

**Original article:**

## **Clinical profile and outcome in h1n1 patients in a tertiary care center : A retrospective study**

**<sup>1</sup>Dr K C Shashidhara, <sup>2</sup>Dr Chava Venkata Sumanth, <sup>3</sup>Dr K M Srinath, <sup>4</sup>Dr Prasanna Kumar H R**

<sup>1</sup>Associate Professor

<sup>2</sup> Post Graduate

<sup>3</sup> Professor, Professor

<sup>4</sup> Associate Professor

Department of General Medicine , JSS Medical College, Mysore.

Name of the Institute/college: JSS Medical College, Mysore

Corresponding author: Dr Chava Venkata Sumanth

### **ABSTRACT:**

**AIM AND OBJECTIVES:** To assess the clinical profile and the outcome in H1N1 patients admitted to JSS Hospital.

**METHODOLOGY:** This was a hospital based observational study done in JSS hospital. All the patients admitted with the complaints of fever, cough and breathlessness were evaluated with history and thorough clinical examination. Clinically suspected cases of H1N1 were enrolled into study. Those patients whose throat swabs were tested positive for H1N1 were chosen for the study. All patients were assessed for comorbidities, complications and mortality.

**RESULTS:** In our study most common age group with H1N1 disease was 41-60 yrs. Female patients (57%) outnumbered the male patients (43%). Most common symptom was Fever (88%) followed by cough (86%) and breathlessness (74%). Most common risk factor was Diabetes (31%) followed by smoking (26%) and COPD (24%). Among 42 patients 29 % of patients had anemia. 10% of patients had leucopenia and 31% of patients had leucocytosis. 31% of patients had thrombocytopenia. 7% had renal impairment and 45% of patient had hepatic impairment. Most common finding in CXR was bilateral lower zone opacities. Most common ABG finding was Type 1 respiratory failure. 29% of the people required mechanical ventilator support. Out of 42 patients 31 patients (74%) recovered and 11 patients (36%) expired.

**CONCLUSION:** Patients with co-morbid conditions were more susceptible. So preventive measures and therapeutic interventions should be directed towards such population. Primary prevention in form of vaccination and secondary prevention in form of early identification of alarming signs, early diagnosis and treatment and prompt referral to a centre well equipped with ICU facilities can prevent morbidity and mortality.

### **INTRODUCTION:**

Influenza is an infectious disease caused by RNA viruses of the Orthomyxoviridae family, which affects birds and mammals.. Swine influenza virus (SIV) is a strain of the influenza family of viruses which is endemic in pigs. The known SIV strains include influenza C and the subtypes of influenza A known as H1N1, H1N2, H3N1, H3N2, and H2N3. The most common symptoms of the disease are chills, fever, sore throat, coughing, muscle pains, severe headache, weakness/ fatigue and general discomfort. In more serious cases, influenza causes pneumonia, which can be fatal, particularly in young and the elderly. The patients with asthma, diabetes, immunosuppression,

cardiovascular disorder, chronic renal disorder, , neurological disorder, COPD are more susceptible for getting H1N1 infection. Influenza spreads around the world in seasonal epidemics, resulting in several deaths of every year, up to millions in some pandemic years. Three influenza pandemics have occurred in the 20th century and tens of million people were killed, with appearance of a new strain of the virus in humans leading to pandemic. Influenza A viruses have caused seasonal pandemics and epidemics since the early 1900s. H1N1 newly emerged subtype of influenza A known as swine flu was the most common cause of influenza in 2009. The WHO officially declared the outbreak to be a pandemic on June 11, 2009.

**AIM AND OBJECTIVES:**

To assess the clinical profile and the outcome in H1N1 patients admitted to JSS Hospital.

**MATERIALS AND METHODS:**

This is a hospital based retrospective study done in JSS hospital between January 2017 to March 2017. All the patients admitted to JSS Hospital with the complaints of fever, cough and breathlessness were evaluated with history and thorough clinical examination. Clinically suspected cases of H1N1 were enrolled into study and throat swab for H1N1 was collected. Throat swabs were stored at 4° C before and during transportation within 48 hrs and were stored at -70° C if it is beyond 48 hrs. Throat swabs were processed using RTPCR for influenza virus. Those patients whose throat swabs were tested positive for H1N1 were chosen for the study. All patients were assessed for comorbidities, complications like hypotension, need for inotropic support, respiratory failure, need for mechanical ventilation, need for dialysis, duration ICU/ hospital stay and mortality.

**RESULTS:**

Table 1 showing age Distribution:

Age group	Percentage
<40	31
41-60	50
61-80	19

Figure 1 showing Symptomatology:

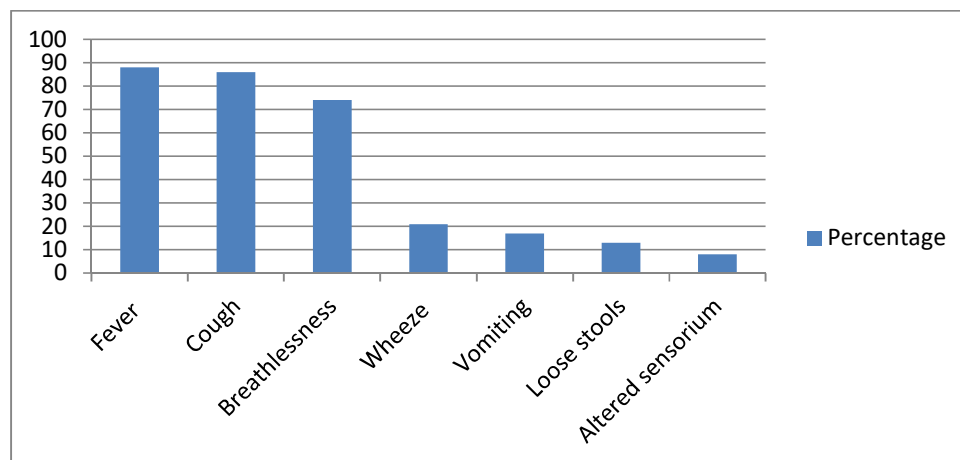


Table 2: Risk factors:

RISK FACTORS	PERCENTAGE
COPD	24
Diabetes	31
Hypertension	21
Smoking	26
Alcoholism	12

Table 3: Lab parameters:

Parameter		Percentage
Hemoglobin	<12	29
	>12	71
Total count	<4000	10
	4000-11000	59
	>11000	31
Platelet count	<1.5 lacs	31
	>1.5 lacs	69
Creatinine	<1.4	93
	>1.4	7

In our study most, common age group with H1N1 disease was 41-60 yrs. Mean age being 48 yrs.

Female patients (57%) outnumbered the male patients (43%).Duration of hospital stay ranges 1-33 days with mean hospital stay being 9 days.

Most common symptom was Fever (88%) followed by cough (86%) and breathlessness (74%).

Most common risk factor was Diabetes (31%) followed by smoking (26%) and COPD (24%).

Among 42 patients 29 % of patients had anemia.10% of patients had leucopenia and 31% of patients had leukocytosis. 31% of patients had thrombocytopenia. 7% had renal impairment and 45% of patient had hepatic impairment in the form of elevated bilirubin and transaminitis.

Most common finding in CXR was bilateral lower zone non-homogenous opacities. Most common ABG finding was Type 1 respiratory failure secondary to ARDS.29% of the people required mechanical ventilator support in the form of both invasive and non-invasive ventilation.

Duration of ICU stay was ranging from 1 to 20 days with mean duration being 6 days. Out of 42 patients 31 patients (74%) recovered and 11 patients (36%) expired.

#### DISCUSSION:

In our study Most, common age group was 41-60 yrs with mean age being 48 yrs which was 5-25 age group in Puvanalingam et al study<sup>2</sup>. In our study female population outnumbered the male population. Duration of hospital

stay ranges 1-33 days with mean hospital stay being 9 days. Most common symptom was Fever (88%) followed by cough (86%) and breathlessness (74%) which was similar to other studies<sup>1,2</sup>. Most common risk factor was Diabetes (31%) followed by smoking and COPD in our study.

Among 42 patients 29 % of patients had anemia.10% of patients had leucopenia and 31% of patients had leucocytosis. 31% of patients had thrombocytopenia.7% had renal impairment and 45% of patient had hepatic impairment in the form of elevated bilirubin and transaminitis. Most common finding in CXR was bilateral lower zone non homogenous opacities which was consistent with Puvanalingam et al study<sup>2</sup>. Most common ABG finding was Type 1 respiratory failure secondary to ARDS which was the most common cause of death in our study.

29% of the people required mechanical ventilator support in the form of both invasive and non-invasive ventilation. Duration of ICU stay was ranging from 1 to 20 days with mean duration being 6 days. Out of 42 patients 31 patients (74%) recovered and 11 patients (36%) expired. Mortality was more among diabetics (9.5%) followed by COPD patients (5%).

#### **CONCLUSION:**

In our study demonstrates productive population was more affected. Patients with co-morbid conditions were more susceptible. So preventive measures and therapeutic interventions should be directed towards such population. Primary prevention in form of vaccination especially of susceptible individuals and spread of herd immunity will help in controlling the spread of this infection. Secondary prevention in form of early identification of alarming signs and symptoms such as severe breathlessness, tachypnoea, shock, dropping saturation, early diagnosis and treatment and prompt referral to a centre well equipped with ICU facilities can prevent morbidity and mortality.

#### **REFERENCES:**

1. Shyam Mathur, Tuhin Dubey, Manish Kulshresth, Harish Agarwal, Gagan Mathur,Arvind Mathur, Clinical Profile and Mortality Among Novel Influenza A(H1N1) Infected Patients : 2009-2010 Jodhpur, Rajasthan Pandemic, Journal of the association of physicians of india september 2013 ,vol . 61, Pages 39-44
2. A Puvanalingam, C Rajendiran, K Sivasubramanian, S Ragananthanan, Sarada Suresh,S Gopalakrishnan Case Series Study of the Clinical Profile of H1N1 Swine Flu Influenza JAPI january 2011, vol. 59, Pages 14-18
3. Alexia Campbell,Rachel Rodin, Rhonda Kropp,Yang Mao, Zhiyong Hong, Juli Vachon,Risk of severe outcomes among patients admitted to hospital with pandemic (H1N1) influenza,CMAJ March 9, 2010 vol182:321.
4. Kartik Ramakrishna, Sriram Sampath, Jose Chacko, Binila Chacko, Deshikar L Narahari, Hemanth H Veerendra et al Clinical profile and predictors of mortality of severe pandemic (H1N1) 2009 virus infection needing intensive care: A multi-centre prospective study from South India, Journal of global infectious diseases,year:2012,vol:4,issue:3,page: 145-152.
5. Nagesh Kumar Chandrashekar Talkad, Shivakumar Subramanya Nanjangudu, Deepak Sitaram Telugu, Rashmi Krishnappa, Goutam Shivakumar Melur, Vivek Ganigar H1N1-infected patients in ICU and their clinical outcome North american journal of Medical sciences ,Year 2012,Vol: 4,Issue: 9,Page :394-398.
6. Allen C Cheng, Tom Kotsimbos , Anna Reynolds, Simon D Bowler,Simon G A Brown, Robert J HancoxClinical and epidemiological profile of patients with severe H1N1/09 pandemic influenza in Australia and New Zealand: an observational cohort study BMJ Open 2011;bmjopen-2011-000100. doi: 10.1136.

7. Kelvin K W To, Samson S Y Wong, Iris W S Li, Ivan F N Hung, Herman Tse, Patrick C Y Woo Concurrent comparison of epidemiology, clinical presentation and outcome between adult patients suffering from the pandemic influenza A (H1N1) 2009 virus and the seasonal influenza A virus infection , Postgraduate Medical Journal 2010;86:515-521.
8. Bin Cao, Xing-Wang Li, Yu Mao, Jian Wang, Hong-Zhou Lu, Yu-Sheng Chen, Clinical Features of the Initial Cases of 2009 Pandemic Influenza A (H1N1) Virus Infection in China N Engl J Med 2009; 361:2507-2517 December 24, 2009.