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Original Research Article

Effect of health seeking interval on outcome in swine flu cases attended a tertiary care hospital in southern Rajasthan region of India

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ABSTRACT

Background: Swine flu influenza is an infection by H1N1 type of swine influenza virus. Swine influenza virus or swine-origin influenza virus (SIV or S-OIV) is a strain of the family of influenza viruses that's endemic in swine (pigs). Early diagnosis and treatment is key approach to control the morbidity and mortality associated with swine flu which can be achieved by improving health seeking behaviour of community. Understanding of behaviour of community is essential for planning strategies for prevention and control. Aim of this study is to establish a relation between healthcare interval and outcome of swine flu.
Methods: A complete data of all the patients visiting swine flu OPDs, swine flu wards and ICU were maintained for year 2015. Each patient visiting either the swine flu OPD or the swine flu ward, who was suspected clinically to be H1N1 positive were tested for real time PCR. Data was collected in a standardized pre-structured questionnaire.
Results: Out of 1247 samples tested for rt-PCR, number of patients found to be swine positive was 491 (39.37%). Total 267 patients were admitted in swine flu ward and ICU, out of them 62 was expired. Clinical care intervals of more than 5 days from onset of symptoms to swab collection, diagnosis and admission were more in female and rural population. Mean duration between onset of symptom to hospitalization, swab collection and diagnosis was significantly higher in deceased patients than survived.
Conclusions: Early presentation to healthcare facility is associated with better prognosis and outcome. After patient report to the health care setup, early sample collection and diagnosis help to reduce mortality.

Keywords: Swine flu, Nasopharyngeal swab, Health seeking behaviour, Clinical care interval

INTRODUCTION

Swine flu influenza is an infection by H1N1 type of swine influenza virus. Swine influenza virus or swine-origin influenza virus (SIV or S-OIV) is a strain of the family of influenza viruses that's endemic in swine (pigs).[1]

For diagnosis of influenza A H1N1 infection, sample of respiratory secretions (like throat swab, nasal washing, nasal aspirate and nasopharyngeal swab,) usually ought to be collected within early 4 to 5 days of onset of symptoms (when an infected person is presumably to be shedding virus in secretions). Influenza A and B are distinguishable by most of the tests. A positive result for influenza type B indicates that the flu is not due to infection of influenza (H1N1). Positive result for type A confirms the diagnosis of conventional influenza strain or swine influenza (H1N1).[2]

Early diagnosis and treatment is key approach to control the morbidity and mortality associated with swine flu

which can be achieved by improving health seeking behaviour of community. Understanding of behaviour of community is essential for planning strategies for prevention and control.

Although the basic determinants of swine flu transmission are common, the magnitude and nature of these factors vary from community to community.[3] Rural population is usually ignored and not reachable in terms of identification of clinical features.

Aim of this study is to establish a relation between healthcare interval and outcome of swine flu.

METHODS

This cross-sectional, descriptive, Hospital based Study was conducted in swine flu OPD, ward and ICU at Maharana Bhupal Government Hospital of Ravindra Nath Tagore Medical College, Udaipur during year 2015 Swine flu outbreak.

A complete data of all the patients visiting swine flu OPDs, swine flu wards and ICU were maintained for year 2015. Each patient visiting either the swine flu OPD or the swine flu ward, who was suspected clinically to be H1N1 positive were tested for real time PCR. Confirmed diagnosis of Influenza A H1N1 flu requires testing of a nasopharyngeal, nasal, or oropharyngeal tissue swab from the patient.

In the year 2015 during the outbreak of Influenza A H1N1, a total about 3837 patients attended twenty four hour running swine flu OPD at MBGH hospital Udaipur. Out of them 1247 (32.50%) patients were subjected for rt-PCR, number of patients found to be swine positive was 491 (39.37%). Total 267 patients were admitted in swine flu ward and ICU, out of them 62 was expired.

A standardized pre-structured questionnaire with consent was filled by direct interview of admitted patients including the clinical and epidemiological data of patients like age, sex, residence, communication detail, clinical signs and symptoms, exposure history, type & numbers of sample collected, treatment taken and chest X-ray findings.

Data was analysed by using excel sheet and statistical software SPSS 21. Chi Square test was used for statistical analysis. The results are depicted in the form of tables.

Ethical clearance from ethical committee has been obtained prior to beginning of study.

RESULTS

Table 1 shows that duration between onsets of symptoms to throat swab collection for majority of swine positive patients 215 (43.79%) was 3-5 days. Maximum number of swine positive patients 191 (38.90%) were diagnosed within 3-5 days from onset of symptoms. Majority of swine positive patients 146 (54.68%) admitted to hospital within 2-4 days of onset of symptom.

Table 1: Clinical care intervals in swine positive cases.

Interval	Number	(%)
Onset of symptoms to admission (n=267)		
≤1 day	3	1.12
2-4 days	146	54.68
5-10 days	118	44.19
>10 days	0	0.00
Onset symptoms to swab collection (n=491)		
0-2 days	154	31.36
3-5 days	215	43.79
6-10 days	122	24.85
≥11 days	0	0.00
Onset symptoms to diagnosis of H1N1 (n=491)		
0-2 days	125	25.46
3-5 days	191	38.90
6-10 days	170	34.62
≥11 days	5	1.02

Table 2: Gender wise distribution of clinical care intervals in swine positive patients.

Intervals	Male	Female	Total	P value
	N (%)	N (%)	N (%)	
Onset symptoms to swab collection (n=491)				
≤5 days	158 (42.82)	211 (57.18)	369 (100)	
>5 days	51 (41.80)	71 (58.20)	122 (100)	p>0.05
Total	209	282	491	
Onset symptoms to diagnosis of H1N1 (n=491)				
≤5 days	136 (43.04)	180 (56.96)	316 (100)	
>5 days	73 (41.71)	102 (58.29)	175 (100)	p>0.05
Total	209	282	491	
Onset of symptoms to admission (n=267)				
≤5 days	86 (45.99)	101 (54.01)	187 (100)	
>5 days	34 (42.50)	46 (57.50)	80 (100)	p>0.05
Total	120	147	267	

Table 3: Area wise distribution of clinical care intervals in confirmed patients.

Interval	Rural	Urban	Total	P value
	N (%)	N (%)	N (%)	
Onset symptoms to swab collection (n=491)				
≤5 days	179 (48.51)	190 (51.49)	369 (100)	p<0.001
>5 days	82 (67.21)	40 (32.79)	122 (100)	
Total	261	230	491	
Onset symptoms to diagnosis of H1N1 (n=491)				
≤5 days	150 (47.47)	166 (52.53)	316 (100)	p<0.001
>5 days	111 (63.43)	64 (36.57)	175 (100)	
Total	261	230	491	
Onset of symptoms to admission (n=267)				
≤5 days	127 (67.91)	60 (32.09)	187 (100)	p>0.05
>5 days	61 (76.25)	19 (23.75)	80 (100)	
Total	188	79	267	

Table 4: Comparison of various clinical care intervals in survived and expired patients.

Intervals	Survived Mean±SD	Death Mean±SD (n=62)	P value
	Duration in days	Duration in days	
Onset symptoms to swab collection (n=491)	3.6±2.25 (n=429)	5.65±2.08 (n=62)	<0.001
Onset symptoms to diagnosis of H1N1 (n=491)	4.60±2.25 (n=429)	6.65±2.08 (n=62)	<0.001
Onset of symptoms to admission (n=267)	4.31±1.69 (n=205)	5.65±2.20 (n=62)	<0.001

Table 2 shows that delayed presentation to healthcare facility was slightly higher for females. Delay in swab collection, diagnosis and admission of less than 5 days was observed in 57.18%, 56.96% and 54.01% of female population respectively while delay of more than 5 days was observed in 58.20%, 58.29% and 57.50% respectively however the difference is not statistically significant.

Table 3 shows delay of less than 5 days from onset of symptoms to swab collection for rural population was 48.51% while delay of more than 5 days was 67.21% and this difference is significant (p<0.001). Delay of less than 5 days from onset of symptoms to diagnosis for rural population was 47.47% while delay of more than 5 days was 63.43% and this difference is significant (p<0.001). Delay of less than 5 days from onset of symptoms to hospitalization for rural population was 67.91% while delay of more than 5 days was 76.25% but this difference is not significant (p>0.05).

Table 4 shows that mean duration between onset of symptom to swab collection was more in deceased patients (5.65±2.08) than survived (3.6±2.25) and the difference was statistically significant (p<0.001). Mean duration between onset of symptom to diagnosis was more in deceased patients (6.65±2.08) than survived (4.60±2.25) and the difference was statistically significant (p<0.001). Mean duration between onset of symptom to admission to hospital was more in deceased patients (5.65±2.20) than survived (4.31±1.69) and the differences was statistically significant (p<0.001).

DISCUSSION

Our study reported that clinical care interval for majority of swine positive cases from onset of symptoms to admission (54.68%), throat swab collection (43.79%) and diagnosis (38.90%) were 2-4 days, 3-5 days and 3-5 days respectively. Our findings are similar with the study of Patel et al which showed that clinical care interval for majority of confirmed cases from onset of symptoms to admission (52.2%), swab collection (48.1%) and diagnosis (51.2%) were 2-4 days, 3-5 days and 3-5 days respectively.[4]

In our study it was also observed that clinical care intervals of more than 5 days from onset of symptoms to swab collection, diagnosis and admission were more in female and rural population.

Our study reported that mean duration between onset of symptom to admission to hospital was more in deceased patients (5.65±2.20) and the difference was statistically significant (p<0.001). Mean duration between onset of symptom to admission to swab collection and diagnosis were more in deceased patients (5.65±2.08) and (6.65±2.08) respectively and the differences were statistically significant (p<0.001). Study of Perez-Padilla et al reported that median duration between onset of symptom to admission to hospital in confirmed cases was

6 (range 4–13).[5] Study of Vyas et al reported that mean duration between onset of symptom to admission to hospital in pandemic period was (4.6±1.7) and in post-pandemic period was (6.3±2.5).[6] Our findings were contrary with the study of Patel et al which showed that mean duration between onset of symptom to admission to hospital was more in deceased patients, however the difference was not significant (p>0.05).[4]

CONCLUSION

Maximum patients presented between 2 to 4 days of onset of symptoms. Swab collection and diagnosis of majority of patients were within 3 to 5 days. Delay in the admission, swab collection and diagnosis was more for females and for rural population. It shows lack of health seeking behaviour among female and rural population. In this study mean duration between onset of symptom to hospitalization, swab collection and diagnosis was significantly higher in deceased patients than survived. It shows that early presentation to healthcare facility is associated with better prognosis and outcome. After patient report to the health care setup, early sample collection and diagnosis help to reduce mortality.

Recommendations

The low awareness and health seeking behaviour among rural population need to improve by strengthening the IEC activities and healthcare system in rural areas where population were affected more in present outbreak.

Limitations

Only few studies are available on our study topic to compare the findings.

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