

# Clinical Profile of Swine Flu in Children at Puducherry

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## Abstract

**Objective** To study the clinical profile and outcome of children screened and diagnosed for Swine flu at a tertiary care hospital.

**Methods** All Children with suspicion of swine flu infection attending our hospital during the epidemic from August 2009 through January 2010 were screened and categorized into A, B and C as per guidelines of National Health and family welfare. Patients in Category A were advised home quarantine, Category B tested and treated with oseltamivir and Category C were hospitalized.

**Results** Among 424 cases screened for Swine flu, 79 were children in the age group 0–12 years of age (18.6%). The median age of presentation was 5 years. Children belonging to Category A were 43(54.4%), Category B were 31 (39.2%) and Category C were 5(6.3%). Out of the cases that were screened, 19 children were confirmed positive for H1N1 infection(30.2%). Out of positive cases 8 were in category A (42%), eight were in category B (42%) and five were in category C (26.3%).

**Conclusions** During the epidemic of swine flu at puducherry, majority of cases were category A with mild symptoms. Home quarantine and preventive measures during the epidemic were found to be far more important than testing and treating with Oseltamivir.

**Keywords** Swine flu · H1N1 · Oseltamivir

## Introduction

Swine origin influenza was first recognized in the border area of Mexico and United States in April 2009 [1]. The currently circulating strain of Swine origin influenza virus of the H1N1 strain has undergone triple reassortment and contains genes from the avian, swine and human viruses and is known for the rapidity with which it spreads to the community [2]. The diagnosis is based on the RT-PCR, viral culture or increasing neutralizing antibodies. Principles of treatment consist of isolation, universal precautions, good infection control practices, supportive care and use of antiviral drugs [3]. We present the clinical profile of suspected cases of swine flu infection among children attending our hospital.

## Material and Methods

All the cases with suspicion of swine flu influenza virus from August 2009 through January 2010 were screened. The diagnosis was confirmed by collecting throat Swabs and doing RT-PCR for H1N1. History of close contact with a confirmed case of swine influenza A (H1N1) or recent travel to an area confirmed cases was recorded. All the cases screened were categorized as per guidelines of National Health & family welfare and WHO into category A, B and C [4].

## Category A

Comprised of children with mild fever plus cough/sore throat with or without body ache, headache, diarrhea and vomiting. They did not require oseltamivir and were given symptom-

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atic therapy. They were monitored for their progress and reassessed after 24–48 h and advised home quarantine

#### Category B

B1 comprised of children who was subdivided into B1 and B2 categories. In addition to all the signs and symptoms of category A if there were symptoms of high grade fever and severe sore throat, he/she was put on home isolation and treated with oseltamivir.

B2 comprised of children who in addition to the symptoms of category A, were <5 years age, had chronic systemic illness, Immunosuppressed conditions like steroid therapy, nephrotic syndrome, HIV/AIDS and were given oseltamivir [4].

#### Category C

Comprised of children who in addition to the Category A and B symptoms, developed breathlessness, chest pain, drowsiness, hypotension, sputum mixed with blood, cyanosis, irritability, refusal to accept feeds and worsening of underlying chronic conditions. Such patients immediately admitted and tested for H1N1 and treatment started. All close contacts of confirmed cases and health care personnel were given chemoprophylaxis for a period of 10 days from the last exposure as per the guidelines of Ministry of Health and Family welfare [4].

### Results

During the period of epidemic from August 2009 through January 2010, 424 cases were screened for swine flu. Out of which 79 were children in the age group of 0–12 years (18.6%). There was no significant sex predominance among children (Table 1).

Children in category A were 43(54.4%), Category B 31 (39.2%) and Category C were 5(6.3%). The number of suspected cases that were given oseltamivir were 55(69.6%) and among them 19(34.5%) belonged to Category A, 31 (56.36%) belonged to Category B and 5(9.0%) belonged to Category C. Samples were collected from 63(79.7%) and out of which 19 were H1N1 positive (30.2%). Among positive

**Table 1** Age and sex distribution

Age	Male	Female	Total
0–12 months	9	8	17
1–6 yrs	11	15	26
7–12 yrs	20	16	36
Total	40	39	79

**Table 2** Categorization of cases

Category	Cases (%)	H1N1 positive (%)
A	43(54.4)	8(18.6)
B	31(39.2)	8(25.8)
C	5(6.3)	3(60)

cases 8 were in Category A (42%), eight in Category B (42%) and three in Category C (15.7%). Out of 79 cases, nine had history of contact with swine flu positive cases, of which three tested positive. Out of the total 19 cases proved to be swine flu positive, 16 were indigenous cases. One death occurred among those who were screened for swine flu, but he tested negative for H1N1 (Table 2).

Fever (97.4%), cough (96.2%), coryza (96.2%) and myalgia (82.2%) were the predominant symptoms. Other symptoms were sore throat (29.1%), headache (20.3%), vomiting (18.9%) and breathlessness (8.8%). Less common symptoms were joint pains (6.3%), diarrhea (5.0%) and stridor (1.3%) (Table 3).

### Discussion

The 2009 swine flu pandemic is a global outbreak of novel H1N1 strain and was first recognized in the state of Veracruz, at the border between Mexico and United states in April 2009, and during a short span of two months became the first pandemic of the 21st century. This outbreak involved more than 170 countries spread over all the continents with more than one lakh affected people [5]. The reason for the rapidity of spread is because many people have mild symptoms and never seek treatment and those who get treatment don't officially get tested and many times it is only the hospitalized patients who get tested [6].

In India, the first case reported was from pune and the pandemic has spread quite rapidly with more than 2,000

**Table 3** Signs and symptoms in screened cases

Symptoms	Total	Percentage (%)
Fever	77	97.4
Cough	76	96.2
Coryza	76	96.2
Myalgia	65	82.2
Sore throat	23	29.1
Headache	16	20.25
Vomiting	15	18.9
Respiratory distress	7	8.8
Diarrhea	4	5.06
Joint pain	5	6.3
Stridor	1	1.26

confirmed cases equally affecting both sexes with 25 deaths in the initial phase of the epidemic itself. Children and Young adults were commonly affected and nearly 40% of those affected have been children less than 14 yrs [7].

Swine flu is transmitted by droplets or fomites and the incubation period is 2 to 7 days. Most of them present with mild symptoms in the form of fever, cough, sore throat, headache, joint pain and myalgia [8]. A feature seen more frequently with swine flu origin influenza is gastrointestinal symptoms with, almost one fourth of them presenting with vomiting and diarrhea. Unusual symptoms reported are conjunctivitis, parotitis, and hemophagocytic syndrome [9].

Less than 10% of Children present with severe manifestations in the form of pneumonia and respiratory failure and need hospitalization [10]. Patients at risk of developing severe disease include age less than 5 years, chronic systemic illness, on steroids or immunosuppressive therapy. Children younger than 2 years have the highest complication rates. Antiviral drugs effective against H1N1 virus include oseltamivir and Zanamivir and with good supportive care the case fatality is less than 1% [11, 12].

The preventive measures include: social distancing, prevention of the spread of infection in schools, practicing respiratory etiquette, use of facial masks, hand hygiene and use of chemoprophylaxis with antiviral drugs [13, 14]

In our hospital, 18.6% of the total cases screened were children and majority of them presented with mild symptoms and 6.3% with severe symptoms requiring hospitalization. The number of suspected cases given oseltamivir was 69.6% and most of them had B2 symptoms. Sixteen of the nineteen cases, that were tested, were indigenous cases. The most important source of infection is at schools, public places and gatherings. Throat swab was taken in 79.7% of suspected cases which yielded positivity in 30.2%. So, most children with flu symptoms do not need a test for pandemic H1N1/09 especially since the test results do not affect the recommended course of treatment [15, 16]. There were no deaths in children with confirmed H1N1 infection in our hospital. This was quite contrary to pattern present in other parts of the country where the percentage of positive cases and deaths were more in children and young adults.

## Conclusions

All the cases of suspected swine flu infection don't require treatment. Home quarantine, hand hygiene and early referral to the hospitals especially with severe symptoms are more important than the treatment itself. Proper travel precautions, active vigilance in schools and work place and proper use of the facial masks may help in controlling the rapid spread of swine flu.

**Contributions** All the authors were involved in screening and management of cases. SP analyzed and drafted the Manuscript. VB critically reviewed and finalized the manuscript.

**Conflict of Interest** None.

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