



CLINICO-EPIDEMIOLOGICAL PROFILE OF SWINE FLU POSITIVE ADMISSIONS IN A TERTIARY CARE HOSPITAL, SOUTHERN RAJASTHAN

Community Medicine

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ABSTRACT

Introduction: Swine flu is an acute febrile illness of respiratory tract, caused by swine origin influenza A (H1N1) virus. Rajasthan being one of the worst hit state becomes important to conduct audit of cases in each resurgence phase

Methods: A retrospective descriptive hospital based study done for a period of one year from September 2018 to August 2019 using a predesigned Performa regarding the swine flu positive admissions.

Results: Out of 240 H1N1 positive admissions, 122(50.8%) were males, 118(49.2%) belonged to 41-65yrs group, 137(57%) belonged to rural areas. 180(94.2%) had Cough as main presenting complaint and 61 (25.4%) expired. Among expired, 53(86.9%) had comorbidities.

Conclusion: Males, old adults and those from rural areas were maximum affected. Mortality was higher among patients with delayed hospitalization and with comorbidities

KEYWORDS

Swine-flu, delayed hospitalization

INTRODUCTION

Influenza is an acute respiratory tract infection caused by RNA Influenza virus of Orthomyxoviridae family. Influenza A undergoes frequent antigenic shifts and drifts and causes new epidemics/pandemics. Influenza spreads rapidly via droplet infection from person to person. It affects all age groups and sexes but, children, individuals aged above 65 years and immunocompromised individuals are at high risk for acquiring Influenza.¹

The pandemic influenza A (H1N1) started in southern part of Rajasthan in August 2009 and lasted until November 2010.²

Rajasthan being one of the worst hit state and the fact that clinico-epidemiological profile of the H1N1 infected patients varies from place to place and from time to time³, It becomes important to conduct audit of cases in each resurgence phase and thus the objective of this study.

METHODOLOGY

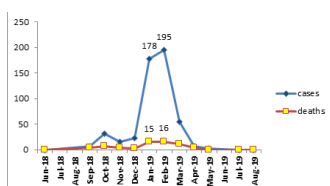
This was a hospital based retrospective descriptive study done in Swine Flu Block, RNT government Medical college & attached Hospital, Udaipur, Rajasthan for a period of one year from September 2018 to August 2019.

The patients with symptoms of swine flu were categorized according to WHO categories A, B & C and were managed with integrated approach. A semi structured predesigned Performa was made and all the details pertaining to socio demographic details and clinical history details were recorded from the data. Entered data was analyzed using Microsoft Excel 2010, Open Epi 7 software. Descriptive statistics like mean and percentages were used to interpret the results. Statistical test like Chi square test was used and significance attributed to P<0.05

RESULTS

Out of 1608 suspected cases of Influenza, 512(31.8%) were positive for Swine flu by RT-PCR. Among 512, 240(46.85%) patients were admitted in the swine flu block as per ILI-C category, 195(38.08%) cases and 16 (3.1%) deaths were reported in the month of February 2019. (Figure 1)

Figure 1. Month Wise Distribution Of Swineflu Positive Cases And Deaths



Out of 240, 122(50.8%) were males and 118(49.2%) belonged to age group 41-65 years. Mean age of patients is 47.8±0.7 years and 137 (57%) patients belonged to rural areas. (Table 1).

Table 1. Sociodemographic distribution of Swine flu positive admissions

Age group	Age (years)	Male (%)	Female (%)	Total (%)
	≤20	2(0.8)	6(2.5)	8(3.3)
	21-40	26(10.8)	41(17.1)	67(27.9)
	41-65	68(28.3)	50(20.8)	118(49.2)
	>65	26(10.8)	21(8.8)	47(19.6)
	Total	122(50.8)	118(49.2)	240(100)
Mean age :47.8±0.7 years				
Residence	Rural	69(28.8)	68(28.3)	137(57.1)
	Urban	53(22.1)	50(20.8)	103(42.9)
	Total	122(50.8)	118(49.2)	240(100)

Out of 240, only 9(3.75%) patients sought hospital care within 24 hours of onset of symptoms and only 4 (1.67%) patients received drug Oseltamivir within 24 hours of onset of symptoms. 229(95.4%) had Cough, 225 (93.7%) had fever, 223 (92.9%) had throat pain, 218(90.8%) had common cold and 193(80.4%) had breathlessness as main presenting complaints. (Table 2)

Table 2. Distribution of various Symptoms according to Outcome

Symptoms	Outcome		Total (N=240) (%)	P Value*
	Alive (n=179)	Expired (n=61)		
Fever	164(91.6)	61(100)	225(93.75)	0.01
Cough	174(97.2)	55(90.1)	229(95.4)	0.020
Sputum Production	157(87.7)	10(16.4)	167(69.6)	
Common cold	158(88.2)	60(98.4)	218(90.8)	0.01
Breathlessness	141(78.8)	52(85.2)	193(80.4)	0.2
Throat pain	175(97.8)	48(78.7)	223(92.9)	<0.0001
Headache	121(67.6)	30(49.1)	151(62.9)	0.01
Chest pain	122(68.1)	22(36.1)	144(60)	<0.0001

* P<0.05 (Chi square) significant

All (100%) received drug Oseltamivir 75mg/150mg BD on admission. On investigating, 237(98.3%) had Bilateral atypical consolidation as a radiological feature on chest X-ray.

175(72.9%) patients required ICU care. Among 175, 98(56%) required ventilator support, 75(76.5%) required Mechanical ventilation & 23(23.5%) required Bilevel positive airway pressure

ventilation].

Out of 240, 47 (19.6%) patients stayed in the hospital for less than 24 hours in the hospital. Overall Mean duration of hospital stay was 4.52 ± 2.78 days.

Out of 61 deaths, 39 (63.1%) were males, 36 (59.01%) belonged to 41-65 years age and 23 (37.8%) patients were >55 years with mean age being 48.3 ± 4.5 years. 43 (70.1%) stayed in hospital for at least 5 days till death. 53 (86.9%) had comorbidities. Among them, 37 (69.8%) had multiple (≥ 2) co morbidities. 16 (30.2%) had Type 2 Diabetes mellitus, 12 (22.6%) were Hypertensive.

5 (4.2%) out of 118 females were antenatal cases of 5-8 months of gestation and among them 1 (20%) expired.

Mean survival time was 3.9 ± 2.8 days post admission & Median survival time was 3 days (Range 1-14 days). Among those patients who were hospitalized late (>24 hrs delay) from the onset of symptoms, showed more mortality (96.7%) (Table 3)

Table 3. Effects of Delayed Hospitalization on Outcome

Hospitalization delay after onset of Symptoms	Outcome-Expired (%) (n=61)
<24Hrs	2(3.3)
>24Hrs delay after onset of symptoms	59(96.7)
Total	61(100)

DISCUSSION

Out of 1608 suspected cases, 31.8% were found positive for Swine flu by RT-PCR. This is in accordance to a study conducted in same area by Sharma CP *et al*² (29.06%) and less compared to Singhal YK *et al*⁷ (39.5%).

In our study, almost half (50.8%) affected patients were males which is comparable with other studies⁵⁻⁶. Studies like Choudary *et al*⁶ showed female predominance. Males or females are not susceptible only by virtue of gender. The differences in male or female preponderance of cases could be due to increased exposure of the individuals to the host.

Majority (49.2%) of the patients belonged to 41-65 years. Mean age was 47.8 ± 0.7 years which was higher compared to other studies.^{5-7,12}

while Kashinkunti *et al*⁷ showed more number of patients in 21-40 yrs group. In another study by Dhawale *et al*⁸, mean age was found <50 years which is similar to ours. Across all studies individuals belonging to productive age group are mostly affected. It may be due to the fact that they are exposed to outdoor environment more often due to work and travel.

Maximum (57.1%) patients belonged to rural areas which are similar to study by Singhal YK *et al*⁷ (53.1%) while studies like Choudary *et al*⁶ shows urban predominance (92%). Our hospital being a district tertiary referral centre, we get maximum patients referred from nearby rural areas and so explains the reason.

Most common presenting complaint was Cough (95.4%), fever (93.75%), throat pain (92.9%) & breathlessness (80.4%) and these were the same in the major studies done in Kolkata⁵, North Karnataka⁷ showing that there has been no change in the presentation of H1N1 cases since the 2009 epidemic or 2019 pandemic.

The mortality rate was 11.9% among total 512 positives. This is less compared to the study by Kshetriya RM *et al*¹³ (15.38%), Singh *et al*¹⁴ (19.08%) and more compared to Dhawale *et al*⁸ (4.45%). This shows the poor prognosis among those who required ventilation and the role of co-morbidities and severity of disease among the same. Also, our hospital being district tertiary referral centre, patients with poor prognosis were referred and also, we don't know the status of ILLI - A & B category patients among total positives who were treated at OPD basis making the mortality rates high.

In our study, Mean duration of hospital stay was 4.52 ± 2.78 days which is similar to Satyendra Kumar Sonkar *et al*¹⁰ (4.93 days).

Among those patients who were hospitalized late from the onset of symptoms (>24 hrs delay), showed more mortality. Similar results were found in study done in 2015 in vadodara, Gujarat where mean time lag between hospitalisation and death was of similar duration¹⁴.

The rapidity of spread of infection and worsening of symptoms in swine flu require hospitalisation at the earliest to initiate early treatment.

Among 61 deaths, around 7/8th (86.9%) had co-morbidities and among these majority i.e; 37 (69.8%) had multiple (≥ 2) comorbidities. Majority were Diabetic (30.2%), 1/5th had Hypertension (22.5%), COPD (20.8%) and 16.9% had Chronic Kidney Disease, 11.3% had Morbid Obesity and old age was one of the finding too. In one of the study, diabetes, chronic lung conditions, and pregnancy/postpartum state were the high risk conditions for death¹⁵. 4.2% (5) females were pregnant and 1 (20%) among them had expired. Studies in Rajasthan² and Karnataka⁷ showed that mortality was higher among pregnant women compared to non pregnant women.

CONCLUSION:

In current study, Males, old adults of 41-65 years group and those from rural areas were mostly affected. Cough, fever, common cold, throat pain, breathlessness, were the common presenting symptoms. Average duration of hospital stay was 4.5 days and mean survival time was 3.8 days. Most of the deceased persons had reported with severe illness and co-morbid conditions. Mortality was higher among patients admitted after 24 hours of symptom onset. People with co morbid condition should be vaccinated with influenza vaccine prior to outbreak of disease. Suspected cases should be promptly treated with oseltamivir within 48 hours of illness to prevent complication and fatality

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