Clinical Profile of Swine Flu in Children at A Tertiary Care Center

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ABSTRACT

Pandemic influenza A (H1N1) 2009 has posed a serious public health challenge world-wide, after that this is circulating as seasonal influenza virus. This study was aimed to analyze clinical profile of the swine flu cases in 2015. This Observational study was conducted in a tertiary care hospital, S. N. Medical College & Hospital Agra in 2015. In this study 28 Swine Flu confirmed cases were included. Mean age of confirmed Swine Flu cases was 3.22±3.06 years with age range 1 mo to 14 yrs and Male/Female ratio was 2.1:1. There was no significant difference in mean age in both the sexes, males were significantly higher than females and patient was significantly higher within 1-6 year age group. Fever, cough, coryza were the predominant symptoms. Only one patient (5%) required ICU admission and mortality was nil.

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Original Article

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Introduction

Influenza like illness caused by Influenza A [H1N1] was first 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. On June 11, 2009, the World Health Organisation (WHO) signaled that a global pandemic of novel Influenza A (H1N1) was underway by raising the worldwide pandemic alert level to Phase 6. This was the first of the kind declared by WHO in the past 70 years [2]. While declaring the pandemic to be over in August 2010, WHO conveyed that pandemic influenza A [H1N1] virus that caused pandemic[2009-2010] would circulate as seasonal influenza virus and would continue to do so for years to come [3].

India, first confirmed case of influenza [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]. Since then small spurt of Swine Flu were there in year 2014 but in year 2015 this H1N1 has affected 15413 people causing 812 deaths. Most affected state was Rajasthan and Gujarat[6].

Influenza spreads through droplets from infected individuals while speaking, coughing or sneezing. Non human influenza spreads from respiratory or gastrointestinal tracts of infected hosts. Flu can occur throughout the year, but peak occurrence is in the winter months [7,8]. Flu epidemics occur every 6 to 10 years, usually due to antigenic shifts which expose the population to strains to which it has not been exposed previously [9,10].

Various definitions:

**Influenza-like illness (ILI):** Fever (temperature of 100°F [37.8°C] or greater) with cough or sore throat in the absence of a known cause other than influenza [7-9].

A probable case of **H1N1 influenza A (swine flu):** An individual with an influenza-like illness who is positive for influenza A, but unsubtypable for H1 by influenza RT-PCR.

A **confirmed case of H1N1 influenza A (swine flu):** An individual with an influenza-like illness with a laboratory-confirmed H1N1 influenza A virus detected by RT-PCR or culture [7-9].

All swine flu suspected case are categorize as per guidelines of MOHFW and WHO into 3 category[11]:

Category A- Children with mild fever plus cough/sore throat with or without body ache, headache, diarrhea and vomiting.

Category B- If there are high grade fever and sore throat or who in addition to the symptoms of category A with <5 yr age, have chronic systemic viral illness, immune-suppressed conditions like steroid toxicity, nephritic syndrome, HIV/AIDS.

Category C- Comprised of children who in addition to the category A and B symptoms, develop breathlessness, chest pain, drowsiness, hypotension, sputum mixed with blood, cyanosis, irritability, refusal to feed and worsening of underlying chronic illness.

Materials and Methods

This observational study was conducted in Department of Pediatrics of S. N. Medical College & Hospital Agra, from February to December 2015 on the basis of available patient records. The study had ethical clearance from the institutional ethical committee. Patients presented to our hospital with Influenza like illness (ILI) were subjected to throat swab testing. Throat swabs were sent for RT-PCR. Inclusion criteria: All confirmed cases of H1N1 swine flu were studied. Exclusion criteria: Patients with negative RT-PCR. After taking consent, 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 pre-designed proforma. All data thus collected was summarized in MS excel and analyzed using statistical SPSS software and using chi square and 't' test. Qualitative data was expressed in proportions and quantitative as mean and standard deviation.

Result

Total 59 patients were presented to our hospital in pediatric department with ILI during the study period and were tested for H1N1 throat swab with RT-PCR. Among them, 28 (47.6%) confirmed to have H1N1 infection and these cases were further studied. It was revealed from the study that there was no much difference in age range of male and female i.e. 3mo to 14yr for male and 3 mo to 9 yr for female and also there was no significant (p>0.05) difference in mean age in both the sexes.(Table 1) In our study, 19(67.9%) were males, those were significantly(p=<.001) higher than females (32.1%). (Table-1)

Most common affected age group was from 1-6 year(60.7%, p value <0.05). (Table 2)

Fever(100%), cough(100%), coryza(71.4%) were the predominant symptoms. Others were vomiting(28.6%), sore throat(14.3%), abdominal pain(10.7%), loose stool(10.7%) and headache(10.7%). Less common symptoms were seizure (3.6%) and respiratory distress(7.1%). (Table 3)
Table 1: Age and Sex wise Distribution of patients

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number</th>
<th>%</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>19</td>
<td>(67.9%)</td>
<td>3.27 yr</td>
<td>3.2</td>
<td>1 mo</td>
<td>14 yr</td>
</tr>
<tr>
<td>F</td>
<td>9</td>
<td>(32.1%)</td>
<td>3.07 yr</td>
<td>2.71</td>
<td>3 mo</td>
<td>9 yr</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>(100)</td>
<td>3.22 yr</td>
<td>3.06</td>
<td>1 mo</td>
<td>14 yr</td>
</tr>
</tbody>
</table>

Chi-square for Male to Female proportion=12.8 with 1 degree of freedom; P<0.001
Unpaired t test for male to female mean age= .327 with 26 degree of freedom; P = 0.87

Table 2: Age wise distribution of disease

<table>
<thead>
<tr>
<th>Age</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12 mo</td>
<td>8</td>
<td>28.6%</td>
</tr>
<tr>
<td>1-6 yr</td>
<td>17</td>
<td>60.7%</td>
</tr>
<tr>
<td>7-14 yr</td>
<td>3</td>
<td>10.7%</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>100%</td>
</tr>
</tbody>
</table>

Chi-square for age range = 7.22 with 2 degree of freedom; P=0.02

Table 3: Distribution of signs and symptoms in patients

<table>
<thead>
<tr>
<th>Sign/Symptom</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>28</td>
<td>100%</td>
</tr>
<tr>
<td>Cough</td>
<td>28</td>
<td>100%</td>
</tr>
<tr>
<td>Coryza</td>
<td>20</td>
<td>71.4%</td>
</tr>
<tr>
<td>Sore throat</td>
<td>4</td>
<td>14.3%</td>
</tr>
<tr>
<td>Vomiting</td>
<td>8</td>
<td>28.6%</td>
</tr>
<tr>
<td>Abdomen pain</td>
<td>3</td>
<td>10.7%</td>
</tr>
<tr>
<td>Loose stool</td>
<td>3</td>
<td>10.7%</td>
</tr>
<tr>
<td>Headache</td>
<td>3</td>
<td>10.7%</td>
</tr>
<tr>
<td>Seizure</td>
<td>1</td>
<td>3.6%</td>
</tr>
<tr>
<td>Respiratory distress</td>
<td>2</td>
<td>7.2%</td>
</tr>
</tbody>
</table>

Out of these, 8(28.6%) were treated on OPD bases and others (71.4%) were hospitalized. Out of these hospitalized patients only one patient (5%) required ICU admission and others admitted in isolation ward. Only two patient required oxygen. No one required ventilator. Mortality was nil.

Discussion

During 2009 swine flu pandemic, India reported more than 2000 confirmed cases equally affecting both sex with 25 deaths. Children and young adults were commonly affected and nearly 40% of those affected have been children less than 14 yrs [12]. Manoj et al found in his study that in 77 swine flu confirmed cases with age range 1.5 to 75 years, male to female ratio 0.51 and no significant mean age difference was found in male and female [13].

In our study, 59 clinically suspected cases were tested for H1N1. 28 were positive, that accounted for 47.6% positivity. In one study P. Sriram et al found 30.2% positivity of throat swab in suspected cases [14]. Males 19(67.9%) were significantly (p=<.001) higher than female 9(32.1%) against MOHFW 2009 pandemic report according to which males and females were equally affected [12] male preponderance in our study might be because parents seek medical advise more for male children. There was no significant (p>0.05) difference in mean age of both the sexes, similar to study done by Manoj et al [13]. In our study we found that patient were significantly (p<.05) higher within 1-6 year age group(60.7%), till now no one data is available related to this in our knowledge and more data is needed to validate this finding. All patients were presented with fever and cough. Others important presentation was coryza(71.4%), vomiting(28.6%), sore throat(14.3%), abdomen pain(10.7%), loose stool(10.7%), headache(10.7%) and seizure(3.6%). Respiratory distress was presented in only 7.1% cases.

These results were similar to study done by sriram et al who found that majority was presented with respiratory symptom and only few of them had GI and CNS symptoms. [14] Only two patients required ICU admission, no one required ventilator support and mortality was nil in hospital this was similar to other studies which encountered very low death rate[15,16].
Limitation of The Study
This study was in a tertiary care institute. Hence this analysis may not reflect the actual distribution of the cases at the population level. Further community based studies are required to analyse the actual impact of H1N1 infection in the community.

Conclusion
In present study we concluded that most of the patients were having respiratory symptoms. Most of the patients did not required ICU care and mortality was nil. These findings emphasize that panic about the disease should not be created in the community.

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Competing Interests
None declared

Reference:
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