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Chikungunya Fever: An Emerging Public Health Problem in Jessore and Dhaka City of Bangladesh

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Original Research Article

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Abstract: Chikungunya is a viral disease transmitted to humans by infected mosquitoes. Chikungunya virus (CHIKV) is an emerging epidemic-prone and mosquito- transmitted causative agent of Chikungunya fever. It causes fever and severe joints pain. It has been observed that during the period of monsoon and post monsoon there is an increase activity of the vectors with rainfall and their life span is influenced by temperature and humidity. Post monsoon period increases virus transmission due to high vector density and *Aedes aegypti* is the main vector responsible for CHIKV in Bangladesh. Current study was carried out at Jessore district and in Dhaka city in Bangladesh to investigate the current status of CHIKV and its' treatment. In our cases we found many people affected by chikungunya fever from May 2017 to July 2017, because of excessive rainfall in Bangladesh. In May 2017 it was 15% and July 2017 it was 23%. From August 2017 to April 2018 it rates slowdown. There is no specific treatment for chikungunya infection, nor any vaccine to prevent it. The only effective means of prevention is to protect individuals against mosquito bites.

Keywords: Chikungunya**,** Fever, NSAIDs, Symptoms, Mosquito.

INTRODUCTION

Chikungunya is a mosquito-borne viral disease first described during an outbreak in southern Tanzania in 1952. It is an RNA virus that belongs to the alphavirus genus of the family Togaviridae. The name "chikungunya" derives from a word in the kimakonde language, meaning "to become contorted", and describes the stooped appearance of sufferers with joint pain (arthralgia) [1, 2].

The disease is recently emerged as a major public health problem in most of the Asian countries [3, 4].

Aedes aegypti and *Aedes albopictus* is the responsible vectors chikungunya virus in Asia and Indian Ocean islands [5]. The first case CHIKV was found in 1952 in Tanzania [8]. In Asia, CHIKV was first isolated in Thailand in 1960s; India in 1964; Sri Lanka in 1969; Vietnam in 1975; Myanmar in 1975; and Indonesia in 1982 [6, 7]. In Bangladesh, the first case was reported in 2008 in northern Rajshahi and Chapainnawabganj districts by a study conducted by a team from the institute of Epidemiology, disease Control and Research (IEDCR) and ICDDR,B (International Centre for Diarrhoeal Disease Research, Bangladesh) [8-11]. The mosquitoes bite throughout daylight hours, though they shows their highest activity in the early morning and late afternoon, both species are found biting outdoors, but *Aedes aegypti* will also readily feed indoors [9]. After the bite of infected mosquito, onset of illness occurs usually between 4 and 8 days but can range from 2 to 12 days [10]. The disease may enlarge into three phase. The acute phase is from day 1 to day 21. The sub-acute phase is from day 21 to day 90. The chronic phase starts from 3 months to onwards [12]. 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 [13-18].

MATERIALS AND METHODS

Study Design, Setting and Study Population

The present research is a cross-sectional prospective study in Dhaka city the capital of Bangladesh and in Jessore city in the district of Jessore, under Khulna Division of Bangladesh. We have collected 200 chikungunya patients and the data were collected during 01 March, 2017 to 30 April, 2018. From every patient single prescription was collected and took a snapshot of this prescription and information's were collected by conducting meeting with physicians, workers of pharmacy shops, observing their chikungunya patients.

Study Criteria

- Inclusion criteria: Patient receiving NSAID and concurrent drug treatment for chikungunya fever.
- Exclusion criteria: There is no exclusion criteria

Data collection

Data were collected from various prescription and local pharmacy shops to carry out the survey. Total 200 prescriptions were collected directly from the patient of physician chamber and 55 local pharmacy shops were selected from different locations for data collection about chikungunya fever. The data collectors were waiting in front of the pharmacy shop and convince them to produce their prescription data to the interviewers as well as participated in the interview session. The patients who were unconscious/mentally retarded, who were suffering with psychiatric diseases were excluded from the study.

STATISTICAL ANALYSIS

Descriptive statistics were applied to the collected data using Microsoft Excel software. Simple statistical method (Pie chart, Bar graph) was used to calculate the data and finally expressed in percentages.

ETHICAL CONSIDERATIONS

This survey based research is logistically supported by the Department of Pharmacy, Dhaka International University, and Dhaka in Bangladesh. The human subjects involved in this study did not use any hazardous agents and samples were not collected from them. As the human subjects only participated in the interview, this survey based research didn't take any further approval from institutional ethics committee.

RESULTS AND DISCUSSION

We found age variations in case of chikungunya patients. Among 0-20 year & 51-70 year, peoples had lower tendency in this fever. On the other hand it has higher tendency among the older peoples. For 0-10 year patients it was 3% and for 61-70 year patient it was only 1%. 26% patients had chikungunya fever whose age between 21-30 years. It was 23%, between 41-50 year peoples.

The most significant manifestation of chikungunya fever is the severe joint pain occurring in virtually every clinical case [19]. In our cases, we observed the same manifestation. In our cases, it was found that 23% patients had severe joint pain. During fever other symptoms that we found are weakness, rash, tremor and headache 24% patients had weakness during chikungunya fever. In case of headache and rash it was 21% and 19%. Tremor is not uncommon during chikungunya fever. In our cases 13% patients had tremor during fever. Most infections completely resolve within weeks or months but there have been documented cases of chikungunya fever-induced arthralgia persisting for years [20]. In our case series only nine patients had residual joint pain for two to three months after recovering from the initial infection.

Some symptoms can be noticed after chikungunya fever. The major symptoms that we found after chikungunya fever are joint pain, myalgia and weakness. 29% patients had joint pain, 24% patients had weakness, and 25% patients had myalgia after recovering from fever. In our case series some patients had alopecia and conjunctivitis after fever. We found 16% alopecia, and 6% conjunctivitis patients.

In our cases we found many people affected by chikungunya fever from May 2017 to July 2017, because of excessive rainfall in Bangladesh. In May 2017 it was 15% and July 2017 it was 23%. From August 2017 to April 2018 it rates slowdown.

The results are shown below by figure 1, 2, 3 & 4.

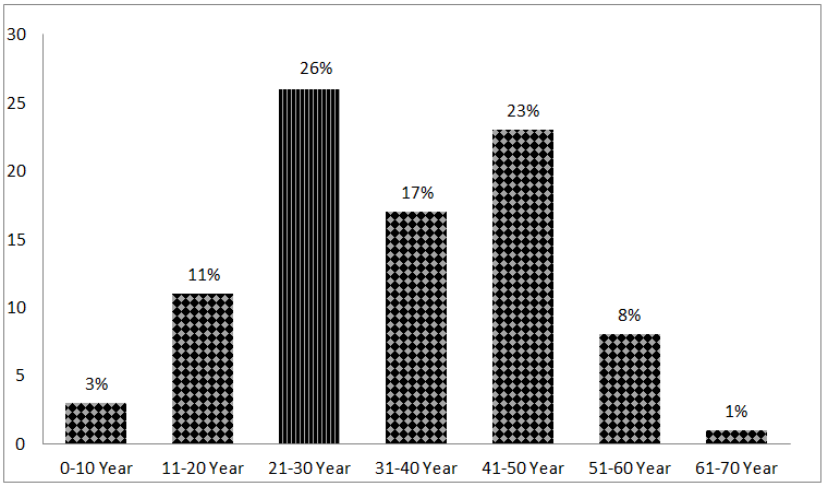

Fig-1: Chikungunya fever in different ages

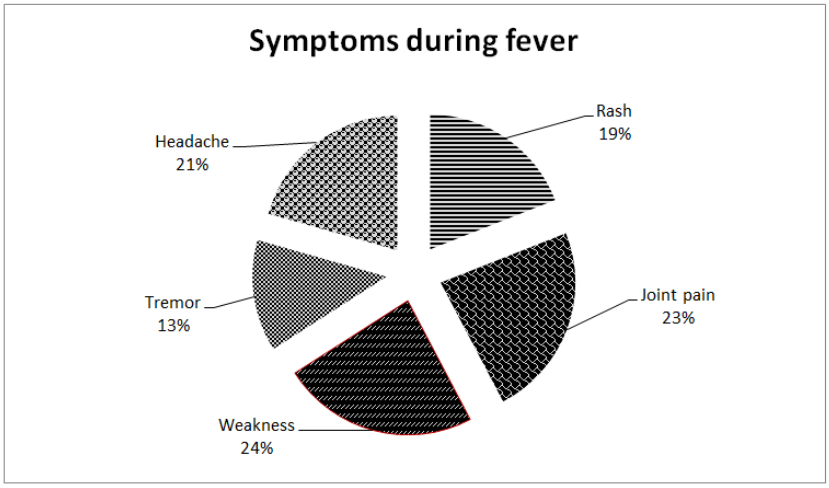

Fig-2: Percentage of symptoms during chikungunya fever

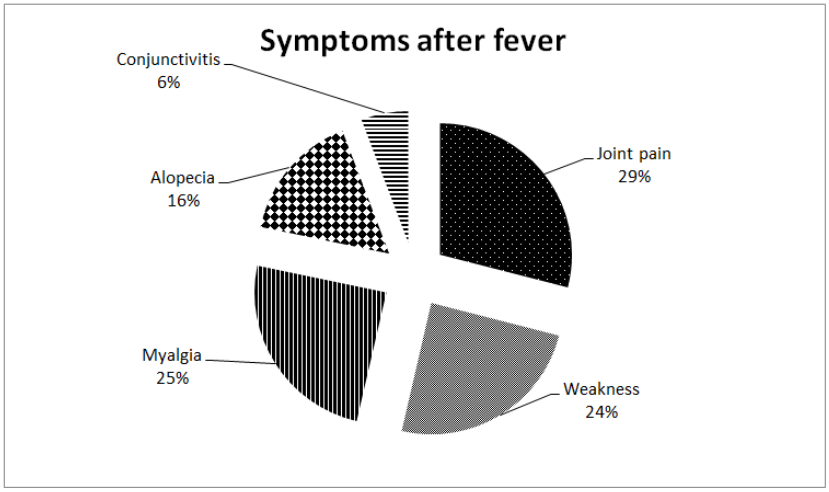

Fig-3: Percentage of symptom after chikungunya fever

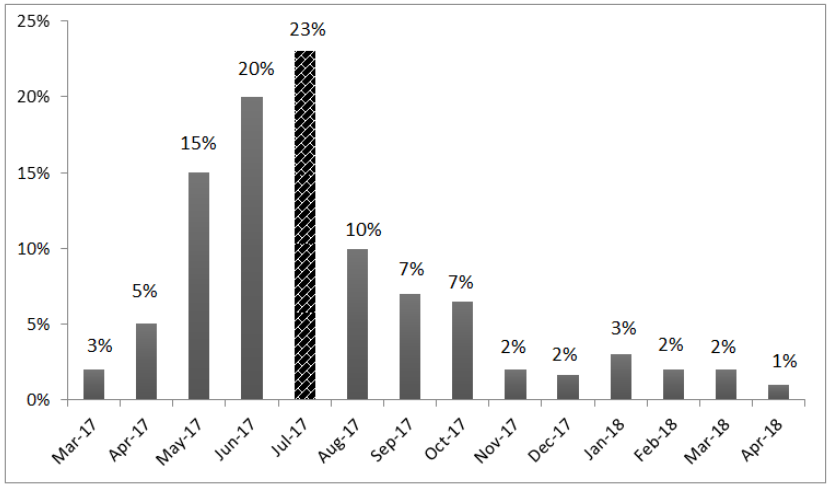

Fig-4: Chikunguna outbreak during March 2017-April 2018

CONCLUSION

Chikungunya fever is not uncommon in Bangladesh as evidence by this short case series. In chikungunya fever the most common symptoms that we find are fever, rash, joint pain and weakness. It is important to emphasize that in addition to medical treatment, the approach to the management of patients with chikungunya requires the involvement of multidisciplinary teams. General physicians, infectious disease specialists, rheumatologist and other specialist,

nurses, pain specialists, physiotherapists, social workers, and healthcare managers are required to institute these guidelines.

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