Incidence of Suspected Measles and Chickenpox cases in Dhemaji District of Assam, India

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(Received:15-7-14) (Accepted:28-7-14)

ABSTRACT

During the month of May, 2014, it was observed an increasing trend in number of syndromic cases of fever with rash in few areas (nine villages) of Dhemaji District, Assam. Based on the rising trend, a study was carried out to clinically or epidemiologically investigate the aetiology of the cases in the affected villages. Active door to door surveillance was done in the selected areas. Epidemiological observation revealed that there are many water logging areas and the villages are mostly affected by flood during monsoon season. A total of forty cases with fever and rash were clinically diagnosed as measles. Among the suspected cases, most of them were children. Out of the forty cases, 77 % were immunized. High incidence rate of suspected measles alike cases were reported from Gauwaldoi nepali village area with a value of IR of 39.47. Blood samples were collected from randomly selected 12 % clinically suspected measles cases; however no measles IgM antibody detected among the testes samples. All samples were showed Rubella IgM positive. The incidence was taken place during the end of May, 2014. Again, a total of ten cases of chickenpox were noticed in a village, near to Dhemaji town. Symptomatic treatment was given to all the patients. Continuous surveillance and routine immunization coverage is required.

Key words: Chickenpox, Dhemaji, Measles, Symptomatic, Surveillance

INTRODUCTION

Measles is a highly contagious disease and remains a public health concern despite the enormous efforts of the World Health Organization/UNICEF to reduce the burden of disease. Worldwide, measles is considered as the fifth killer disease among children less than 5 years of age. In some parts, especially in conditions of overcrowding and poverty, where large numbers of non-immunized children are in close contact, it becomes an epidemic form. In temperate and tropical climate, measles occurs primarily in the late winter and early spring. Like measles, chickenpox is also considered as highly infectious disease. It is caused by the varicella zoster virus while measles is simply called the measles virus. Both measles and chickenpox are very common childhood disease. The viruses causing measles and chickenpox are transmitted from human to human through airborne droplets which are released by an infected person when coughing, sneezing and laughing. Chickenpox can spread through contact with skin blisters, and measles through contact with nasal or throat secretions. Although measles and chickenpox share some basic similarities but they are clinically distinguishable from one another. Both viruses cause rashes, but they don’t usually look the same, and people tend to be sicker with measles than with chickenpox. A chickenpox rash usually starts to develop slightly before a person’s fever increases, while in the case of measles, the rash and fever tend to develop at around the same time. Generally measles starts as a rash behind the ear then spreads to the face and involves the whole body. In chickenpox, the rashes don’t follow this particular appearance regimen, they are scattered and there is desire to itch the rashes. In chickenpox patients, most recognizable feature is an itchy rash all over the body. It also causes fever and drowsiness. People with measles often have a fever a degree or two higher than they might if they had chickenpox.
In 2010, estimated global measles mortality is 140,000 [3]. India reported 47% of estimated measles mortality. However the WHO African region accounted for 36%. This estimate suggests that India remains the country with more measles deaths than any other and approximately a third of the world’s measles deaths [1-4]. Again as far as the burden of chickenpox is concern, as of 2010, about 6,800 deaths occurred worldwide due to varicella zoster virus infection behind from 11,200 in 1990 [5]. In tropical countries like India, the incidence of varicella is higher in adults. In India, many times measles and chickenpox cases were arise in different state in an outbreak or epidemic form. Recently an outbreak of suspected measles have been taken place in Lakhimpur district of Assam which is near to Dhemaji District, where approximate 77 cases were came into noticed [6].

During the time of active analysis of different diseases in terms of time, place and person it was noticed that there was sudden increase in number of fever cases with rash in few areas. Keeping in mind, the affected areas were find out and surveyed to establish the aetiology and investigate the extent of the disease.

MATERIALS AND METHODS

Dhemaji District had a total population of 7,03,740 and is situated in the border part of Arunachal Pradesh. After getting the syndromic disease related information reported from periphery health centres, few areas were selected where the incidence of fever cases with rash crossed the threshold level. Accordingly, based on the information nine villages in Begenagarah areas and one village near to Dhemaji town were selected for clinically and epidemiologically investigate the syndromic cases. The study was carried out during the month of May, 2014.

We case defined measles as a person with acute onset of fever, cough, coryza or conjunctivitis with maculopapular rash and a case of chickenpox as a person with acute onset of diffuse maculopapulosiculat rash. Based on the above mention standard case definition, a study was conducted in Dhemaji district in Assam to find out the incidence of suspected measles and chickenpox cases. To fulfill the objectives, active door to door surveillance was done in selected areas to find out clinically suspected measles and chickenpox cases. Patients of all age groups and both sexes were included in our study. A brief explanation regarding the aims and objectives of the study were given to all participants. Detailed history was collected from each case including history of contact and immunization. Informed consent was taken prior to collecting blood samples. Blood samples were collected from 10-12% recruited patients who were willingly wanted to give blood specimen. Serum was separated from the collected blood samples and sent for laboratory investigation and tested for anti-measles IgM antibody by Enzyme linked immunosorbent assay (ELISA). Measles IgM negative cases were further processed for detection of Rubella IgM antibody in patient’s blood by ELISA.

RESULTS AND DISCUSSION

<table>
<thead>
<tr>
<th>Affected villages</th>
<th>Population</th>
<th>Numbers of suspected measles cases</th>
<th>Incidence rate (1000)</th>
<th>Vaccination status (Measles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Majgaon</td>
<td>510</td>
<td>19</td>
<td>37.25 %</td>
<td>Yes 10 No 9 Unknown 0</td>
</tr>
<tr>
<td>Rangasila</td>
<td>232</td>
<td>1</td>
<td>4.31 %</td>
<td>Yes 1 No 0 Unknown 0</td>
</tr>
<tr>
<td>Keseruguri</td>
<td>684</td>
<td>5</td>
<td>7.31 %</td>
<td>Yes 5 No 0 Unknown 0</td>
</tr>
<tr>
<td>Naharani</td>
<td>355</td>
<td>2</td>
<td>5.63 %</td>
<td>Yes 2 No 0 Unknown 0</td>
</tr>
<tr>
<td>2 no Borajan</td>
<td>265</td>
<td>1</td>
<td>3.77 %</td>
<td>Yes 1 No 0 Unknown 0</td>
</tr>
<tr>
<td>Patichuk</td>
<td>333</td>
<td>3</td>
<td>9.0 %</td>
<td>Yes 3 No 0 Unknown 0</td>
</tr>
<tr>
<td>Pathalal</td>
<td>423</td>
<td>3</td>
<td>7.1 %</td>
<td>Yes 3 No 0 Unknown 0</td>
</tr>
<tr>
<td>Guwaldoi Nepali</td>
<td>76</td>
<td>3</td>
<td>39.47 %</td>
<td>Yes 3 No 0 Unknown 0</td>
</tr>
<tr>
<td>Uramguri</td>
<td>176</td>
<td>3</td>
<td>17.05 %</td>
<td>Yes 3 No 0 Unknown 0</td>
</tr>
</tbody>
</table>

During the month of May, 2014, active surveillance was done in few selected flood prone villages in Begenagarah area in Dhemaji district to observe the measles like cases. A total of 40 (forty) suspected measles cases were reported from 9 (nine) villages in Dhemaji district in Assam. An initial case of suspected measles was clinically observed on 19th May 2014 from Majgaon village. Salient epidemiological observation revealed that the villages are mostly affected by flood during monsoon season. Affected areas wise occurrence of suspected measles cases were depicted in Table1. High incidence rate of measles alike cases were noticed from Guwaldoi nepali (39.47%) village followed by Majgaon (37.25%). Immunization history depicted that almost 77.5% (31/40) had taken measles
vaccine and the remaining 22.5% (9/40) were not vaccinated (Table 1). Among the clinically suspected measles cases, 57.5% (23/40) were children of below 10 years and remaining 42.5% (17/40) were 10-25 years of age groups. Blood samples were collected from 12% patients for laboratory investigation of Measles IgM antibody. All samples were found Measles IgM negative. Instead of that the entire tested sample showed Rubella IgM positive. From these findings it can glimpse that, there might be some epidemiological link between the outbreaks that happen in Lakhimpur district and that of Dhemaji district [6].

Initial control measures are implemented from district health authority to prevent further transmission of disease. Active surveillance was done in the whole areas. Symptomatic treatment provided to the affected people and health education was given regarding isolation of cases.

Simultaneously during the time of measles outbreak, an initial case of clinically confirmed chickenpox case was also noticed during the month of May, 2014. From the detection of initial cases on 12th (twelve) May from Betoni village area near to Dhemaji town, a total of another 9 (nine) cases of chickenpox were also observed in the same village. From epidemiological observation it was come into know that water logging areas are more in the affected village. Beside this, the affected area was mostly affected by flood during monsoon season. Immunization history enlightened that they did not know whether vaccinated or not. It was seen that 60% of the affected people were below 15 years of age groups and remaining 40% were above 15 years of age groups. The overall incidence rate was 2.10%. Females were mostly affected than to males. From symptomatic analysis it was observed that 30% cases were having symptoms of fever with maculopapulovesicular rash, 40% with fever with maculopapulovesicular rash and cough, 20% were fever with maculopapulovesicular rash and conjunctivitis and 10% were fever with maculopapulovesicular rash, conjunctivitis and cough. One patient showed vesicular and pustular lesion developed on pre existing itchy lesion. It was clinically scabies like symptoms. There was neither any death nor any serious complications due to clinically suspected measles and chickenpox.

CONCLUSION

Measles and chickenpox are still widespread in Assam. Therefore, strong routine immunization coverage for varicella and measles in affected areas is suggested.

REFERENCES