



ORIGINAL RESEARCH PAPER

General Medicine

STUDY OF CLINICAL PROFILE AMONG SWINE FLU (H1N1) INFECTED ADULT PATIENTS IN KOTA RAJASTHAN, JANUARY 2018 – APRIL 2019

KEY WORDS: Influenza, Infection, H1N1, Swine flu

Dr. Shyam Bhiari Meena	Assistant Professor, Department of Medicine, Government medical college, Kota
Dr. Vijay Kumar Meena *	PG resident, Department of Medicine, Government medical college, Kota *Corresponding Author
Dr Raj Kumar Meena	PG resident, Department of Medicine, Government medical college, Kota
Dr. Rahul Choudhary	PG resident, Department of Medicine, Government medical college, Kota

ABSTRACT

Background: Influenza is truly an international disease. During spring of 2009, pandemic of influenza(H1N1) virus emerged and spread globally. We described the study profile of confirmed H1N1 virus infected patients admitted in swine flu ward of MBS hospital kota, Rajasthan from January 2018 to April 2019.

Methods: This is cross sectional observational study, all confirmed H1N1 virus infected 90 adult patients admitted in swine flu ward of MBS hospital kota. H1N1 positive patients diagnosed clinically and confirmed by RT-PCR method. Clinical parameter of these 90 patients were analysed.

Results: Out of total 90 Influenza A H1N1 cases 31(34.44%) were males and 59(65.55%) female patients were infected. 10(16.94%) female were pregnant. Majority of 65% case were between 15- 45 year of age group. Majority (91.11%) patients from urban area. Most of case (92.22%) presented with cough, followed by 76 cases (84.44%) with fever, 73 cases (81.11%) with breathlessness, 65 cases (72.22%) with sore throat, 59 cases (65.55%) with runny nose and 79 cases (87.70%) with tachycardia and 78 cases (86%) with tachypnoea. In this study 43 cases (47.77%) had comorbid conditions, among these 32 cases (74.41%) were discharged and only 11 cases (25%) died. 47 cases (52.22%) without comorbid condition, among these 39(82.97%) cases were discharged and 8 cases (17%) died. This difference was statistically significant (p=0.0208). 28 cases (31.11%) required ventilatory support. Mortality of 19 cases (21.11%) occurred in duration of study and rest 71 cases (78.88%) were discharged. In month of September and October highest cases 55 (61.11%) of H1N1 influenza A diagnosed. Cases of H1N1 influenza increase in duration of Jan 2019 to April 2019 (20 cases) in comparison to same duration in 2018(10 cases). Out of 90 patients, 7 cases of diabetes mellites and from that 4 cases died. This difference were statically significant (p=0.0011).

Conclusion; Influenza A H1N1 infection predominantly affect young age and female are more affecting. Majority of death and cases from urban area and more then one fourth of total cases require ventilator support and majority of patients dies after ventilatory support. Most common symptom in these patients is cough followed by fever, breathlessness, sore throat, runny nose. Tachycardia and tachypnoea most commonly presented.

INTRODUCTION

The H1N1 is novel strain of influenza A virus, that evolved by genetic reassortment¹ and The WHO declared H1N1 as pandemic on 11 June 2009¹.

Swine flu Influenza A virus can be transmitted to human either via contact with pigs or environmental contamination with some influenza virus². In India on May 16, 2009 first confirmed case of H1N1 was found in Hyderabad. By July 2010, a total 34,669 confirmed cases were reported leading to death of 1692 patients³. Influenza is an acute respiratory tract infection caused by influenza virus, of which there three type A, B and C. Influenza A has 16 distinct H subtype and 9 distinct N subtype, of which only H₁, H₂, H₃, N₁, and N₂ have been associated with epidemics of disease in humans⁴.

This scatters droplet contaminated with influenza A H1N1 virus into the air where it can be breathed by other⁵. People with Influenza AH1N1 typically have fever, chills, cough, severe headache, muscle pain, weakness and fatigue, sore throat and these symptoms are similar to seasonal flu⁶. In more serious case H1N1 cause pneumonia particularly in the young and elderly⁷.

Other people at risk included are person with an immunodeficiency disorder and chronic disease. The effects of influenza A H1N1 can vary from mild to severe life threatening depends on individual factors such as specific

strain of swine flu, age, general health status and presence of coexisting chronic condition such as cancer and diabetes⁸. The present study describes profile of confirmed H1N1 virus infected patients admitted in swine flu isolation ward of MBS hospital Kota, Rajasthan, India.

METHODS

This was an observational study carried out in MBS hospital Kota, Rajasthan, India. All confirmed H1N1 virus infected 90 patients admitted in swine flu isolation ward during period of January 2018 – April 2019 after taking verbal and written consent of the patients were enrolled in study. All suspected cases were confirmed by RT-PCR performed at central laboratory MBS hospital kota, Rajasthan. A predesigned Performa was used to collect detail such as socio-demographic details, name and detailed address, clinical data of patients (sign and symptoms, co-morbid condition), diagnostic finding of influenza testing, treatment history, drugs details, outcome details, and detail of pregnancy in pregnant females. Data were statically analysed using SPSS software.

RESULTS

Out of total 90 Influenza A H1N1 cases, 31 patients (34.49%) were male and 59 patients (65.55%) were females. 10(16.94%) female patients were pregnant, there was more affection of female as compare to male. Majority of 65% case were between 15- 45 year of age group. Majority (91.11%)

patients from urban area (Table 1).

Table 1 (socio Demographic characteristics of influenza A H1N1 cases)

Variable	Frequency	Percentage
Age Group		
15 – 25	17	18.88%
26 – 35	21	23.33%
36 – 45	21	23.33%
46 – 55	13	14.44%
55 – 65	12	13.3%
>65	6	6.6%
Sex		
Male	31	34.44%
Female	59	65.55%
Area		
Urban	82	91.11%
Rural	8	8.88%
Pregnancy		
Pregnant	10	16.94%
Not pregnant	49	83.05%

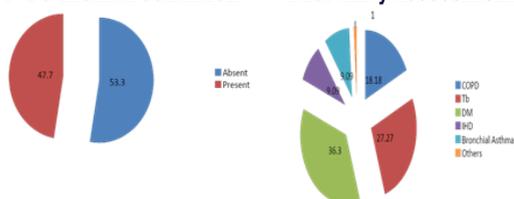
Most of 83 cases (92.22%) presented with cough, followed by 76 cases (84.44%) with fever, 73 cases (81.11%) had complain of breathlessness, 65 cases (72.22%) with sore throat and 59 cases (65.55%) with runny nose. 79 cases (87.70%) with tachycardia and 78 cases (86%) with tachypnoea (Table2)

Table 2: Clinical profile of influenza A H1N1 case.

Sign & symptom	Male		Female		Total	
	N=31	%	N=59	%	N=90	%
Cough	29	90.3	55	93.22	83	92.22
Fever	26	83.87	50	84.74	76	84.44
Breathlessness	25	80.64	48	81.35	73	81.11
Sore Throat	20	66.66	45	76.27	65	72.22
Runny Nose	19	61.29	40	67.79	59	65.55
Headache	10	32.25	40	67.79	50	55.35
Bodyache	15	48.38	25	42.37	40	44.44
Chest pain	6	19.35	8	13.55	13	14.40
Vomiting	2	6.45	8	13.55	10	11.11
Diarrhoea	4	12.90	2	3.39	6	6.66
Hypotension	1	3.22	5	8.47	6	6.66
Cyanosis	5	16.12	9	15.25	14	15.55
Tachycardia	27	87.09	52	88.13	79	87.77
Tachypnoea	28	90.32	50	84.17	78	86.66

In this study 43 cases (47.77%) had co-morbid conditions with the influenza H1N1 virus infection (Figure 1), among these 32 cases (74.41%) were discharged and 11 patients (25%) died.

Fig. 1 Co-morbid condition Mortality assessment



Among these 28 cases (31.11%) required ventilator support (Table 3) and mortality 19 cases (21.11%) occurred during study and rest 71 cases were discharged.

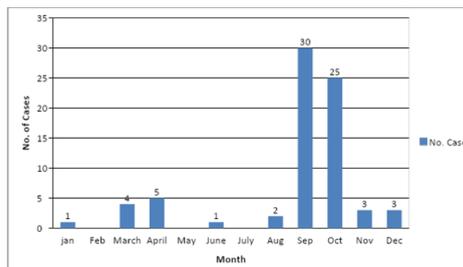
Table 3: Ventilator used and outcome of influenza A H1N1 cases.

Variable	Frequency	Percentage
Ventilator uses		
Used	28	31.11%
Not used	62	68.88%

Outcome	Frequency	Percentage
Death	19	21.11%
Discharged	71	78.88%

In month of September –October majority of 55 cases (61.11%) of H1N1 influenza A diagnosed (figure 2)

Figure 2: Number of cases of H1N1 influenza virus.



In context with age of patient in this study, patient having age less than 45 year were 59 out of which 11 cases (18.64%) died where's 48 cases (81.35%) were discharged. Similarly, among patients aged more than 45 year 35 cases out of which 8 cases (25.8%) died and 23 cases (74.19%) were discharged. This difference in the outcome and age group was not statically significant (p=0.1749).

In this study influenza A H1N1 disease affect both genders and female more affected than male, out of 31 male patients 24 cases (77.41%) were discharged 7 cases (22.58%) died and 47 (79.6%) female patients discharged, 12 (20.33%) female cases died. this is not statically significant (p=0.1578). in this study out of total cases majority 92.22% were from urban and only few 10% from rural area, hence it is seen that the fatal cases belong to urban and some from rural (Table 4), so outcome not significantly affect by residence of patients (p=4642).

Table 4: Demographic factor affecting outcome.

Variable	outcome			p value	
	Group	discharged	death		total
Age	<45	48(81.35%)	11(18.6%)	59	0.1749
	>45	23(74.19%)	8(25.8%)	31	
Sex	Male	24(77.41%)	7(22.58%)	31	0.1578
	Female	47(79.66%)	12(20.33%)	59	
Area	urban	65(79.26%)	17(20.73%)	82	0.4642
	Rural	7(87.50%)	1(12.5%)	8	

In this study among 43 cases with associated co-morbid condition 32 cases (74.41%) were discharged and 11 cases (25.58%) died. Where among patients without co-morbid condition 47 cases among these 39 cases (82.97%) were discharged and 8 cases (17.02%) were died. This difference is statically significant (p=0.0208).

In this study out of 90 patients 71 cases (78.88%) were discharged and 19 cases (21.11%) were died. Ventilator support was required in 28 cases (31.11%) out of which 19 cases (67.85%) were died, only 9 cases (32.14%) were discharged (Table 5). This difference not statically significant (p=0.4532). In this study out of 90 patients 7 cases of diabetes mellites from which 4 cases were died. The difference is statically significant (P=0.0011). And 8 cases of old k-chest from which 2 patients were died.

Table 5: clinical profile affecting outcome.

Group	Discharge	Death	Total	P value
Associated Co-morbid Condition	Present	32(74.41%)	11(25.50%)	0.0208
	Absent	39(82.37%)	8 (17.10%)	
Ventilatory Support	used	9(32.14%)	19(67.86%)	0.4532
	Not used	62(100%)	00(0%)	

DISCUSSION

Majority (65.55%) of cases were between 15 – 45 year of age group. Similar study conducted by Himanshu R et al, in Gujrat found 64.9% cases were seen amongst the young age group of 13 – 45 years⁹. Another study conducted by chaudhari et al, in Baroda in 2013, majority 75% of the cases were between 21 – 50 year of age group⁴. In Manipal by Jagannatha Rao et al, concluded that the age of positive case of H1N1 was between 21-30 year¹⁰.

In our study there was female (65.5%) more affected than male (34.49%) the difference between number of male and female H1N1 influenza positive is statically not significant in our study. Similarly, Rajesh et al, in saurashtra also found that half of patients 56.3% were female¹¹. Contradictory to this study done by Ketan Patel et al, also observed 65 % male and 35% female among H1N1 case¹².

In our study 82 cases (92%) were residing in urban area, similar results were found in study carried out by Rajesh K. Chaudasma et al¹² and similar study 90 % were residing in urban area⁴. Influenza A H1N1 cases were reported more from the urban area than rural area, which may be due to the dense population in urban area favouring spread of virus infection attack rate are also high in close population group¹⁰.

in our study most common symptom was cough and fever which was similar to various study^{4,11,13}. Presence of breathlessness was more (81%) in our study as compare to studies conducted by Rajesh et al and Bhavin et al^{11,13}. Gastrointestinal symptoms like vomiting(11.11%) and diarrhoea (6%) were less common in our study as compare to study done in surat¹³ and similar result as compare to Chaudhari et al⁴. Bodyache (44%) and Headache (55%) in our study which was less similar to saureshra study (21.5%) and various study⁴.

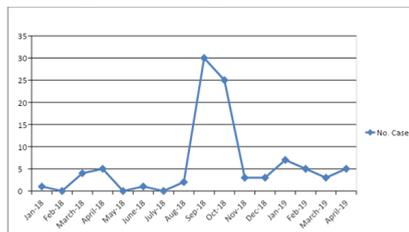
In our study 43 cases (47.77%) had co-morbid condition with the influenza H1N1 disease which was more as compare to study carried out by H. Rana et al⁹, (31%). In our study most associated co-morbid condition is respiratory pathology (COPD, asthma, old k chest) other is diabetes mellitus, IHD, similar result found in study carried out by Kumar A et al in Canada, most common individual co-morbid were chronic respiratory disease¹⁴, in saurashtra study also similar co-existing condition mainly diabetes Mellitus, HTN, IHD among H1N1 patients.

In our study mortality of 19 cases (21.11%) and 71 cases were discharged, Case fatality rate between 20-25% was observed in other study carried out in Ahmedabad, Maharashtra, and surat^{11,13,15}. In our study among patients with co-morbid condition 32 (74.41%) discharged and 11(25.5%) patients died. Where among patient without co-morbid condition 39(82.97%) were discharged and 8 cases (17%) died. This difference is staticallySignificant (p=0.0208).

In our study mortality with ventilator support is 28 cases (31.11%), among these 19 cases (57.14%) were died and 9 cases (32.14%) patients were discharged. This result are similar to study carried by Chaudhari AI et al⁴.

In our study influenza H1N1 A affected patient prevalence is highest in September- October month (Figure 2). As compare of January- April 2018 (10 cases) patients of influenza H1N1 A virus increase in same time duration of 2019 (20 cases)(Figure 3).

Figure3; cases of H1N1 influenza virus Increase in jan-april 2019 as compare to jan-april 2018.



CONCLUSION

Influenza A H1N1 infection predominantly affect young age and female are more affecting, majority of death and cases from urban area and more than one fourth of total cases required ventilator support and majority of patients dies after ventilator support.

Most common symptom in these patients is cough followed by fever, breathlessness, sore throat, runny nose. Tachycardia and tachypnoea present in majority of cases. Respiratory disease and diabetes mellites are most common co-morbid condition. Majority of cases of Influenza H1N1 A virus in September-October month.

REFERENCES

1. Singh M, Sharma S. An epidemiological study of recent outbreak of influenza A H1N1 (swine flu) in western Raj region of india. J Med Allied Sci 2013;3(2)
2. Prakash G. Epidemiological and clinical profile of patients with swine flu attending Guru Govind Singh Government Hospital, Jamnagar, India. J Res Med Den Sci.2013;1(1):1-6.
3. Biswas DK, Kaur P, Murhekar M, Bhunia R. An outbreak of pandemic influenza A H1N1 in Kolkata, West Bengal, india, 2010. Indian J Med Res 2012; 135:529-33.
4. Chaudhari AI et al. profile of confirmed H1N1 virus infected patients admitted in the swine flu isolation ward of tertiary care hospital of BarodaGujrat, India. Int J Res Med Sci.2015 Sep;3(9):2174-2180.
5. FeiginTbopid, Philadelphia, Lippincott, Company, page.No, 2783-2795.
6. PoliitTboNrpam, 5th edition, Philadelphia JBLc, 1995, page.No-42.
7. Lamb RA. The gene structure and replication of influenza virus. Annu Rev Biochem. 1983;52:467-06.
8. K. park tboPSM, 22th edition, new Delhi, jaypee brother medical publishers, page No.250-254.
9. Rana H , Parikh P, Shah AN, Gandhi S. Epidemiology and clinical outcome of H1N1 in Gujrat from July 2009 to march 2010. J Assoc Physicians india. 2012;60:95-7.
10. Jagannatha Rao SR, Rao MJ, Swamy N, UYmapathy BL. Profile of H1N1 infection in tertiary care center. Indian J PatholMicrobiol. 2022;54(2):323-5.
11. Chudasama RK, Patel UV, Verma PB, Agrawal P, Bhalodiya S, Dholakiya D. clinical and epidemiological characteristics of 2009 pandemic influenza A in hospitalized paediatrics patients of the saurashtra region, india, world J Pediatr. 2012;8(4):321-7.
12. Ketan patel et al. Clinical outcome of noval H1N1 infected patients during 2009 pandemic at tertiary referral hospital in western india. Journal of global infectious diseases.2013;5(3):93-7.
13. Patel Bhavin D SVS, patelAmeekumariB, Modi Bhautik P. clinic-Epidemiological correlets of hospitalized H1N1 Pneumonitis cases in a teaching hospital of western india during 2009-2010 Pandemic.NJMR. 2012;2(2):218-22.
14. Kumar A, Zarychanski R, Pinto R, et al. critically ill patients with 2009 influenza A H1N1 infection in canada. JAMA 2009;302(17):1872-9.
15. V.R. Malkar USJ, M.M. Raut. Clinic-Ep[demiological profile of patients of H1N1 influenza A virus infection at a tertiary care hospital in Maharashtra. Int J Biol Med Res.2012;3(3).