A Point Cross-sectional study of Swine Flu Cases admitted at a Tertiary Level Hospital, Jaipur (Rajasthan) India

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Abstract—*Presently in India Swine Flu cases were reported maximum from Rajasthan in this year (2015). So this study was aimed to analyzed the swine flu cases on various grounds to know the reasons for this increase. 77 swine flu cases addimited on 10.3.15 in a tertiary level hospital were interrogated. Total 2603 swine flu cases and 101 deaths were confirmed upto 10.3.15 in this current year concluding CFR 3.88%. Mean age of identified 77 swine flu cases was 41.32 ± 16.19 years with age range 1.5 to 75 years and MF ratio 0.51. Significantly more females were affected with swine flu than males but no significant age wise difference was found in males and females. Out of total 77 cases, 32.47 % were in ICU. About one third (31%) were self motivated others were from government and private health institutes. They were correctly diagnosed symptomatically in 33.77% before referred and about half of cases were advised for investigation (44.16%) for swine flu and precautions (51.95%) regarding respiratory antiquates. And 63.64% were admitted within 24 hours shows good awareness. Co morbidity was found in 57.14% of admitted cases and maximum (84%) co morbidity was found in cases admitted in ICU.*

Keywords— Influenza, Swine flu, CFR, Socio-demographic, co morbidity

1. Introduction

Influenza like Illness caused by Influenza A [H1N1] was reported from Mexico on 18th March, 2009 and rapidly spread to neighboring United States and Canada.[1] Subsequently the disease spread to all the continents. World Health Organization [WHO] has raised the level of Influenza pandemic alert from phase 5 to 6 on 16.06.09. As on 13th August 2009 World Health Organization has reported 1,82,166 laboratory confirmed cases of influenza A/H1N1 and 1799 deaths from 178 countries.[2] Worldwide, 214 countries and overseas territories or communities had reported laboratory confirmed cases of pandemic influenza A (H1N1) including at least 18,449 deaths as on August 2010[3] .

India reported its first confirmed case of pandemic influenza A (H1N1) was reported in Hyderabad on May 16, 2009[4] MOHFW reports total 27236 Swine Flu cases with 981 Swine Flu deaths in year 2009 and 20604 Swine Flu cases with 1763 Swine Flu deaths in year 2010.[5] MOHFW reports down fall in these cases in year 2011 and 2012 which was 603 Swine Flu cases with 75 Swine Flu deaths in year 2011 and 5044 Swine Flu cases with 405 Swine Flu deaths in year 2013.[5] Whereas again there was increase number of these cases in year 2013 so and so that from 1st Jan 2013 to 16th June 2013 there were 4820 Swine Flu cases with 600 Swine Flu deaths. [6] Since then small spurt of swine flu were there in year 2014 but in year 2015 this H1N1 has affected 15 413 people since the start of 2015, compared with 27 236 in 2009 and 20 604 in 2010. The death tolls in 2009 and 2010 were 981 and 1763, respectively. This year the most affected state has been Rajasthan and Gujarat. Actual number of affected people is likely to be far higher than reported because only severe cases and deaths are reported.[7]

This resurgence of swine flu in India was also reported by Dhande L etall[8]. This is again epidemic of swine flu with much more cases and deaths than in year 2009. Above all India was not tracking the prevailing strains of flu or the climatic and social conditions that can trigger an outbreak. India is missing out on valuable early stage data during an epidemic, which can curtail its spread.

Rising mortality has led to panic among the public and an increased demand for diagnostic tests and treatment, even among people with no flu symptoms. This has put extra pressure on the limited infrastructure available for swine flu testing in India.[7]

So this study was conducted to know the clinic-demographic characteristics of Swine Flu Cases.

2. Methodology

A cross-sectional observational study was conducted by Department of Community Medicine of SMS Medical College, Jaipur. All the confirmed cases of swine flu being present in various Swine Flu wards including SF Isolation ward, SF Observation ward and SF ICU of SMS Hospital on date 10.3.15 were included in the study. Case definition accepted for a swine flu case was "a case of influenza like illness (ILI) was defined as an acute onset of fever (>38^{o} C) with or without cough or sore throat in the absence of any other diagnosis[4] and confirmed swine flu by a throat swab by real time reverse transcriptase polymerase chain reaction (RT-PCR) was considered as confirmed case of pandemic influenza (H1N1)[9] . All these identified swine flu cases were interrogated and if they were not able to communicate then attendant of the patient was interrogated to gather desired information as per pre-designed proforma. Data thus collected were summarized in MS excel worksheet 2007 in the form of master chart.

Statistical Analysis: Qualitative data was expressed in proportions and quantitative as mean and standard deviation. Significance of difference in proportion was inferred with chi-squire test and of means with unpaired 't'test (for 2 means)/ANOVA (for >2 means) was used with the help of statistical software Primer version 6.

3. Results

In the present study it was observed that upto 10.3.15 total 2603 cases were detected at SMS Medical College, Jaipur . Out of that with 101 cases died that counts Case Fatality Rate of Swine Flu 3.88%. (Fig. 1)

On this date (10.3.15) there were total 77 swine flu cases were in various wards of swine flu at this institute. Out of these 77 swine flu cases 33 (42.86%) were in Isolation ward, 19 (24.67%) were in Observation ward and 25 (32.47%) were in ICU. (Fig. 2)

Figure 1

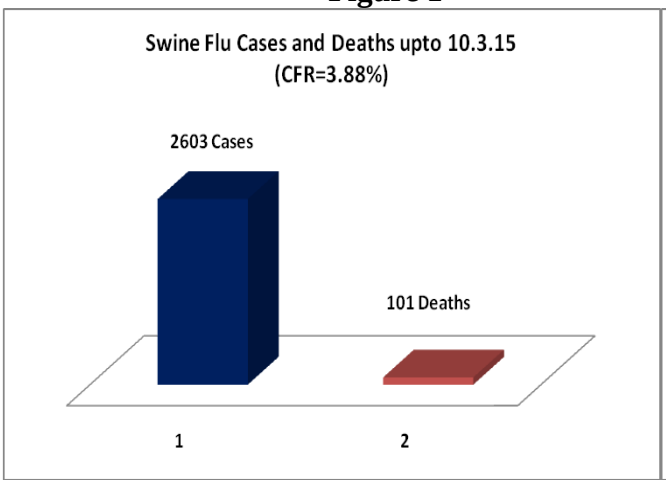
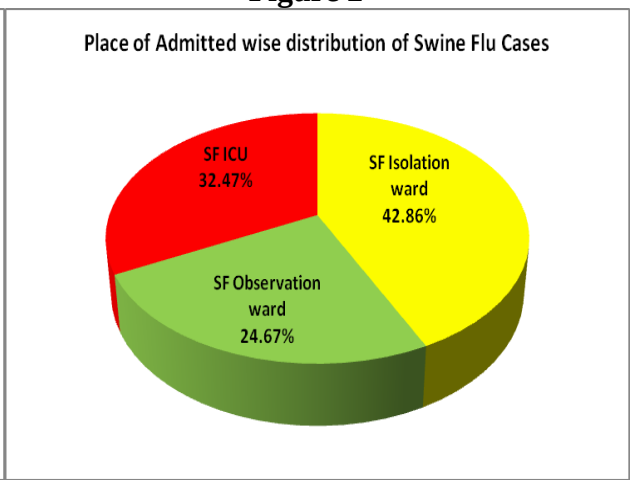


Figure 2



In the present study it was also found mean age of patients was 41.32 years with age range 1.5 to 75 years. Male to Female ratio was observed 0.51. Admitted females were significantly ($p<0.05$) more than males i.e. 36.36% and 63.64% respectively. (Table 1)

It was also revealed from the study that although age range of male and female were different i.e. 1.5 to 75 years and 14 to 70 years but there was no significant (p>0.05) difference in mean age in both the sexes. (Table 1)

Table 1: Age and Sex wise Distribution of patients

Sex	Number	(%)	Mean	Std. Deviation	Minimum	Maximum
F	49	(63.64)	39	15.25	14	70
M	28	(36.36)	45.15	17.3	1.5	75
Total	77	(100)	41.32	16.19	1.5	75

Chi-square for Male to Female proportion = - 10.390 with 1 degree of freedom; P = 0.001
Unpaired't'test for Male to Female mean age = - 1.713 with 75 degree of freedom; P = 0.091

It was also observed from the study that out of 77 admitted cases, 26 (34%) referred from Government, 27 (35%) from private and 24 (31%) were self motivated. So they were more or less equally distributed. (Fig 3)
When these patients were asked about their 1st consultant for this present illness, it was also revealed from the study that mainly they consulted Allopathic Doctor either from Government (31 i.e.40.26%)) or private (40 i.e. 51.95%) institute very few has consulted homeopathic doctor (3 i.e.3.9%)) and paramedical workers (2 i.e. 2.6%)). And one patient (1.3%) took self medication. (Fig 4)

Fig 3

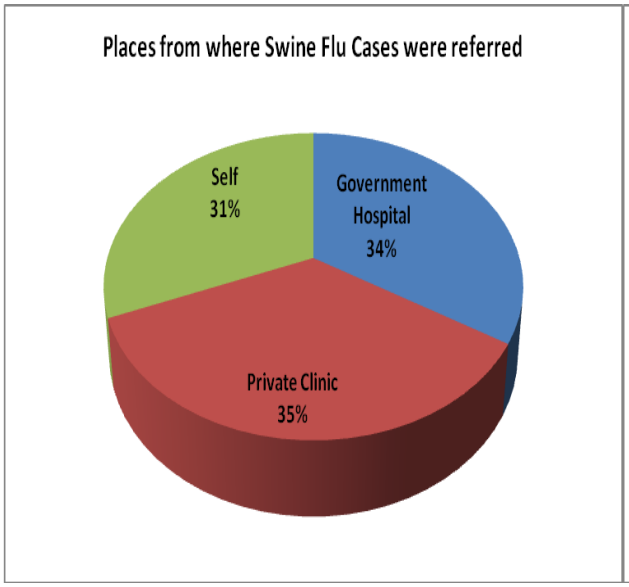
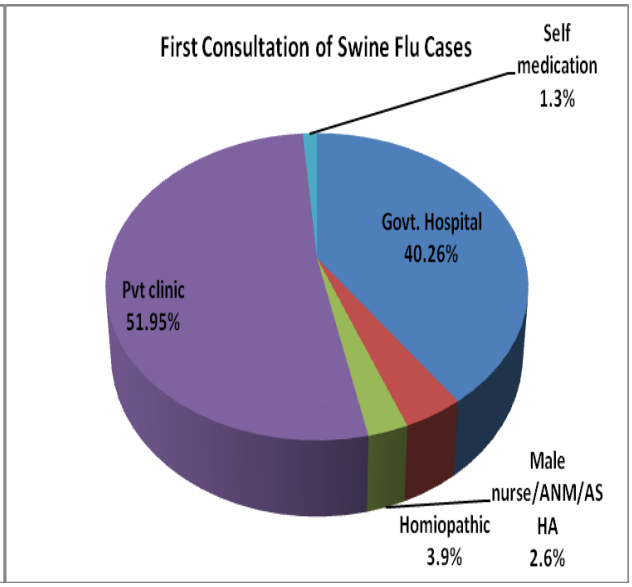


Fig 4



When patients were asked about the diagnosis given by their 1st consultant for this present illness, it was also found that swine flu was correctly diagnosed in 26 (33.77%) patients otherwise they were diagnosed common cold or other illness. It was also revealed from this study that there was no significant (p>0.05) difference in correct diagnosis made by Government doctor, private doctor, homeopathic doctor and paramedical workers. (Table 2)

Table 2

Diagnosis given by 1st Consultant wise distribution of swine Flu cases

1st Consultant	Diagnosis given by 1st Consultant			Total
	Common Cold	Swine Flu	other	
Government Hospital	13	13	4	30
Homeopathic	2	0	0	2
Peripheral HW	2	0	1	3
Private Clinic	19	13	8	40
Total	36	26	13	75

Chi-square = 5.151 with 6 degrees of freedom; P = 0.525

Likewise when patients were asked about advises given by their 1st consultant for this present illness, it was also found that only 34 (44.16%) were advised for investigation for swine flu and 40 (51.95%) were advises about precautions they have to take. It was also revealed from this study that there was no significant ($p>0.05$) difference in advises given by Government doctor, private doctor, homeopathic doctor and paramedical workers. (Table 3)

Table 3

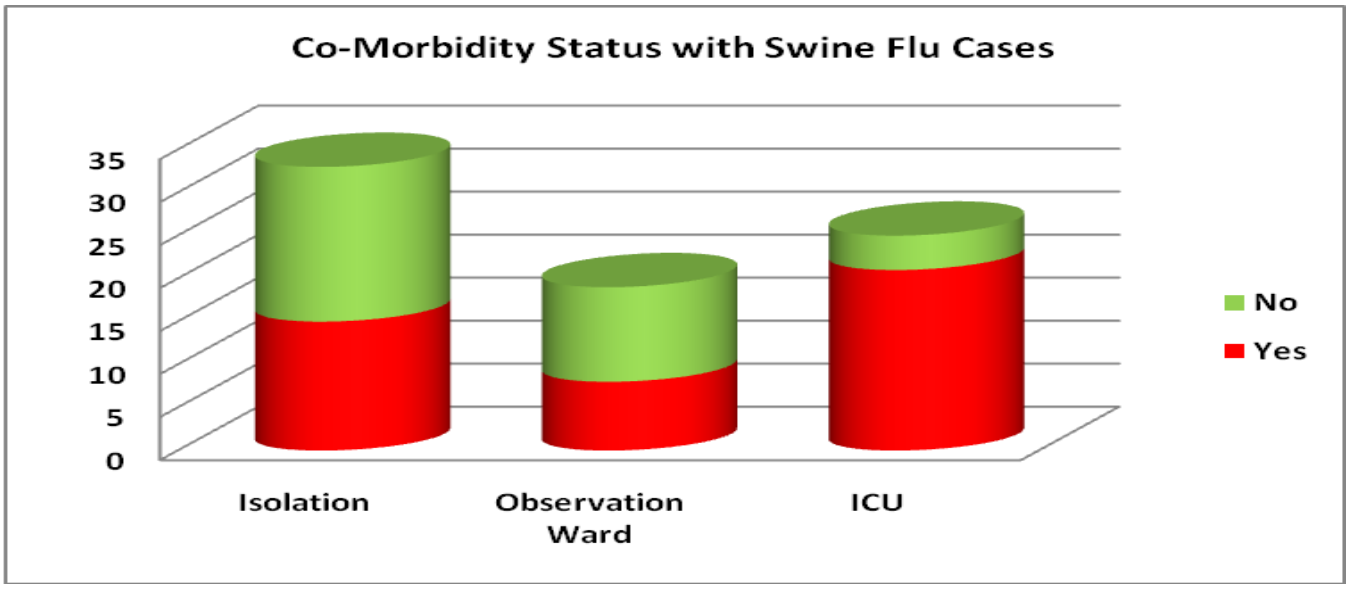
Advises given by 1st Consultant wise distribution of swine Flu cases

1st Consultant	Investigation Advised by 1st Consultant		Total (77)
	No (41)	Yes (34)	
Government Hospital	12	18	30
Homeopathic	2	0	2
Peripheral HW	2	1	3
Private Clinic	25	15	40
Chi-square = 5.427 with 3 degrees of freedom; P = 0.190 LS=NS			
1st Consultant	Precautions Advised by 1st Consultant		Total (77)
	No (35)	Yes (40)	
Government Hospital	11	19	30
Homeopathic	1	1	2
Peripheral HW	3	0	3
Private Clinic	20	20	40
Chi-square = 4.821 with 3 degrees of freedom; P = 0.247 LS=NS			

When patients were examined about the other co morbidity with this present illness, it was also found that out of total 77 cases 44 (57.14%) were having co morbidity. It was also revealed from this study that there was significant ($p<0.05$) difference in status of co morbidity in patients admitted in Isolation ward, Observation ward and ICU. Patients admitted in ICU have maximum co-morbidity i.e. out of 25

cases 21 (84%) had co morbidity followed by Isolation ward i.e. out of 33 cases 15 (45.45%) had co morbidity and Observation ward i.e. out of 19 cases 8 (42.11%) had co morbidity (Fig. 5)

Figure 5



Chi-square = 10.959 with 2 degrees of freedom; P = 0.004

Likewise when patients were asked about time lag in admission, it was although majority (49 i.e. 63.64%) of patients were admitted within 24 hours of illness but overall average mean time lag in admission was found 7.45 days with 5.15 days SD. It was also revealed from this study that there was no significant (p>0.05) difference in time lag in admission as per the place of admission (Table 4)

Table 4: Time lag in admission of Swine Flu Cases

Place of admission	Mean (Days)	SD (Days)	Minimum (Days)	Maximum (Days)
Isolation Ward	8	5.8	1	30
Observation Ward	5.33	2.42	1	10
ICU	7.55	5.07	1	25

One way ANOVA =1.32 at 74 DF P = 0.275 LS=NS

4. Discussion:

In the present study upto 10.3.15 there were 2603 cases and 101 deaths has confirmed due to swine flu in this current year. Whereas MOHFW reports slowly decline of prevalence of swine flu from epidemic of year 2009 to 603 Swine Flu cases with 75 Swine Flu deaths in year 2011 after that again there is rise in cases with 5044 Swine Flu cases with 405 Swine Flu deaths in year 2012.[5] Whereas again there was sharp rise in number of these cases in year 2013 so and so that from 1st Jan 2013 to 16th June 2013 there were 4820 Swine Flu cases with 600 Swine Flu deaths. [6]

So there is very sharp rise in number of swine flu cases in start of year 2015. This fact is supported by other study [7] who reported that 15 413 people affected with swine flu since the start of 2015 and the most affected state has been Rajasthan and Gujarat. Actual number of affected people is likely to be far higher than reported because only severe cases and deaths are reported.[7] This was supported by Dhande L etall[8] also who reported this resurgence of swine flu in India.

In the present study Case Fatality Rate of Swine Flu was observed 3.88% which is quite less than the CFR in developed countries[7] and in previous epidemics in India. [4,5,6] The mortality rate from H1N1 is lower than 0.5% in few of developed countries such as the US.[7] Even in India Dilip K. etall[10] reported Case Fatality Rate of Swine Flu 0.9% in year 2010 in Kolkata in their studies and Who writing committee also reported CFR estimates of 0.004-1.5 per cent reported from other countries[11] But this fact that more complicated form of swine flu in recent year than the previous ones, can also be supported by the findings of other authors[7,12]

Total 77 swine flu cases were there in various wards of swine flu at this institute on date 10.3.15. Out of these swine flu cases about one third (32.47%) were admitted in ICU. Other authors[7,12] also reported more complicated form of swine flu in recent year than the previous ones.

In the present study it was also found mean age of patients was 41.32 years with age range 1.5 to 75 years with female predominance. Well comparable findings were of other others[10,13,14] who reported that it predominantly affected the young and middle aged individuals in India.

Present study also observed that 34% referred from Government, 35% from private and 31% were self motivated. Almost similar observations were made by Dilip K elall[10] also who reported 33.9% cases referred from private health institutes. In this study it was also revealed that mainly (96.11%) they consulted 1st Doctor, very few has consulted paramedical workers (2.6%) and one patient (1.3%) took self medication. This shows that patients have belief on Doctors in their illnesses. This fact is again supported by observations made by Dilip K elall[10] who reported that out of 129 cases only 3 patients took treatment at their house.

In this study it was also found that swine flu was correctly diagnosed in 26 (33.77%) patients otherwise they were diagnosed common cold or other illness by their 1st consultant. It was also revealed from this study that there was no significant ($p>0.05$) difference in correct diagnosis made by Government doctor, private doctor, homeopathic doctor and paramedical workers. This shows that there is not much difference in knowledge of signs and symptoms of swine flu in Government doctor, private doctor, homeopathic doctor and paramedical workers and only about one third had diagnosed correctly. This indicates that there is need of trainings to doctors regarding swine flu. This is again supported with the findings that only 44.16% were advised for investigation for swine flu and 51.95% were advises about precautions they have to take and there was no significant ($p>0.05$) difference in advises given by Government doctor, private doctor, homeopathic doctor and paramedical workers in this study.

Present study also reveals that more than half of admitted swine flu cases were having one or more co morbidity and patients admitted in ICU have maximum co-morbidity (84%). This can be depicted with this that existing co morbidity was the main reason behind severity of cases. Priyanka Pulla[6] also said in their article that H1N1 tends to cause complications only in people with pre-existing conditions.

It was also found in this study that about one third 63.64%) of patients were admitted within 24 hours of illness. It shows well awareness in the community and faith towards doctors. This awareness in

the community may be because of good IEC activities and awareness programme done by the Government.

CONCLUSIONS

Case Fatality Rate of swine flu was observed 3.88% that means it has increased this year which is because of more complicated cases observed with other co morbidity this year. Mean age of was 41.32 ± 16.19 years with age range 1.5 to 75 years and MF ratio 0.51. No significant mean age difference was found in male and female but they were significantly more. About one third who were admitted were self motivated and about two third were admitted within 24 hours of their symptoms shows good awareness in the community about swine flu. This depict good IEC and awareness programme of the government in the community. But simultaneously only about one third were correctly diagnosed symptomatically and about half of cases were advised for investigation for swine flu and precautions regarding respiratory antiquates shows lack of knowledge about swine flu in consultant. So it depict that there is need of more trainings regarding swine flu for doctors.

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