ABSTRACT

Background

Arthropod born viruses are the causative agents of some of the important emerging infectious diseases. They are responsible for significant global public health problem. Of these viruses chikungunya virus caused several outbreaks during the period of 2005-2007 in the Indian ocean islands, India and other south east asian countries. It had a spectrum of clinical presentation from mild febrile illness to severe polyarthritis to encephalitis. Sri Lanka was also affected from October 2006 to February 2007 with 37,000 suspected chikungunya cases. Most of the cases were clinically diagnosed and treated due to limited laboratory facilities.

The present study was undertaken to determine the extent of the outbreak and identify its epidemiological and clinical characteristics.

Methodology

Study was conducted in two phases. A study group of 300 adults in the age group 20 years and above who lived in Colombo municipal council (CMC) were selected for the phase 1. They were selected from 20/47 wards according to probability proportionate to the size of population. Epidemiological and clinical characteristics of chikungunya infection were obtained using a questionnaire. Among the 300 adults, 100 participants from 7/20 wards were randomly selected using random tables for the phase 2 of the study. A sample of blood was collected from all participants and was tested for chikungunya virus antibody with haemagglutination inhibition (HAI) assay.

Results

Of the 300 individuals from phase one of the study, 66% had symptoms of presumptive chikungunya infection. Fever was the most common presentation (99.5%). Joint pain, the hallmark feature of chikungunya disease was seen in 89% of the individuals. Macular

papular skin rash was reported in one fifth of the participants. Out of 198 symptomatic individuals, 5.5% had psychosomatic manifestations and 3% had neurological manifestations. Persistent joint pain for more than one month was present in 21.7% of the population which is also a characteristic of chikungunya infection.

Prevalence of anti chikungunya haemaglutination inhibition (HAI) antibody among adults in CMC was 57%. There was a significant correlation between the prevalence of anti chikungunya HAI antibody and the symptoms of presumptive chikungunya infection. Forty five percent of asymptomatic individuals were also positive for anti chikungunya HAI antibody.

Conclusions and recommendations

Chikungunya infection was transmitted extensively during the outbreak period affecting more than half of the population in CMC. Fever associated with joint involvement was the most significant manifestation. Psychosomatic and neurological manifestations were not rare in the present outbreak. 41% of the population had chikungunya virus induced persistent arthralgia or joint swelling or both. Joint involvement typically associated with chikungunya infection, both in acute and convalescent phases have caused serious economic and social impact on individual families as well as to the community.

Fifty seven percent of the population in the selected wards of CMC had developed protective immunity. Nearly 32% of serologically confirmed participants had not given a history of presumptive chikungunya infection. Therefore chikungunya virus can cause a large number of asymptomatic infections in an outbreak and what we observe is the tip of an iceberg. More extensive studies have to be performed involving a larger study population to get a clearer picture of the epidemiological and clinical features and immunity following this outbreak