

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

Mostofa Kamal¹, Abdur Rahim², Muhammad Tanvir Muhith³, Shaoun Barua⁴, 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%, Shamoly 5.7%, Adabar 4.4%, Savar 2.0%, Rayerbazar 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

Correspondence: Dr. Mostofa Kamal, Assistant Professor, (Medicine), Department of Medicine, Shaheed Suhrawardy Medical College & Hospital, Dhaka, Bangladesh; Email: mkroufbd@gmail.com; Cell no.: +8801718427875

Conflict of interest: There is no conflict of interest relevant to this paper to disclose.

Funding agency: This research project was not funded by any group or any institution.

Contribution to authors: Kamal M, Rahim A, Muhith MT contributed from the protocol preparation, data collection up to report writing. Manuscript writing was performed by Barua S; Kamal M contributed in statistical model selection and analysis. Kamal M have revised the manuscript. Kamal M, Rahim A, Yusuf MA, Ahsan HMN was involved from the very beginning of this research work up to the revision of the manuscript.

How to cite this article: Kamal M, Rahim A, Muhith MT, Barua S, Yusuf MA, Ahsan HMN. Clinical Profiles of Chikungunya Fever Patients Attending at OPD of a Teaching Hospital in Dhaka City. *J Natl Inst Neurosci Bangladesh*, 2019;5(2): 148-151

Copyright: ©2019. Kamal et al. Published by Journal of National Institute of Neurosciences Bangladesh. This article is published under the Creative Commons CC BY-NC License (<https://creativecommons.org/licenses/by-nc/4.0/>). This license permits use, distribution and reproduction in any medium, provided the original work is properly cited, and is not used for commercial purposes.

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 *Togaviridae*¹. 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

from day 1 to day 21. The subacute phase is from day 21 to day 90. The chronic phase starts from 3 months to onwards³. The joint pain in the different phases of Chikungunya disease causes important physical incapacity that significantly impacts the quality of life of affected patients. The suffering related to the infection is not limited to pain; a significant portion of patients experience mental health and sleeping disorders and mood swing^{4,5}.

The chronic joint complaints in the chronic phase can assume the patterns of other chronic inflammatory diseases. There are few studies or guidelines in the literature regarding the approach to pain treatment. Paracetamol, non-steroidal anti-inflammatories (NSAIDs), corticosteroids, codeine, and morphine, the use of methotrexate, chloroquine, sulfasalazine and biological has also been reported in patients with chronic pain^{6,7,8,9,10,11}. This study was conducted to see the clinical profiles of chikungunya patients in Dhaka city.

Methodology

This cross sectional study was started 1st March to 31th August 2018 in Dhaka city in the Department of Medicine OPD, Shaheed Suhrawardy Medical College & Hospital (ShSMC), Dhaka. Patient with clinically diagnosed cases of chikungunya fever came to Department of Medicine OPD, Shaheed Suhrawardy Medical College & Hospital (ShSMC), Dhaka, Bangladesh within the study period were included as study population. Evaluation of patients were performed by taking history, clinical examination, symptoms with complications. Laboratory investigation and data was recorded in a pre-designed form. The variables were chosen as described symptoms and complication risk factors. Patients admitted Department of Medicine OPD, Shaheed Suhrawardy Medical College & Hospital (ShSMC), Dhaka with chikungunya was considered for the study and those who fulfilled inclusion, exclusion criteria and agreed to enter the study protocol. Informed written consent was taken from each patient or legal guardian before enrollment. Meticulous history was taken and detailed clinical examination was performed and recorded in pre-designed structured form. Demographic data such as age, sex, area complications were recorded. Statistical analysis was performed using SPSS Statistical Software (version 22, SPSS Inc., Chicago, Illinois, USA). Continuous parameters were expressed as mean±SD and categorical parameters as frequency and percentage. Level of significance was taken 0.05.

Results

This prospective observational study was carried out in the Department of Medicine OPD, Shaheed Suhrawardy Medical College & Hospital (ShSMC), Dhaka. We conducted a cross-sectional study during the peak of chikungunya outbreak (1st March to 31st August, 2018) 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. A total number of 1133 patients with chikungunya patient's syndrome who had given informed written consent and fulfilled inclusion and exclusion criteria register in the Department of Medicine OPD, Shaheed Suhrawardy Medical College & Hospital (ShSMC), Dhaka. Within the study period were included in this study. The collected data from the study population were analyzed and the findings obtained from the analysis were documented below.

Table 1: Age distribution of the study patients (n=1131)

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
Mean±SD	36.2±13.4	
Median Range (min-max)	35.0 (7 - 80) years	

A total of 1133 chikungunya cases were investigated (Table 1) and their age ranged from 7 to 80 years. Showing (figure-1) the age distribution of the patients. Table 2 showed the sex distribution of the study patients. Male patients nearly 52% and female patient 48% included.

Table 2: Sex distribution of the study patients (n=1131)

Gender	Frequency	Percent
Male	588	51.9
Female	545	48.1
Total	1133	100.0

This table 3 showed distribute the age range of male and female. Mainly 30 to 40 age patients' number are high percentage.

Table 3: Age group basis sex distribution of the study patients (n=1131)

Age Group	Male	Female	Total
10 to 20 Years	88(61.5%)	55(38.5%)	143
20 to 30 Years	173(51.5%)	163(48.5%)	336
30 to 40 Years	122(44.0%)	155(56.0%)	277
40 to 50 Years	109(47.6%)	120(52.4%)	229
50 to 60 Years	57(56.4%)	44(43.6%)	101
> 60 Years	39(83.0%)	8(17.0%)	47
Total	588(51.9%)	545(48.1%)	1133

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).

Table 4: Distribution of the study chikungunya patients by chief complaints (n=1131)

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

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

Table 5: Distribution of the study patients by acute chikungunya (n=1131)

Acute chikungunya	Frequency	Percent
Yes	162	14.3
No	971	85.7
Total	1133	100.0

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

Table 6: Distribution of the study patients by post chikungunya complications (n=1131)

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

Chikungunya is mainly seasonal disease and patient's number increasing by several month.

Patient's number were increased in the month of July

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

then the other month of the year (Figure-7). Patient's number severity also depends on area based and (table-8) showing the most affected area in the Dhaka city. Mirpur (41%) is most affected area in Dhaka city.

Table 8: Distribution of the study chikungunya patients by area of the Dhaka city

Area of the Dhaka city	Frequency	Percentage (%)
Mirpur	473	41.7
Mohammadpur	327	28.9
Agargaon	100	8.8
Tejgoan	67	5.9
Shamoly	65	5.7
Adabar	50	4.4
Savar	23	2.0
Rayerbazar	10	0.9
Dhanmondi	9	0.8
Mohakhali	9	0.8
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*¹. 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

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 countries¹².

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. Schilte 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, Bordini 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, Poubeau P, Jossaume A, Gouix 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, Laurent 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.