To Study the Morbidity and Mortality Pattern In Influenza A (H1n1) Positive Children At A Tertiary Care Hospital

1Dr. Vishnu Agarwal, Associate Professor, Department of Pediatrics, J K Lon Hospital, SMS Medical College & Hospital, Jaipur
2Dr. Kusum Devpura, Senior Professor and Unit Head, Department of Pediatrics, J K Lon Hospital, SMS Medical College & Hospital, Jaipur
3Dr. Mukesh Solanki, Junior Resident, Department of Pediatrics, J K Lon Hospital, Jaipur, SMS Medical College & Hospital, Jaipur
4Dr. Tikam Chand Kumawat, Senior Resident, Department of Pediatrics, J K Lon Hospital, Jaipur, SMS Medical College & Hospital, Jaipur

Corresponding Author: Dr. Tikam Chand Kumawat, Senior Resident, Department of Pediatrics, J K Lon Hospital, Jaipur, SMS Medical College & Hospital, Jaipur

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Abstract

**Background:** This study was aimed to determine the morbidity and mortality pattern in Influenza A (H1N1) positive children.

**Methods:** This was a hospital based prospective observational study, conducted between June 2018 to March 2019 in Sir Padampat Mother and Child Health Institute (SPMCHI), Department of Paediatric Medicine, SMS Medical College, Jaipur

**Results:** In present study case fatality rate in H1N1 cases which is 3.03 %. Total number of survival cases were 128 (96.97%) 

**Conclusion:** We concluded that the pre existing co-morbid conditions increases the mortality and morbidity in H1N1 patients.

**Keywords:** H1N1, Morbidity, Mortality

Introduction

Influenza viruses are among the most common causes of human respiratory infections and among the most significant because they cause high morbidity and mortality. Influenza virus is a new virus which came up in late April 2009 in Kerala and probably originated in the pig farms in Mexico.1 Hence, it was called swine flu. Inside the pigs a genetic re-assortment occurred to the usual influenza viruses resulting in the new H1N1 virus. The virus was introduced to human beings and thereafter spread from man to man. H1N1 pandemic had its significantly great impact in India from April 2009 to August 2010.2 Influenza is an acute respiratory disease characterized in its full form by the sudden onset of high fever, coryza, cough, headache, prostration, malaise, and inflammation of the upper
respiratory tree and trachea. In most cases, pneumonic involvement is not clinically prominent. Acute symptoms and fever often persist for 7 to 10 days. In the elderly, in infants, and in people with chronic diseases, influenza is associated with especially high mortality.

Material & Methods

Place of study – Department of Pediatrics, S. M. S. Medical College and attached Hospital Jaipur.

Type of study – Hospital based observational study.

Study period : June 2018 to March 2019.

Sample Size

The sample size was calculated at 95% confidence level alpha error 0.05% assuming 26% of the children with suspected Influenza were positive for H1N1 on throat swab specimen as per the reference article (Clinical profile and outcome of H1N1 influenza in children – a tertiary care experience).

At 8% absolute allowable error the require sample size would be 132 children with suspected Influenza illness.

Inclusion criteria

1. Children with confirmed H1N1 positive report.

Exclusion criteria

1. Age above 18 year
2. Refusal for consent.

Methodology

One hundred and thirty two patients with the diagnosis of H1N1 Flu were included in this study. Nature and the purpose of the study were explained fully to the parents / guardian and written consent was taken from parents or attendants of all enrolled children. A predesigned structural proforma was used to collect information. Basic demographic data e.g. age, sex, parents name, residential address was collected from all patients.

Results

Out of 132 H1N1 patients, maximum patients 71.97% were in between 0 – 5 years of age group. Other include 20.45% in between 6-10 yrs age group and 7.58% in >10yrs age group. Ninety four were males (71.21%) and 38(28.79%) were females.

Table 1: Clinical Feature of H1N1 Flu
(Total number of H1N1 cases = 132)

<table>
<thead>
<tr>
<th></th>
<th>Fever</th>
<th>Cough</th>
<th>Coryza</th>
<th>SOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>132</td>
<td>131</td>
<td>89</td>
<td>37</td>
</tr>
<tr>
<td>Percentage</td>
<td>100%</td>
<td>99.24%</td>
<td>67.42%</td>
<td>28.03%</td>
</tr>
</tbody>
</table>

This table show clinical manifestation of H1N1 positive patients. Fever was present in all cases, cough in 99.24% cases, coryza in 67.42% cases and shortness of breath in 28.03% cases.

Table 2: Other Clinical features

<table>
<thead>
<tr>
<th>Other</th>
<th>Number of Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhoea</td>
<td>14</td>
<td>10.61</td>
</tr>
<tr>
<td>Vomiting</td>
<td>14</td>
<td>10.61</td>
</tr>
<tr>
<td>Throat pain</td>
<td>4</td>
<td>3.03</td>
</tr>
<tr>
<td>Seizure</td>
<td>2</td>
<td>1.52</td>
</tr>
</tbody>
</table>

This table show other less common manifestation of H1N1 patients in which diarrhoea & vomiting in 10.61% cases, throat pain in 3.03% cases, seizure in 1.52% cases.
Table 3: Survival / Non Survival of H1N1 Cases

<table>
<thead>
<tr>
<th></th>
<th>Number of Cases (n=132)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Survival (N=128)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only H1N1 Flu</td>
<td>110</td>
<td>83.33</td>
</tr>
<tr>
<td>Co-Morbidity</td>
<td>18</td>
<td>13.64</td>
</tr>
<tr>
<td><strong>Non Survival (N=4)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only H1N1 Flu</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Co-Morbidity</td>
<td>4</td>
<td>3.03</td>
</tr>
</tbody>
</table>

This table shows case fatality rate in H1N1 cases which is 3.03%. Total number of survival cases were 128 (96.97%).

**Discussion**

This was a hospital based prospective observational study, conducted between June 2018 to March 2019 in Sir Padampat Mother and Child Health Institute (SPMCHI), Department of Paediatric Medicine, SMS Medical College, Jaipur.

In our study the total no. of patients with co-morbid condition were 16.67% (n=22). The mortality rate was 18.18% in patients with pre-existing co-morbid condition. All non survivor cases presented with co-morbid conditions out of which one had Pancytopenia with bronchopneumonia, second had Severe anaemia with infantile tremor syndrome, third diagnosed as Septicaemia with meningocencephalitis and fourth case of Acute respiratory distress syndrome. The case fatality rate was 3.03%(n= 4) in our study probably due to higher incidence of pneumonia and other serious complications. Similarly, Chaitanya K et al.º show case fatality rate was 2.8%. Ashish Jain et al (2017)⁷ conducted a death audit of H1N1 positive cases the case fatality rate was 6.6% (40/606) in this study.

Another retrospective descriptive study conducted by Malhotra B et al (2016)⁸ in Rajasthan during January to March 2015, the case fatality rate was 6% in this study.

**Conclusion**

We concluded that the pre-existing co-morbid conditions increases the mortality and morbidity in H1N1 patients.

**References**

7. Jain A, Sharma R, Nagar MK, Kaushik PB. A Death Audit of H1N1 Influenza Cases in a