



## CO MORBIDITIES AND ITS SEVERITY IN H1N1 POSITIVE PATIENTS

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**(ABSTRACT)** **Background:** Since the 2009 pandemic of H1N1, there have been respiratory emergencies every year throughout India, but in the early part of this year that is between February to June 2017 an explosion of cases was seen in Marathwada region in Maharashtra. The study of co morbidities and their relation to severity of H1N1 infection helps in early suspicion, isolation, detection and treatment of patients. Thereby further spread of the disease and its complication can be controlled and the patients can be saved.

**Material and methods:** This is a Hospital based study conducted in a tertiary care centre at the Government medical college and hospital, Aurangabad between February to June 2017 Study sample was the total number of confirmed cases of swine flu who were admitted in the isolation ward. The objectives were to describe the incidence and outcome of H1N1 positive cases associated with various co morbid conditions.

**Result :** Out of 169 suspects admitted, 45 tested were tested positive for H1N1 of NIV Pune. Out of 45 cases the 26 positive cases were females, and 19 were males Out of the 45 total cases, 26 cases had co morbidities like, Hypertension, diabetes mellitus, bronchial asthma, hypothyroidism and pregnancy. Immunosuppressant, cerebral palsy, GBS. Majority of the patients with co morbidities had prolonged duration of hospital stay (> 10 days) than the patients without any co morbidities, and the mortality rate was higher in the patients with co morbidities

## KEYWORDS :

**Introduction:**

Swine flu (swine influenza) is a respiratory disease caused by viruses (influenza viruses) that infect the respiratory tract of pigs and result in nasal secretions, a barking-like cough, decreased appetite (Bouvier et al, 2008). A highly contagious form of influenza seen in swine, caused by a virus of the family Orthomyxoviridae (Kimura et al, 1997). The infection is communicable to humans and caused a worldwide epidemic in 1918. The H1N1 virus (swine flu) is a new flu virus strain that has caused a worldwide pandemic in humans from June 2009 to August 2010. The Centers for Disease Control and Prevention now call the virus 2009 H1N1, an acute and highly contagious respiratory disease of swine caused by the orthomyxo virus thought to be the same virus that caused the 1918 influenza pandemic an acute febrile highly contagious viral disease. A highly contagious form of human influenza caused by a filterable virus identical or related to a virus formerly isolated from infected swine. The new virus, 2009 H1N1, spreads quickly and easily (Matsuzaki et al, 2002). A few months after the first cases were reported, rates of confirmed H1N1-related illness were increasing in almost all parts of the world. As a result, the World Health Organization declared the infection a global pandemic. That official designation remained in place for more than a year. Swine influenza was first proposed to be a disease related to human flu during the 1918 flu pandemic, when pigs became sick at the same time as humans. The risk factors for severe H1N1 infection include Pregnant woman Older age group 65 years Individuals with chronic hepatic disease Individuals with Diabetes mellitus Hematological abnormalities Immunosuppressant Individuals with renal failure Individuals with congestive heart failure Individuals with chronic lung disease as well as diseases related to smoking etc. The symptoms of H1N1 influenza are Fever A temperature of 100°F or higher for 3 to 4 days, Coughing : A non productive cough is usually present with the swine flu. Chills, Tiredness, Aches, Headache. In the present study we tried to find out co relation between H1N1 infected patients and co morbidities.

**II. Material And Methods:**

Study design: Hospital based Retrospective study.  
sampling technique : convenient sampling site of study: Department of Medicine Isolation ward in GMCH Aurangabad.

**Sample size:** All H1N1 confirmed swine flu cases admitted to swine flu ward of Department of Medicine Isolation ward in Government medical college and hospital, Aurangabad.

All suspected patients were started with Oseltamavir 75 mg BID for 5 days ,and patient with signs of pneumonia started with 150 mg BID for 10 days. study tools: detailed collection of case report

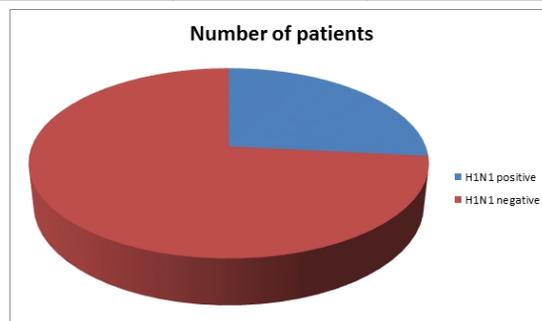
All H1N1 confirmed which were swab positive cases admitted in isolation ward included in the study

All H1N1 suspect s which were swab negative for H1N1 were excluded from the study.

data collection obtained clearance from ethical committee. statistical analysis: Data was analyzed using descriptive statistics and chi-square test

**RESULT:** In the study, A throat swab of all suspected patients was collected and transported physically as per guidelines of NIV for H1N1 testing out of 169 total swine flu suspects, 45 cases were tested throat swab for H1N1 positives shown in table 1 & Figure 1. Table 1-

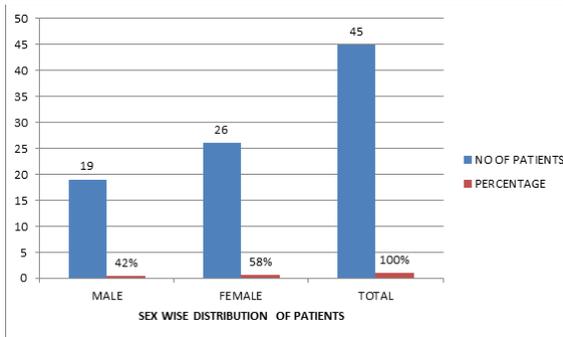
| Category      | Number of Patients | Percentage (%) |
|---------------|--------------------|----------------|
| H1N1 positive | 45                 | 26%            |
| H1N1 negative | 124                | 74%            |
| Total         | 169                | 100%           |



**SEX WISE DISTRIBUTION :** out of 45 swab positive cases 26 were females and 19 were males the incidence was higher in females during this period

table no:2 ,fig:2

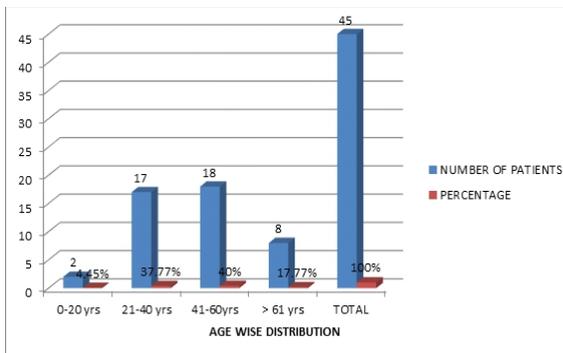
| SEX    | NUMBER OF PATIENTS | PERCENTAGE % |
|--------|--------------------|--------------|
| MALE   | 19                 | 42%          |
| FEMALE | 26                 | 58%          |
| TOTAL  | 45                 | 100%         |



**AGE WISE DISRIBUTION OF PATIENTS:** age wise distribution in the swab positive patients . Most of the cases were in the age range of 21-45 years followed by 45 years and above in case of seasonal influenza A virus infection while majority of the

Table 3, fig 3:

| AGE      | NUMBER OF PATIENTS | PERCENTAGE |
|----------|--------------------|------------|
| 0-20yrs  | 2                  | 4.45%      |
| 21-40yrs | 17                 | 37.77%     |
| 41-60yrs | 18                 | 40%        |
| >61 yrs  | 8                  | 17.77%     |
| TOTAL    | 45                 | 100%       |



Many patients had longer duration of hospital stay ,most of them were on ventilator support .The mortality rate was high these patients . the mean duration of hospital stay was 12 to 16 days. The intubated patients have relatively low hospital stay because of severity of disease the death occurred in relatively short duration than those who were discharged .number of patients required O2 support were 10, non invasive ventilation 35, out of 35 most of the patient required invasive ventilation. patients who required invasive ventilation were 28 . out of that 26 death occurred and 2 patients were discharged

| O2 | NIV support | Invasive ventilation |
|----|-------------|----------------------|
| 10 | 35          | 28                   |

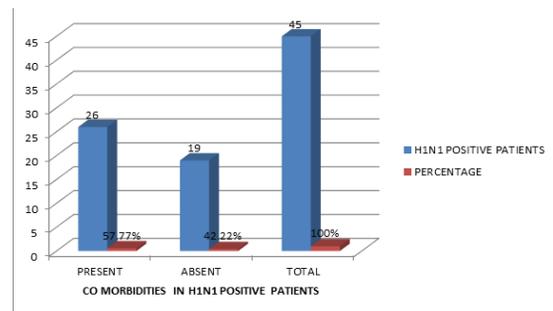
**PATIENTS WITH COMORBIDITIES AND p-value:** pH1N1-2009 cases were recorded in the age range of 45 years and above followed by 21-45 years (Table 2). Only 2 of the patients with pH1N1-2009 were below 20 years of age. most of the patients with co morbidities were died. the percentage of death in patients having co morbidities was high as compared to the patients who were not having co morbidities in the month of feb-2017 to may 2017,169 patients were screened for H1N1 influenza. 26 patients out of 45 who were swab positive for H1N1 have several co morbidities listed below .The mortality rate was high in H1N1 positive patients with co morbidities

table 4.4.1 and fig.4

| Co morbidities                        | Number of patients | Death |
|---------------------------------------|--------------------|-------|
| Cardiovascular diseases               | 7                  | 5     |
| Diabetes mellitus                     | 5                  | 3     |
| Hypothyroidism                        | 4                  | 2     |
| Hematological (severe anemia)         | 3                  | 3     |
| Chronic obstructive pulmonary disease | 3                  | 2     |
| Immunosuppressant                     | 1                  | 1     |
| GBS                                   | 1                  | 0     |
| Cerebral palsy                        | 1                  | 1     |
| ANC                                   | 1                  | 0     |
| TOTAL                                 | 26                 | 17    |

The patient with co morbidities having high deaths as compared to the other patients .in the month of Feb. 2017 to may 2017 total 26 patients have co morbidities out of that 7 patients have cardio vascular diseases, 4 patients have hypothyroidism,5 patients had diabetes mellitus and other diseases listed above

| CO MORBIDITIES | H1N1 POSITIVE PATIENTS | PERCENTAGE |
|----------------|------------------------|------------|
| PRESENT        | 26                     | 57.77%     |
| ABSENT         | 19                     | 42.22%     |
| TOTAL          | 45                     | 100%       |



Another graph which shows the severity of H1N1 in the patients with co morbidities . the patient having co morbidities were severely ill and the hospital stay was also more as compared to the patients who do not have co morbidities. patient having co morbidities required more ventilator support than other group and the mortality in patients with co morbidities was high.

by applying chi-sq test and relative statistics it is proved that the patients having co morbidity have high mortality as compared to the other group

table :5

| CO MORBIDITIES | DEATH |    | P value and chi-sq test             |
|----------------|-------|----|-------------------------------------|
|                | YES   | NO |                                     |
| PRESENT        | 17    | 9  | P=<0.005,<br>Chi-sq value=<br>6.706 |
| ABSENT         | 05    | 14 |                                     |
| TOTAL          | 22    | 23 |                                     |

**Discussion :** In spite of summer season there was a sudden outbreak of H1N1 positive cases in Aurangabad from feb 17 to may 17 and it was observed that most of these patients had co morbidities, so in the present study we document 45 H1N1 positive cases .Patients were clinically suspected as per the guide lines .almost all patients required ventilator support and the mean duration of ventilator support was 12 to 16 days.

In countries where H1N1 pandemic is established, the main aims of surveillance are continuous monitoring of the epidemiological picture of the pandemic and its impact on the healthcare infrastructure. In our study women were more than men, but this could be due to the fact that all the women in our study had one co morbidity or the other. In the current pandemic of H1N1 sore throat, cold, cough and breathlessness were present in all patients (100%).

out 45of the confirmed cases had co morbidities like Chronic obstructive pulmonary disease, diabetes mellitus, diabetic ketoacidosis, pregnancy, hypothyroidism, hypertension, cardiovascular diseases

in the month of Feb. 2017 to may2017 patients the epidemic of H1N1 influenza has occurred ,in between this period, total 169 patients were screened for H1N1. out of that 45 patient came swab positive for H1N1 .in 45 patients most had co morbidities like ANC, Older age group 65 years, Diabetes mellitus, Hematological abnormalities, Immunosuppressant, congestive heart failure and ischemic heart disease, chronic lung disease. the severity of H1N1 was high in the population with co morbidities and also the hospital stay was increased.

The co morbidities like cardiovascular diseases, diabetes mellitus, hypothyroidism and hematological abnormalities such as severe anemia the severity of H1N1 influenza was high and mortality rate was also high .all these patients diagnosed previously. these patients came with chief complaints of fever, cough and breathlessness, and chest x ray suggestive of pneumonitis. Treatment was started immediately Tb. Oseltamavir 150 mg twice a day according to the guidelines of health authority of government.

one female case of gullian-barre syndrome was admitted in isolation in view of pneumonitis. her swab came positive for H1N1 .she was kept intubated and on ventilator support in ward for several days and she was discharged after completion of treatment.

**Conclusion:** In the summer season there was sudden outbreak in Aurangabad from feb2017 to may2017.out of 169 suspects 26%(45) were H1N1 positive. 57.77% of H1N1 positive patients had co morbid conditions. and mortality rate was statistically significant in that patients

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