

## Study of clinical profile of patients with H1N1 Influenza in a teaching hospital of North Karnataka

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### ABSTRACT

**Background:** Influenza virus is a common human pathogen that has caused serious respiratory illness and death. In April 2009 a new strain of Influenza virus A H1N1 began to spread in several countries around the world and India confirmed its first case on 16 May 2009.

**Aim:** To study the clinic- epidemiologic profile of patients found positive for Influenza A H1N1 at a tertiary care hospital.

**Methods:** Prospective data of 134 patients with suspected influenza like illness was collected and subjected to throat swab testing for H1N1. Epidemiological characteristics were analyzed in terms of clinical presentation and outcome.

**Results:** Twenty-two (16.4%) patients were confirmed (positive) for H1N1. Maximum 17(77.2 %) patients were in the age group 16-50 years. Male (54.5%) were affected more than Females (45.5%). 18(81.8%) had underlying risk factors. Fever (95.5%) and cough (90.9%) were common presenting symptoms. Total 17 (77.2 %) patients were put on mechanical ventilator, out of them 17(77.2%) survived.

**Conclusion:** Fever and cough were most common presenting symptoms. Development of ARDS, requirement of mechanical ventilation and having co-morbid condition were poor prognostic factors.

**Key words:** H1N1, real time reverse transcriptase polymerase chain reaction assay, ARDS

### INTRODUCTION

Influenza causes annual epidemics of varied severity and risk of death. The pandemic of H1N1 influenza had its beginning in Mexico in March 2009 and soon spread to other parts of the globe. Influenza virus is a common human pathogen that has caused serious respiratory illness and death over the past century. In April 2009, a new strain of Influenza virus A H1N1, commonly referred to as "swine flu" began to spread in several countries around the world. The recent H1N1 virus strain has been found to be closely related to the swine flu virus, but with a genetic composition that is quite different from the earlier known isolates. This novel virus presented genetic characteristics that had not been previously identified in Influenza A in humans, swine or poultry.<sup>1,2</sup>

The 2009 H1N1 virus contained a unique combination of gene Segments that had not previously been identified in humans or animals.<sup>3,4</sup> India confirmed its first case on 16 May 2009, when a man travelling from New

York via Dubai and Delhi tested positive for the H1N1 Influenza virus in Hyderabad.<sup>5</sup> The second case was reported by the National Institute of Virology (NIV), Pune, in a mother and son duo from Chennai on 1 June 2009.<sup>6</sup> There are very limited studies relating to Influenza A H1N1 and its epidemiology in the Indian situation, this study aimed to study the clinic- epidemiologic profile of patients found positive for Influenza A H1N1 at a tertiary care hospital of north Karnataka.

### MATERIALS AND METHODS

Data of swine flu cases from April 2012 to March 2013 were taken to study the clinical profile of Influenza A H1N1. The study population included all the suspected patients tested for Influenza A H1N1. We studied 134 cases with suspected H1N1 and 22 cases were positive. Epidemiological characteristics were analyzed in terms of clinical presentation and outcome.

Inclusion criteria were age group more than 15 years, both sex and laboratory confirmed case for novel influenza H1N1 by RT-PCR assay (TAQ MAN real time PCR CDC protocol). Laboratory confirmed

negative for novel influenza H1N1 by RT-PCR assay (TAQ MAN real time PCR CDC protocol), age less than 15 years, and those patients positive for influenza A were excluded. Data were analyzed using Microsoft Excel Software and basic statistical measures like mean, median, percentage, etc. were calculated.

## RESULTS

The peak number of H1N1 cases was in July to September. It was found to be more common (77.2 %) in age group 16-50 years. There was slight male predominance (male 12, female 10 cases). 18 (81.8 %) had underlying risk factors like pregnancy, diabetes, hypertension, HIV, Asthma, Tuberculosis, smoking and alcohol. Fever (95.5%), cough (90.9%) and breathlessness (77.2%) were the most common presenting symptom (table 1).

**Table 1.** Clinical characteristics of H1N1 patients

Risk factors	Number of cases	Percent of cases(%)
Diabetes	11	50
Hypertension	10	45.5
Alcohol	8	36.4
Smoking	6	27.3
Tuberculosis	4	18.2
<b>Symptoms</b>		
Fever	21	95.5
cough	20	90.9
Breathlessness	18	81.8
Sore throat	10	45.5
Bodyache	9	40.9
Nasal discharge	5	22.7
Abdomen pain	4	18.9
Altered sensorium	1	4.5

Total 17 (77.2 %) patients were put on mechanical ventilator and all survived. Total 9 (40.1%) patients were initially put on noninvasive (Bipap) ventilator followed by invasive Mechanical ventilator, while 5 (22.7%) patients were put on only noninvasive (Bipap) ventilator and total 8 patients were put directly on invasive Mechanical ventilator. Chest x-ray on admission, sixteen patients (72.7%) had findings consistent with pneumonia/ARDS, mostly in lower zone and simultaneous involvement of both lungs is more common than single lung involvement. 5 patients expired out of 22 cases (22.7%).

## DISCUSSION

The H1N1 has caused pandemic alert all over the

World since March 2009. H1N1 pandemic had more number of cases in the age group of 5-25 years. Fever, cough, breathlessness were the most common symptoms observed in our population which is similar to that of study from Chennai.<sup>6</sup> The underlying co morbid illness was higher than general population.

In our study, a significant proportion of hospitalized patients had findings on chest radiography suggestive of pneumonia, and the majority had bilateral infiltrates. Although it is difficult to precisely determine the cause of pneumonia from radiograph. During the 1957–1958 influenza Pandemic, Louria et al reported findings of diffuse bilateral infiltrates in patients with primary influenza viral pneumonia, whereas lobar infiltrates were seen in patients with secondary bacterial infections. In the absence of accurate diagnostic methods, patients who are hospitalized with suspected influenza and lung infiltrates on chest radiography should be considered for treatment with both antibiotics and antiviral drugs.<sup>7</sup> Recent guidelines from The Infectious Diseases Society of America recommended the use of antiviral drugs in adults and children who are hospitalized with seasonal influenza, regardless of the underlying illness or influenza- vaccination status.<sup>8</sup> Current interim CDC guidelines for pandemic and seasonal influenza recommend the use of either oseltamivir or zanamivir for hospitalized patients with suspected or confirmed influenza and for outpatients who are at high risk for complications.<sup>9</sup> Although the evidence of a benefit of antiviral therapy is strongest when treatment is initiated within 48 hours after the onset of illness. A prospective cohort study of oseltamivir therapy in hospitalized patients with influenza observed a reduction in mortality, even when such therapy was initiated more than 48 hours after illness onset.<sup>10</sup>

## CONCLUSION

Development of ARDS, requirement of mechanical ventilation and having co-morbid condition are poor prognostic factors. There should be a high index of suspicion and should consider influenza,

including 2009 H1N1 infection, in the differential diagnosis for patients presenting with fever and respiratory illness or pneumonia. Oseltamivir therapy is effective when started within 48 hours. Ventilator has role in reducing mortality from H1N1.

#### Limitation

The numbers of positive cases tested for H1N1 were limited as it was single centre study. This analysis may not reflect the actual distribution of the cases at the population level.

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#### AUTHOR NOTE

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