Clinical Profiles of Chikungunya Fever Patients Attending at OPD of a Teaching Hospital in Dhaka City

Mustafa Kamal¹, Abdur Rahim², Muhammad Tanvir Muhith³, Shaoun Barua¹, Md. Abdullah Yusuf⁵, Hafez Muhammad Nazmul Ahsan⁶

¹Assistant Professor, Department of Medicine, Shaheed Suhrawardy Medical College & Hospital, Dhaka, Bangladesh; ²Resident Physician, Department of Medicine, Shaheed Suhrawardy Medical College & Hospital, Dhaka, Bangladesh; ³Assistant Professor, Department of Medicine, MAG Osmani Medical College, Sylhet, Bangladesh; ⁴Medical Officer, Shaheed Suhrawardy Medical College & Hospital, Dhaka, Bangladesh; ⁵Assistant Professor, Department of Microbiology, National Institute of Neurosciences & Hospital, Dhaka, Bangladesh; ⁶Associate Professor, Department of Medicine, Shaheed Suhrawardy Medical College, Dhaka, Bangladesh;

[Received: 12 April 2019; Accepted: 20 May 2019; Published: 1 July 2019]

Abstract
Background: Chikungunya virus was introduced into the Dhaka city of Bangladesh and triggered a massive outbreak which affected millions of lives and forced upon significant damages in socioeconomic factors. Objectives: This community based descriptive study was conducted in selected area of Dhaka city to see the clinical profiles of chikungunya patients in Dhaka city. Methodology: This prospective observational study was carried out in the Department of Medicine OPD at Shaheed Suhrawardy Medical College & Hospital (ShSMC), Dhaka, Bangladesh. This cross-sectional study was conducted during the peak of chikungunya outbreak (1st March to 31st August, 2018) to document the clinical profiles of confirmed cases (laboratory test positive) and probable cases diagnosed by medical practitioners. Results: The study included 1133 patients (Male 51.9%and Female 48.1%). The main symptoms were Fever (66%), higher in patients with Joint pain (82%), Rash (21.3%) and others (10.1%). Sensitivity of the patients by acute chikungunya 14.3% and other 85.7%. Patients had post chikungunya complications 14.3% and no complications 85.7%. Chikungunya patients increasing month are March 0.5%, April 0.5%, May 3.4%, June 25.8%, July 50.8%, August 19.1%. In Dhaka cities the affected area were Mirpur 41.7%, Mohammadpur 28.9%, Agargaon 8.8%, Tejgoan 5.9%, Shomoly 5.7%, Adabar 4.4%, Savar 2.0%, Rayearbaraz 0.9%, Dhanmondi 0.8%, Mohakhali 0.8%. Conclusions: The result found that gender and age are significantly associated with Chikungunya infection. This study will also help to provide support and services to public health science which will eventually contribute the country for the diagnosis, prevention and control of Chikungunya and similar viral diseases. Overall, it necessitates the importance of utilizing appropriate and reliable diagnostic methods, proper surveillance system and effective control measures that must be implemented to manage the disease outbreak situations. [Journal of National Institute of Neurosciences Bangladesh, 2019;5(2): 148-151]

Keywords: Chikungunya Fever; Arthropod Borne; Arthralgia; IgM Antibody

Introduction
Chikungunya is a mosquito-borne illness of humans caused by the chikungunya virus (CHIKV in short) that belongs to the Alphavirus genus of the family Togaviridae¹. The disease is transmitted by Aedes aegypti and Aedes albopictus mosquitoes which are the main vectors of chikungunya in Asia and the Indian ocean islands². The name ‘chikungunya’ derives from a root verb in the Kimakonde language, meaning “to become contorted” and describes the stooped appearance of sufferers with joint pain³. The disease typically consists of an acute illness with fever, skin rash, and incapacitating arthralgia. The disease may evolve into three phase. The acute phase is...
The disease is transmitted by Aedes aegypti, belongs to the Alphavirus genus of the family Togaviridae. The disease may evolve into three phases. The acute phase is characterized by fever, rash, joint pain, and other symptoms associated with the infection. The chronic phase can cause joint complaints that may persist for years. The subacute phase shows symptoms that are less severe than in the acute phase. This study aimed to analyze the clinical profiles of chikungunya patients in Dhaka city.

**Methodology**

This prospective observational study was conducted in the Department of Medicine OPD, Shaheed Suhrawardy Medical College & Hospital (ShSMC), Dhaka. It included patients with clinically diagnosed cases of chikungunya fever who came to the Department of Medicine OPD, Shaheed Suhrawardy Medical College & Hospital (ShSMC), Dhaka, Bangladesh. The study population included patients aged between 7 to 80 years. Evaluation of patients was performed by taking history, clinical examination, and laboratory investigation. The data was recorded in a pre-designed form.

Results

This prospective observational study was carried out in the Department of Medicine OPD, Shaheed Suhrawardy Medical College & Hospital (ShSMC), Dhaka. A total of 1133 patients with chikungunya patient’s syndrome were included in the study. The sex distribution of the study patients was as follows: male 588 (51.9%) and female 545 (48.1%). The age of the patients ranged from 7 to 80 years, with a median age of 35.0 years (7-80 years).

A total of 1133 chikungunya cases were investigated and their age ranged from 7 to 80 years. The age distribution of the patients is shown in Table 1.

| Age Group          | Frequency | Percent |
|--------------------|-----------|---------|
| 10 to 20 Years     | 143       | 12.6    |
| 20 to 30 Years     | 336       | 29.7    |
| 30 to 40 Years     | 277       | 24.4    |
| 40 to 50 Years     | 229       | 20.2    |
| 50 to 60 Years     | 101       | 8.9     |
| More Than 60 Years | 47        | 4.1     |
| **Total**          | 1133      | 100.0   |

Continuous parameters were expressed as mean±SD and categorical parameters as frequency and percentage. Level of significance was taken 0.05.

This table showed distribute the age range of male and female, mainly 30 to 40 age patients’ number are high percentage.
The disease is transmitted by Aedes aegypti that belongs to the Alphavirus genus of the family Togaviridae. Chikungunya is caused by the chikungunya virus (CHIKV in short) that is transmitted by Aedes aegypti and Aedes albopictus mosquitoes which are the main vectors in the Kimakonde language, meaning “to become joint pain.”

Most common clinical chief complaints were fever (66%), Joint pain (82%), rashes (21%) and other (10%). Headache, bleeding manifestations and edema were present in only four patients (11%) seropositive confirmed cases (Table 4).

Distribution of the study patients by acute chikungunya and this table indicate the acute attack risk (Table-5).

| Chief complaints | Frequency | Percent |
|------------------|-----------|---------|
| Fever            | 748       | 66.0    |
| Joint pain       | 929       | 82.0    |
| Rash             | 241       | 21.3    |
| Other            | 114       | 10.1    |

Chikungunya patients have chance of post complication and (table-6) showing the post complication data.

| Post chikungunya complications | Frequency | Percent |
|--------------------------------|-----------|---------|
| Yes                            | 162       | 14.3    |
| No                             | 971       | 85.7    |
| Total                          | 1133      | 100.0   |

Table 7: Month wise distribution of the study chikungunya patients (n=1131)

| Month | Frequency | Percent |
|-------|-----------|---------|
| March | 6         | 0.5     |
| April | 6         | 0.5     |
| May   | 38        | 3.4     |
| June  | 292       | 25.8    |
| July  | 575       | 50.8    |
| August| 216       | 19.1    |
| Total | 1133      | 100.0   |

Discussion
Chikungunya is a viral disease transmitted by mainly Aedes aegypti and Aedes albopictus mosquitoes. It is a mosquito-borne illness of humans caused by the chikungunya virus that belongs to the Alphavirus genus of the family Togaviridae. In 2017, Chikungunya virus was introduced into the Dhaka city of Bangladesh and triggered a massive outbreak which affected millions of lives and forced upon significant damages in socioeconomic factors. Chikungunya patients in the context of developing countries like Bangladesh where awareness, severity of area in Dhaka city and identify possible risk factors associated with the infection.

This study was done in the Dhaka city practice area of Shaheed Suhrawardy Medical College & Hospital (ShSMC), Dhaka. There are 1133 patients living in different area and it was decided to cover Dhaka city.
Clinical Profiles of Chikungunya Fever Patients Attending at OPD

Kamal et al

by systematic random sampling. However, the data were recorded actually from 1133 patients. A higher percentage of male patients compared to female patients. The patients number total 1133 of the sample were studied different area in Dhaka city located in 10 area and sampling was done in OPD. The affected persons had other concomitant symptoms of fever (66%), joint pain (82%), rash (21%) and other (10%). Such concomitant symptoms among Chikungunya cases have been recorded from patient sign and symptoms.

The age group of 10-60 years was mostly affected and children were least affected. This is similar to the outbreak in Dhaka city. However, in the study conducted by ShSMC during the outbreak in Dhaka city in 2018 it was found that the population belonging to the age group 10-60 years. The sex ratio in this area is 1133 patients per 545 females; however, more males were affected in this locality probably due to the fact that females continued to be present in their houses than males. However, in the study data has been reported that the males were more frequently affected than females.

The average duration of fever was reported to be about four days in the report by whereas in this study the median duration of fever is three days. These indices are high when compared to the entomological indices laid down for assessing the same vector for Chikungunya fever. Although Fever, since no such indices are available for Chikungunya. After 6 months Chikungunya the study find out that acute Chikungunya patient number (14%) and other (87%) as well as Chikungunya patient number is increases depends on month like July is more affected month of the year than other month. The study also showed that some areas were most affected like Mirpur (42%) in Dhaka city. Our findings support that during an established outbreak, Chikungunya patients can effectively be identified using a set of easily recognizable clinical criteria (i.e. syndromic approach) without lab confirmation; an approach also suggested by others for resource-constrained developing countries.

Conclusion
Chikungunya fever is not unknown in Bangladesh. The findings of this study may help to clarify about the techniques available for diagnosis, provide valuable information for further research and what counter measures should be taken to prevent widespread outbreaks of Chikungunya in developing countries like Bangladesh. This study will also help to provide support and services to public health science which will eventually contribute the country for the diagnosis, prevention and control of Chikungunya and similar viral diseases. Overall, it necessitates the importance of utilizing appropriate and reliable diagnostic methods, proper surveillance system and effective control measures that must be implemented to manage the disease outbreak situations.

References
1. Griffin D. Alphaviruses. In: Knipe D, Howley P, editors. Field’s virology. Philadelphia: Lippincott Williams & Wilkins; 2013:651-86
2. Enserink M. Infectious diseases. Massive outbreak draws fresh attention to little-known virus. Science. 2006;311:1085
3. Simon F, Javelle E, Cabie A, Bouquillard E, Troisgros O, Gentile G, et al. French guidelines for the management of chikungunya (acute and persistent presentations). November 2014. Med Mal Infect 2015;45:243-263
4. Schiite C, Staikovsky F, Couderc T, Madec Y, Carpentier F, Kassab S, et al. Chikungunya virus-associated long-term arthralgia: a 36-month prospective longitudinal study. Plos Neglected Trop Dis 2013; 7 e2137
5. Ramachadran V, Kaur P, Kanagasabai S, Vadivoo S, Murhekar M. Persistent arthralgia among Chikungunya patients and associated risk factors in Chennai, South India. J Postgrad Med 2014;60:3-6
6. Ministério da Saúde. Secretaria de Vigilância em Saúde. Febre de Chikungunya manejo clínico. Brasília: Ministério da Saúde; 2015:1-28. Chikungunya JM Vol. 18, No. 2 105
7. Caglioti C, Lalle E, Castilletti C, Carletti F, Capobianchi MR, Bordi L. Chikungunya virus infection: an overview. New Microbiol 2013;36:211-227
8. Ali Ou Alla S, Combe B. Arthritis after infection with Chikungunya virus. Best Pract Res Clin Rheumatol 2011;25:337-346
9. Borgherini G, Poubau P, Jossamaue A, Goux A, Cotte L, Michault A, et al. Persistent arthralgia associated with chikungunya virus: a study of 88 adult patients on reunion island. Clin Infect Dis 2008;47:469-475
10. World Health Organization. (WHO). Guidelines for prevention and control of Chikungunya fever. South-East Asia: WHO; 2009:1-43
11. Staikovsky F, Le Roux K, Schuffenecker I, Laurente P, Grivard P, Develay A, et al. Retrospective survey of Chikungunya disease in Réunion Island hospital staff. Epidemiol Infect 2008;136:196-206
12. World Health Organization. (WHO Outbreak and spread of chikungunya. Weekly Epidemiological Record. 2007;82(47): 409-415.