ORIGINAL ARTICLE

CLINICAL PRESENTATION, RADIOLOGICAL FEATURES AND COURSE OF THE DISEASE IN SWINE FLU POSITIVE PATIENTS ADMITTED IN THE RESPIRATORY INTENSIVE CARE UNIT OF A TERTIARY CARE HOSPITAL

G. Aruna[1], P. Ravi[2], Neethi Chandra[3]

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ABSTRACT: **BACKGROUND:** Since the 2009 pandemic of H1N1 or Swine Flu influenza, there have been respiratory emergencies every year throughout India, but in the early part of this year that is between January and April 2015 an explosion of cases was seen throughout the country, and so also in our state, Andhra Pradesh. The study of clinical presentation, radiological features and course of the disease helps in early suspicion, isolation, detection and institution of treatment in swine flu positive patients so that further spread of the disease can be controlled and the patients saved. **MATERIAL AND METHODS:** This is a cross-sectional study conducted at the Department of Pulmonary Medicine, S.V.R.R. Govt. General Hospital, Tirupathi, between January 2015 and April 2015. Study sample was the total number of swine flu suspects who were admitted in the Respiratory Intensive Care Unit and swine flu wards of the Department of Pulmonary Medicine. **SUMMARY:** Out of 32 suspects admitted, 13 tested positive for swine flu. 8 of the 13 were females (61%) and 5 were males (39%). Cold, cough and breathlessness were present in all the patients (100%). Sore throat was present in only 4 patients (30%). 11 out of the 13 patients were in respiratory failure (85%). 9 out of the 13 had comorbidities like diabetes, bronchial asthma and chronic kidney disease (70%). Chest X-ray and CT chest showed ARDS like picture and pneumonia in 11 out of the 13 patients (85%).
KEYWORDS: Radiological, Swine flu, Clinical, Disease course.

INTRODUCTION: Swine influenza is caused by influenza A virus subtypes H1N1, H1N2, H1N3, H3N1 and H3N2. These viruses are endemic in pigs.(1) The virion is roughly spherical in shape enveloped by a lipid membrane in which are 'spikes' which are glycoproteins neuraminidase and hemagglutinin. H1N1 virus has the property of being transmitted from human to human through droplet infection following coughing or sneezing.(2)

The risk factors for severe disease include diabetes mellitus, chronic respiratory, cardio vascular and kidney diseases as well as diseases related to smoking, pregnancy, immuno suppression and delay in diagnosis.(3)

The disease starts with usual flu like symptoms – body ache, fever, prostration, sore throat and persistent dry cough. Some patients present with or later develop diarrhea. The major danger is involvement of lungs characterized by pneumonia. This is often bilateral, x-ray chest shows bilateral shadows of lower lobes. Tachypnea and respiratory distress are warning signs of lung involvement. These patients often require ventilatory support and have a high morbidity and mortality. Death when it occurs is due to ARDS and multi organ failure.

Suspects of swine flu are categorised into:

Category A - Previously healthy, no comorbidity, mild fever (no need of swab, no need of oseltamivir)

Category B_1 - A+ high fever and sore throat (no need of swab, no need of oseltamivir)

B_2 - children less than 5 years, pregnant women, age more than 65 years and comorbidities (admission + oseltamivir)

Category C - Breathlesness, cyanosis, chest pain, hemoptysis, respiratory failure (paO_2 less than 60 mmHg and SaO_2 less than 90%).[4] (ICU admission + swab oseltamivir)

MATERIAL AND METHODS:

STUDY DESIGN: Cross sectional study.

STUDY SETTING: Respiratory intensive care unit, swine flu ward of Department of Pulmonary Medicine, S.V.R.R.G.H. Tirupathi.

PERIOD OF STUDY: January 2015 to April 2015.

SAMPLE SIZE: Total number of swine flu suspects admitted to Respiratory intensive care unit and swine flu ward of Department of Pulmonary Medicine, S.V.R.RG.H. Tirupathi, in the study period.

All 32 of them were immediately isolated, oxygen started where necessary, mechanically ventilated when necessary and higher antibiotics given. Injectable steroids were added and co-morbidities were meticulously managed. A throat swab was taken at the earliest and sent to the Institute of Preventive Medicine (IPM), Hyderabad by courier. Tab. Oseltamivir 75mg, BD was started. The result was informed to the Department by telephone on the third day and within one week an e-mail was sent.

CRITERIA FOR PATIENT SELECTION:

INCLUSION CRITERIA - All category B & C swine flu suspects admitted in RICU and swine flu wards of S.V.R.R.G.G.H and willing to participate in the study.

EXCLUSION CRITERIA – Those swine flu suspects not willing to participate in the study.

INVESTIGATIONS DONE:

Complete blood picture, fasting and post prandial blood sugars
Chest x-ray PA view
Throat swab for viral assay
Sputum for Acid fast bacilli, gram stain, Pyogenic culture
CT scan chest
Renal, Liver function tests
ECG
Pulse oximetry, Arterial blood gas analysis

RESULTS: In the study, out of 32 swine flu suspects, 13 tested positive. All patients were aged between 23 and 45 years. 8 of the 13 were females (61%) and 5 were males (39%)

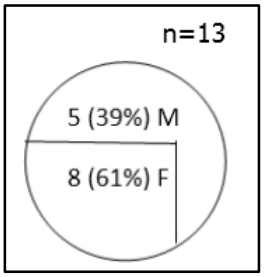

FIG. 1: SEX DISTRIBUTION

Cold, cough and breathlessness were present in all patients (100%). Surprisingly, sore throat was present in only 4 out of 13 patients (30%).

Symptom	No. of Patients
Cold	13(100%)
Cough	13(100%)
Breathlessness	13(100%)
Sore Throat	4(30%)

Table 1: Symptomatology in Patients

n=13

11 out of the 13 patients were in respiratory failure – Sao2 <90% and pao2 <60 mmHg (85%).

9 out of the 13(70%) had comorbidities.

Type of Comorbidity	No. of Patients
Diabetes only	5
Bronchial Asthma only	4
Diabetes and Bronchial Asthma	2
Diabetes, Bronchial Asthma and Renal failure	1
No comorbidity	4

Table 2: Occurrence of Comorbidities

n=13

Only 4 of the 13 positive patients (30%) gave history of travel in the recent past.

At chest x-ray and CT scan chest, 7 patients showed ARDS like picture, 4 had multi lobar pneumonia and 2 had normal x-rays.

CHEST XRAY / CT CHEST APPEARANCE	No. of Patients
1. ARDS like picture	7
2. Multi lobar pneumonia	4
3. Normal	2

Table 3: Chest X-Ray and CT Findings

n=13

All 13 patients recovered fully and were discharged after 10 days of hospitals stay. They were followed up after 1 and 2 weeks. Their symptoms had come down and x-rays cleared.

DISCUSSION: The pandemic of 2009 and the recent epidemic of early 2015 to justify such a study[5, 6] Swine flu can affect individuals of any age group though all our subjects were in the age group 23 to 45 years.[7] Women in our study were more than men, but this could due to the fact that all the women in our study had one comorbidity or the other and sometimes a combination of comorbidities.

As is expected cold, cough and breathlessness were the commonest symptoms present in 100% of the patient, however sore throat was present in only 4 of the 13 patients (30%). 11 out of the 13(85%) were in respiratory failure.[8, 9] Only 4 patients (30%) gave history of recent travel.

ARDS was the commonest radiological presentation (55%) followed by multi lobar pneumonia (30%) 2 patients had normal x-ray.

CONCLUSIONS:

1. The study shows that swine flu infection takes a very complicated course in patients with comorbidities diabetes, bronchial asthma and chronic renal failure.
2. Respiratory failure with ARDS like picture on chest x-ray and CT chest is the commonest presentation.
3. Early institution of Oseltamivir and antibiotics and good oxygenation augurs well for the patients, there were no deaths in our Institution.
4. No residual symptoms were seen in patients at follow up.

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AUTHORS:

1. G. Aruna
2. P. Ravi
3. Neethi Chandra

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Pulmonary Medicine, S. V. Medical College, Tirupathi, A. P.
2. Post Graduate Student, Department of Pulmonary Medicine, S. V. Medical College, Tirupathi, A. P.
3. Assistant Professor, Department of Pulmonary Medicine, S. V. Medical College, Tirupathi, A. P.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. G. Aruna,
Associate Professor,
Department of Pulmonary Medicine,
S. V. Medical College,
Tirupathi - 517507, A. P.
E-mail: popuriravi@rediffmail.com

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