

Evaluation of Prevalence and Associated Symptoms of Chikungunya in a Tertiary Care Centre in Aligarh, Uttar Pradesh

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(Received: 04 March 2012; accepted: 10 June 2012)

Chikungunya is an emerging disease in North India. The disease typically presents as an acute illness with symptoms of fever, skin rash and incapacitating arthralgia. The modern lifestyles may amplify an epidemic through travel, population ageing, and production of solid waste that can shelter *Aedes* mosquito. Consecutive febrile patients were screened for malaria and dengue by peripheral blood smear and rapid immunochromatographic assay (detecting IgM and IgG) respectively. Patients negative for malaria and dengue were screened for acute chikungunya infection by IgM ELISA (SD Bioline, India). A total of 1400 patients presented with fever. Of these malaria was diagnosed in 253(18.1%) patients and 262(18.7%) were found to have dengue. A total of 67 people presenting with unexplained fever were investigated for chikungunya infection, out of which 12 cases (17.9%) were found to be positive for chikungunya antibody. Prevalence was higher in females ($p < 0.006$), and also highest for the age group of 11 to 30 years. Amongst the patients found positive for chikungunya fever with chills 16.6% and thrombocytopenia 25% were the main presentation. However, none of these patients complained of rashes, arthralgia or myalgia. A significant prevalence of chikungunya 17.9 % was observed in Aligarh in 2010. The presentations most strongly associated with chikungunya apart from high grade fever were thrombocytopenia and chills. This highlights the all the patients with fever and chills along with bleeding tendencies should be screened for chikungunya as well.

Key words: Chikungunya, Tertiary Care Centre, Aligarh.

Chikungunya is an emerging disease in North India. It is an arthropod-borne viral infection resembling dengue caused by Group IV RNA arboviruses and transmitted by the *Aedes aegypti* mosquito¹. The disease typically presents as an acute illness with symptoms of fever, skin rash and incapacitating arthralgia². The latter distinguishes chikungunya from dengue, which

otherwise shares the same vectors, symptoms, and geographical distribution^{3,4}. The modern lifestyles may amplify an epidemic through travel, population ageing, and production of solid waste that can shelter *Aedes* mosquito¹. Despite the menace, there is no published report regarding prevalence of chikungunya in the city of Aligarh, western Uttar Pradesh, India. We investigated the prevalence of Chikungunya in patients presenting with fever in a tertiary care centre from August to October 2010 and evaluated the symptoms associated with it.

Methodology

The study was conducted in the Department of Microbiology, Jawaharlal Nehru

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Medical College and Hospital, AMU, Aligarh between August to October 2010. A detailed clinical history was elicited from all cases of fever using a pre-designed questionnaire. Prior to inclusion in the study an informed consent was obtained. Consecutive febrile patients were screened for malaria and dengue by peripheral blood smear and rapid immunochromatographic assay (detecting IgM and IgG) respectively. Patients negative for malaria and dengue were screened for acute chikungunya infection by IgM ELISA (SD Bioline, India) if they fulfilled the following definition: The definition of a suspect case was adopted from the *Communicable Disease Alert (CD Alert)* issue, Vol. 10 (2) of February 2006 published by the National Institute of Communicable Diseases (NICD), Delhi⁵. It defined suspected chikungunya as "...an acute illness characterized by sudden onset of fever with several of the following

symptoms: joint pain, headache, backache, photophobia, arthralgia and rash".

5 ml blood was drawn from all febrile patients and serum separated stored in -20 °C till the test was performed. ELISA was performed as per manufacturer's guidelines. The patients were also investigated for complete blood counts, platelet count. LFT was also done.

RESULTS

A total of 1400 patients presented with fever. Of these malaria was diagnosed in 253 (18.1%) patients and 262 (18.7%) were found to have dengue. A total of 67 patients presenting with fever were investigated for chikungunya infection on the basis of CDC criteria. Among these chikungunya was detected in 12 cases (17.9%). (Table 1)

Table 1. Age and sex distribution of patients presenting with fever

Age group (years)	Patients presenting with fever suspected of chikungunya N=67			Patients found positive for chikungunya N=12		
	Male	Female	Total No. (%)	Male	Female	Total No. (%)
1-10	6	-	6 (8.9)	2	-	2 (16.6)
11-20	23	9	32 (47.8)	2	3	5 (41.7)
21-30	8	11	19 (28.3)	1	4	5 (41.7)
31-40	2	1	3 (4.5)	-	-	-
41-50	-	1	1 (1.5)	-	-	-
51-60	1	-	1 (1.5)	-	-	-
61-70	5	-	5 (7.4)	-	-	-
Total	45(67.2)	22(32.8)	67 (100)	5 (41.7)	7 (58.3)	12 (100)

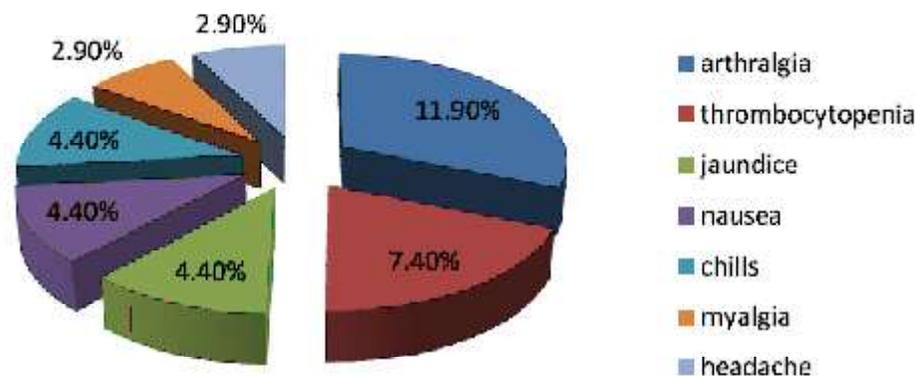


Fig. 1. Presenting complaints of patients presenting with fever

Majority of the patients which fulfilled the definition of suspected chikungunya were between the age group 11-30 years 51(76.1%) and were males 45(67.2%) (Table 1). However, prevalence of chikungunya was higher in females 7(58.3%) ($p < 0.005$). Of the 67 patients screened for chikungunya, arthralgia (11.9 %) and thrombocytopenia (7.4%) were the commonest presentations followed by jaundice (4.4%), nausea

(4.4%) and chills (4.4%). Myalgia and headache was present in 2.9 % and none of the patients had rashes (Fig. 1). Amongst the patients found positive for chikungunya, fever with chills (16.6%) and thrombocytopenia (25%) were the main presentations (Fig. 2). The mean platelet count was 48,333 (ranging between 13,000 to 88,000). However, none of these patients complained of rashes, arthralgia or myalgia.

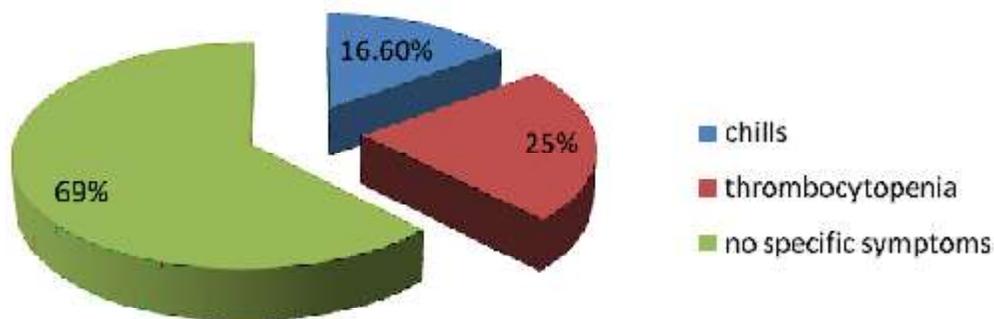


Fig. 2. Presenting complaints of patients positive for chikungunya antibodies

DISCUSSION

Unlike dengue, chikungunya is not generally considered to be a life threatening disease⁶. However, there is overlapping of symptoms between chikungunya and dengue virus infection. Correct diagnosis for differentiation between the two is very important because of the different treatment modalities, since chikungunya is a self-limiting non-fatal illness, whereas dengue may have severe manifestations¹.

In our study during a short period of three months, prevalence of chikungunya infection was noted as 17.9%. The age group 11-30 years was most commonly affected, with more than two-third (83.3%) patients in this group. Females (58.3%) were more commonly affected than males (41.7%). Female preponderance was noted in other studies as well⁷. This may be due to the domestic nature of this mosquito.

A significant finding of our study was that majority of the patients with chikungunya infection had no specific symptoms and presented only with fever. Chills along with fever was observed in 16.6% patients. Significant

thrombocytopenia in 25% cases was a surprising finding. None of the patients had rashes, arthralgia or myalgia which are considered to be the typical symptoms of chikungunya.

This highlights the fact that all the patients with fever of unknown origin, with thrombocytopenia, irrespective of clinical history, should be screened for chikungunya infection, along with other vector borne illnesses like malaria and dengue. This is a baseline study which points to a significant prevalence of chikungunya in Aligarh region. The unusual findings associated with this infection suggests that more such studies on a larger scale should be conducted to further delineate the clinical picture.

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