DEATH AUDIT OF SWINE FLU CASES IN SURAT CITY

Hiren Jadawala¹, Khushbu Patel¹, Rachna Prasad², Manan J Patel¹, Jayesh J Rana¹, RK Bansal³

Author's Affiliation:
¹Post Graduate student; ²Asso. Prof; ³Prof. & Head, Dept. of Community Medicine, SMIMER, Surat

Correspondence:
Dr. Hiren Jadawala,
jadawalahiren1559@gmail.com

ABSTRACT

Introduction: Evaluation of medical care in retrospect through qualitative analysis of clinical records, including analysis of hospital services is a simpler way to look into the meaning of Death Audit. Late presentation at hospital and having co-morbid conditions were commonly observed to be associated with poor patient outcome. Objective of the study was to assess the epidemiologic characteristics & high-risk profiles among reported deaths with H1N1 influenza in Surat city.

Method: Death audit of 47 swine flu positive cases were carried by household visit and checking medical records from respected hospitals of Surat Municipal Corporation area.

Results: Deaths were higher among age group of 40-60 years and above and female population. Out of total 47 deaths, only 20 swine flu positive patients had reported to hospital within 48 hours after onset of signs & symptoms. More than 83% swine flu death patients had not taken oseltamivir within 48 hours after onset of signs & symptoms. Diabetes and hypertension, IHD were co morbid condition and pregnancy was associated condition with H1N1 fatality.

Conclusion: Mortality was higher in patient having co-morbid conditions like hypertension, diabetes, pregnancy, thyroid disorder. Longer interval between onset of signs and symptoms to diagnosis and initiation of oseltamivir may be the possible reason for higher mortality during swine flu epidemic 2015.

Key words: Death audit, Swine flu, H1N1 Positive Deaths, Oseltamivir Lag, Co morbid condition, Surat.

INTRODUCTION

"Death Audit" define as a technique or process of quantitative death record analysis & compiling the information pertaining to the professional activities of the hospital, as well as the qualitative analysis & evaluation of the data so collected.[1] Later on the term was expanded to include community based examination of records and history, specifically in situations like epidemic.[1]

Evaluation of medical care in retrospect through qualitative analysis of clinical records, including analysis of hospital services is a simpler way to look into the meaning of Death Audit. The primary purpose of such an audit is to elevate the quality & efficiency of medical care, and for so doing, to seek the cause for poor results.[1]

H1N1 influenza, first detected in Mexico in April 2009 and the virus was originally referred as

"swine flu" because many of the genes in the new strain were found in pigs in USA.[2,3] 2015 India swine flu epidemic refers to an outbreak of 2009 pandemic H1N1 Virus. In India up to 30th march 2015, 33761 Swine flu confirmed cases and 2035 death have been reported. Out of 33761 cases, 6495 swine flu confirmed cases and 428 deaths due to this disease occurred in Gujarat state only.[4]

Late presentation at hospital and having co-morbid conditions were commonly observed to be associated with poor patient outcome. However very few study had tried to find out duration of presentation and comorbid condition in swine flu cases. In this context the present study was carried out to study epidemiology, clinical and laboratory profile of died patients with confirmed swine flu (H1N1 Influenza) in Surat Municipal Corporation area.

METHODOLOGY

From 16th January to 18th March 2015, 727 laboratory confirmed (by RT-PCR[5]) cases of swine flu (H1N1 Influenza) were reported from Surat Corporation area. Out of these 47 died. This study encompasses these deceased patients.

A pre tested questionnaire (also called as Death Audit Form) was used to collect desired information. For getting clinical and laboratory finding hospital where deceased person was admitted was visited. In case deceased person was admitted in more than one hospital during the course of treatment, last hospital was visited. Cases papers of the patients were reviewed for the information. To collect epidemiological and socio-demographic data deceased person's house was visited and family members and neighbour were interviewed.

The questionnaire includes information regarding age, gender, sex, occupation, presenting signs & symptoms, co -morbid medical conditions etc. First consultant and referral hospital's details, laboratory Investigations like Haemoglobin, Total Count, Platelet count, Real Time PCR for H1N1, Time lag for starting the temiflu were also included. Statistical analysis was done using SPSS software version 20.

RESULTS

Out of 47, 25 (53.2%) were female and 22 (46.8%) were male. Most of patients (64%) were more than 40 year of age (Table 1).

Highest death were reported from North Zone (12, 25.5%) followed by East Zone (11, 23.4%). Most common symptoms were fever (95.7%) and cough (95.7%) followed by breathlessness (93.6%), rhinorrhoea (nasal catarrh) (70.2%), sore throat (57.4%) and headache & body ache (40.4%). Other less common symptoms were chest pain (12.8%), haemoptysis (10.6%) and other (abdominal pain, diarrhoea, weakness, vomiting) (14.9%).

As shown in table 2, out of 47 patients, 26 (55.3%) had high risk factors (like hypertension, diabetes, ischemic heart disease, thyroid disorder, liver disorder, seizures, malignancy, pregnancy).

Table: 1 Socio–Demographic Profile of Swine flu Patients (n=47)

Variables	Case (%)
Age (in years)	
0-20	7 (14.9)
20-40	10 (21.3)
40-60	20 (42.6)
>60	10 (21.3)
Sex	
Male	22 (46.8)
Female	25 (53.2)
Occupation	
Housewife	22 (46.8)
Student(5 to 20 yrs)	3 (6.4)
Under 5 children	4 (8.5)
Retired	9 (19.1)
Diamond Worker	3 (6.4)
Jari worker	2 (4.3)
Health worker	1 (2.1)
Businessman	2 (4.3)
Teacher	1 (2.1)
Positive travel history*	1 (2.1)

*Visit to affected area abroad/within the country

Table 2: Associated co-morbid condition

Co-morbid condition	Cases (%)
Hypertension	12(25.5)
Diabetes	8 (17)
Ischemic Heart Disease	5(10.6)
Thyroid disorder	2(4.3)
Pregnancy	2(4.3)
Malignancy	2(4.3)
Liver disorder	2(4.3)
Seizures	3 (6.3)

Out of 47, 27(57.45%) patients were reported to hospital after two days of onset of signs and symptoms.

94% patients x-ray showing findings of pneumonia (any lung findings). chemoprophylaxis had been given to contact family members only 68%.

Table 3: Disease History & Laboratory Findings in Hospital (N=47)

Time Interval	Time Duration	Case (%)
Onset of signs/Symptoms to First Reporting in Hospital	< 2 days	20 (42.6)
	> 2 days	27 (57.4)
Onset of signs/symptoms to receipt of Oseltamivir	< 2 days	8 (17.0)
	> 2 days	39 (83.0)
First Reporting in Hospital to Swab Taken for H1N1	<24 hours	31 (66.0)
	> 24 hours	16 (34.0)
First Reporting in Hospital to receipt of Oseltamivir	<24 hours	29 (61.7)
	> 24 hours	18 (38.3)
Onset of signs/symptoms to Death	< 10 days	30 (63.8)
	> 10 days	17 (36.2)

Table 4: Laboratory finding

Variable	Case (%)
Haemoglobin	
<8gm/dl (Severe anaemia)	5 (10.00)
8-10gm/dl (moderate anaemia)	5 (10.00)
10-12gm/dl (mild anaemia)	11 (23..9)
>12 gm/dl	25 (54.34)
Total Leucocytes count	
< 4000	7 (15.5)
4000- 10000	24 (53.33)
>10000	14 (31.11)
Total Platelet count	
<1,50,000	16 (37.2)
1,50,000-3,50,000	19 (40.0)
> 3,50,000	8 (17.0)
X-ray Finding	
Findings suggested of ARDS*	44 (93.6)
No specific finding	3 (6.4)

*ARDS Findings like unilateral or bilateral consolidation, opacity, haziness, pleural effusion

Laboratory findings showed that 10(21.7%) had moderate to severe anaemia (Hb<10 gm/dl), 7 had leucopoenia (<4000), 14 had leucocytosis (>10,000), 16 had Thrombocytopenia (37.2%), 8 had Thrombocytosis (17.2%).

DISCUSSION

During the study period 47 H1N1 Positive Death were reported. Deaths were almost equally distributed among male and female. Highest number of deceased persons (43%) belonged to age group between 40-60 yrs. This findings are comparable to a study done at Mexico and USA.[6]

More than half of the deceased person had one or other co-morbid condition. Due to presence of co-morbid condition, immune system of them was compromised. Infection of H1N1 in already compromised immune system lead to rapid increase in viral load. When the viral load is high, the response to the treatment takes time and the co-morbid conditions get aggravated, leading to multi-organ failure or acute lung failure.[16] In the present study, two female were pregnant. Pregnant women have been at higher risk for influenza associated morbidity and mortality.[8-11] Pregnant women if infected with H1N1, can rapidly develop a haemodynamic imbalance, which acutely affects lung function and facilitates the development of pneumonia, acute pulmonary oedema, and other serious respiratory illnesses.[14,15] Pregnancy also reduces the ability of women to tolerate hypoxic stress, and thus increases risk of maternal and perinatal mortality.

Most common symptoms were fever, cough, rhinorrhoea (nasal catarrh), breathlessness, sore throat, chest pain, haemoptysis, headache & body ache. That was similar to those which were seen in other Indian study.[8] In present study only 1(2.1%) patient had travel history within country that was similar to other study.[7]

In present study more than half (57.4%) deceased person had reported after 48 hours of onset of signs & symptoms. Delayed treatment seeking behaviours shows lack of awareness and ignorance. Economic condition might also influence treatment seeking behaviour.

Detailed medical history of deceased person revealed that they were initially treated at a local level by the general practitioners. When no improvement was reported after few days of treatment, they were referred to the higher centers for further investigation and treatment. This could be the reason for longer time duration between onsets of illness to diagnosis.

In Present Study out of 47 died patients, only 8 (17%) had received oseltamivir (anti-viral agent for influenza treatment) within 2 days of onset of illness. Initial primary treatment at the level of the general practitioners or local physician led to delay in the referral; this could be most possible explanation for the delayed start of oseltamivir in Suspected or Confirmed H1N1 Influenza patient.

Chest Radiography was done in 100% of the H1N1 Influenza death patients (n=47): 93.6 % (44) of these patients had findings that consistent with lung findings like unilateral/bilateral consolidation, pleural effusion, haziness, opacity of lung. Similar findings were also reported by other studies.[12-13] Most of death (94%) in swine flu due to ARDS (acute respiratory distress syndrome).

CONCLUSION

From the present study, we can conclude that more than one third deaths due to swine flu were observed in 40-60 years of age group. Mortality was higher in patient having co-morbid conditions like hypertension, diabetes, pregnancy, thyroid disorder. Longer interval between onset of signs and symptoms to diagnosis and initiation of oseltamivir may be the possible reason for higher mortality during swine flu epidemic 2015.

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