulmonary disease/Bronchial Asthma- acute exacerbation, pulmonary tuberculosis, chronic kidney disease, and HIV positive. For all patients, the throat swab was taken for polymerase chain reaction (PCR) testing (a real-time reverse-transcriptase–PCR assay) to confirm or exclude the diagnosis of H1N1. In addition, demographic data, underlying medical disease, clinical signs and symptoms, laboratory tests, therapy details, duration of admission, and disease outcome were documented.

RESULTS

Of the 50 patients studied, 16 patients (44% males and 66% females) tested positive for H1N1. The mean age of patients was 43.18 years. The common admission symptoms were fever, cough, shortness of breath in 88%, and sore throat in 100%. Figure 1 shows the clinical characteristics of patients. One of our patients presented with vomiting, high-grade fever, body ache, and neck stiffness. His cerebrospinal fluid analysis was normal without any cells. In addition, 31% of patients had tachycardia. Routine laboratory investigations were normal in all patients.

The patients were admitted to the hospital on an average of 4 days (range 3–5 days) after symptom onset. Two (12%) patients received antiviral treatment with oseltamivir, 11 (69%) patients were treated with oseltamivir and antibiotics. Unfortunately, 3 (19%) patients died on the next day of admission, 3 (19%) patients absconded during the treatment, ten patients were improved after the treatment and discharged. The mean length of hospital stay was 4.2 days. All the 3 patients who expired had comorbdities.

DISCUSSION

Influenza virus is a frequent human pathogen that can cause severe respiratory threats and consequent loss of human lives.

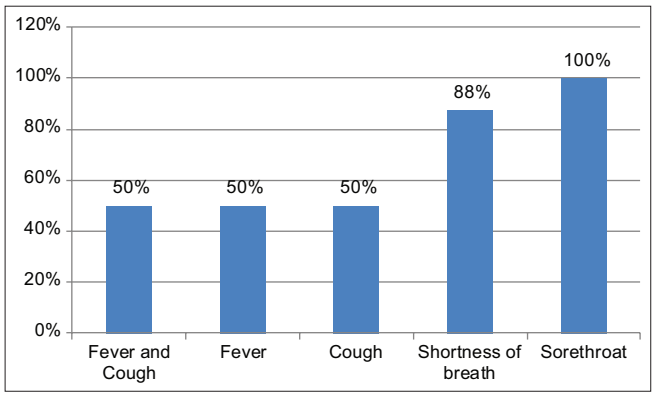

Figure 1: Clinical characteristics of patients

The H1N1 virus or "swine flu" virus belongs to the family of Orthomyxoviridae that are RNA viruses and include three subtypes influenza A, B, and C. Swine influenza virus (SIV) or swine-origin influenza virus refers to any strain of the influenza virus group that is endemic in pigs. Influenza C and subtypes of influenza A known as H1N1, H1N2, H3N1, H3N2, and H2N3 are the recognized SIV strains.

H1N1 viral infection can result in a wide spectrum of clinical patterns, ranging from no symptoms to fulminant viral pneumonia. This new pandemic virus is characterized by a high prevalence of severe viral pneumonitis requiring mechanical ventilation.[6] Influenza viruses are known to cause severe infections in immunocompromised patients, of whom variable proportions were reported in epidemiologic descriptions.[6,7]

According to Oliveira *et al.*, a high percentage of patients with severe forms of the disease in the general population are young adults with other associated comorbidities such as chronic respiratory diseases, metabolic and endocrine disorders, pregnancy, and those who are immunosuppressed by diseases or medicines.[8]

The signs and symptoms of influenza caused by pandemic H1N1 influenza A virus are similar to seasonal influenza, although gastrointestinal manifestations appear to be more common with pandemic H1N1 influenza.[9] Vomiting and diarrhea have been reported more often with 2009 H1N1 influenza than with seasonal influenza.[10] Dawood *et al.* mentioned that 25% of their patients had diarrhea, and 25% had vomiting.[11] In another study, diarrhea or vomiting was reported in 39% of patients, including 42% of children (i.e. patients under the age of 18 years) and 37% those ≥18 years.[12]

In our study, respiratory symptoms were present in most of the patients. Thus, H1N1 infections can have huge implications on public health infrastructure. The transmission can occur by mildly ill or even asymptomatic patients, amplifying the complexity of epidemic prevention and control. In addition, similar clinical symptoms as common influenza make them all the more difficult to be identified as soon as possible.

CONCLUSION

The clinical profile of patients in the H1N1 epidemic admitted in a tertiary care hospital is fever, cough, shortness of breath, and sore throat. Tachycardia is present in some of the patients. Rarely, gastrointestinal symptoms and central nervous system manifestations are the presenting features in some cases. Laboratory findings are mostly

normal in the case of influenza. The clinical course ranges from 3 to 5 days. Most patients recovered completely by day 5. Death commonly occurs on day 2 in severe forms of the disease. Understanding the swine flu infection and changing clinical presentation help in the formulation of new strategies for prevention and management

LIMITATIONS

The sample size is small, and the outcome of the absconded patients could not be determined.

REFERENCES

1. Interim Recommendations for clinical Use of Influenza Diagnostic Tests During the 2009-10 Influenza Season. Available from: http://www.cdc.gov/H1N1flu/guidance/diagnostic_tests.htm. [Last accessed on 2017 Oct 11].
2. World Health Organization. Human infection with new influenza a (H1N1) virus: Clinical observations from Mexico and other affected countries. Wkly Epidemiol Rec 2009;84:185-9.
3. Vora P. Changing Patterns of this Year's Swine Flu Outbreak Has Indian Health Authorities Flummoxed; 2017. Available from: https://www.scroll.in/pulse/838957/changing-patterns-of-this-years-swine-flu-outbreak-has-indian-health-authorities-flummoxed. [Last accessed on 2017 Oct 11].
4. Taubenberger JK, Morens DM. 1918 Influenza: The mother of all pandemics. Emerg Infect Dis 2006;12:15-22.
5. World Health Organization. Clinical Features of Severe Cases of Pandemic Influenza. Geneva: World Health Organization; 2009. Available from: http://www.who.int/csr/disease/swineflu/notes/h1n1_clinical_features_20091016/en. [Last accessed on 2017 Oct 11].
6. Kumar A, Zarychanski R, Pinto R, Cook DJ, Marshall J, Lacroix J. Critically ill patients with 2009 influenza A(H1N1) infection in Canada. JAMA 2009;302:1872-9.
7. Louie JK, Acosta M, Winter K, Jean C, Gavali S, Schechter R. California pandemic (H1N1) working group: Factors associated with death or hospitalization due to pandemic 2009 influenza a (H1N1) infection in California. JAMA 2009;302:1896-902.
8. Oliveira W, Carmo E, Penna G, Kuchenbecker R, Santos H, Araujo W, *et al*. Pandemic H1N1 influenza in Brazil: Analysis of the first 34,506 notified cases of influenza-like illness with severe acute respiratory infection (SARI). Euro Surveil 2009;14:19362.
9. Thorner AR. Epidemiology, Clinical Manifestations, and Diagnosis of Pandemic H1N1 Influenza (Swine Influenza). Available from: http://www.uptodate.com/patients/content/topic.do?topicKey=□56lKlZbYWciMeh6 and source=see_link. [Last accessed on 2017 Oct 11].
10. Fitzgerald DA. Human swine influenza A H1N1: Practical advice for clinicians early in the pandemic. Paediatr Respir Rev 2009;10:154-8.
11. Dawood FS, Jain S, Finelli L. Emergence of a novel swine-origin influenza a (H1N1) virus in humans. N Engl J Med 2009;360:2605-15.
12. Jain S, Kamimoto L, Bramley AM, Benoit SR, Louie J, Sugerman DE, *et al*. Hospitalized patients with H1N1 influenza in the United States, April-June 2009. N Engl J Med 2009;361:1935-44.

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