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SEROPREVALENCE CASES OF CHIKUNGUNYA AT TERTIARY CARE TEACHING HOSPITAL

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ABSTRACT:

OBJECTIVE:*To determine the frequency of seroprevalence cases of Chikungunya at Liaquat university hospital Hyderabad / Jamshoro Sindh Pakistan*

PATIENTS AND METHODS: *The descriptive case series study of six months was conducted at Liaquat University of Medical & Health Sciences Jamshoro. All the patients with ≥12 years of age of either gender presented with fever and joint pain, headache, muscle pain, joint swelling, or rash were recruited and enrolled in the study. All the relevant patients had serological tests, such as enzyme-linked immunosorbent assays (ELISA) and the presence of IgM and IgG anti-chikungunya antibodies. The data was analyzed in SPSS 17, the frequency and percentage was calculated for categorical variables and mean ±SD was calculated for numerical variables. As this was descriptive case series so no statistical test of significance was applied.*

RESULTS: *During six months study period, total Eighty six (86) patients were studied with means age 27.86±8.76 (SD). Of Eighty six, 14 (16.2%) had positive anti-chikungunya antibodies with 06/14 (42.8%) males and 08 (57.1%) females whereas the 72 (83.7%) patients were negative for anti-chikungunya antibodies with 45/72 (62.5%) males and 27/72 (37.5%) females respectively.*

CONCLUSION: *The study identified 16.2% seroprevalence of Chikungunya at Liaquat University Hospital Hyderabad / Jamshoro.*

KEY WORDS: *Chikungunya, Arbovirus, togaviridae, aedes aegypti, aedes albopictus and mosquito*

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INTRODUCTION:

Chikungunya (means that which bends up) virus is Arbovirus belongs to genus Alphavirus and family and is transmitted by aedes aegypti and aedes albopictus mosquito bite [1,2]. The disease is self limiting and clinical feature includes fever, sudden arthralgia, headache, conjunctival redness, chills, low back pain and skin rashes for one to seven days and can leads to fatal outcome [3]. The incubation period is usually 2-3 days and the arthralgias are migratory, polyarticular and mostly affect the small joints of body while the maculo-papular rash usually seen on the face & trunk. The proper history, clinical features and examination are sufficient to suspect chikungunya while the confirmatory can be made placed by biochemical investigations whereas the risk factors includes unawareness about the disease, illiteracy, farmers working in agricultural fields (ideal place for mosquito breed) and unhygienic living practices [4,5]. The present study was conducted at tertiary care hospital giving cover to both rural and urban population of province and to explore the prevalence of chikungunya infection by serodiagnosis (ELISA kits) in the population presented with febrile illness at tertiary care hospital so that with early evaluation and proper management the complications and mortality associated with chikungunya can be reduced.

PATIENTS AND METHODS:

The descriptive case series study of six months was conducted at Liaquat University of Medical & Health Sciences Jamshoro. All the patients with ≥12 years of age of either gender presented with fever and joint pain, headache, muscle pain, joint swelling, or rash were recruited and enrolled in the study. All the relevant patients had proper medical history, complete physical examination and serological tests, such as enzyme-linked immunosorbent assays (ELISA) and the presence of IgM and IgG anti-chikungunya antibodies while patients presented with pain due to gross known etiologies as rheumatological disorders (RA, SLE), muscular spasm, recurrent chronic headache, diabetes mellitus, recurrent urinary tract infections, psychiatric disorders, pregnant and lactating ladies, neuropathy and radiculopathy and the patients already on drugs (causes arthritis, muscle pain / myositis and joint swelling) and on chemotherapeutic medications were considered in exclusion criteria. The blood sample was withdrawn from every specific patient in sterilized equipment and sent to laboratory for IgM and IgG anti-chikungunya antibodies. The data was collected on pre-structured proforma and analyzed in SPSS 17 while the categorical variables were presented as frequencies and percentages whereas the presentation for numerical variables are through mean ± SD. No statistical test of significance was applied due to descriptive case series nature of the study.

RESULTS:

During six months study period, total Eighty six (86) patients were studied with means age 37.95±7.75 (SD). Of Eighty six, 14 (16.2%) had positive anti-chikungunya antibodies with 06/14 (42.8%) males and 08/14 (57.1%) females whereas the 72 (83.7%) patients were negative for anti-chikungunya antibodies with 45/72 (62.5%) males and 27/72 (37.5%) females respectively. The demographical and clinical profile of the study population is presented in Table- 1.

TABLE 1: THE DEMOGRAPHICAL PROFILE OF THE STUDY POPULATION

Parameter	Frequency (N=86)	Percentage (%)
AGE (yrs)		
12-20	50	58.1
21-29	12	13.9
30-39	09	10.4
40-49	09	10.4
50+	06	6.9
GENDER		
Male	36	41.6
Female	50	58.1
DURATION OF ILLNESS (days)		
1-3	60	69.7
2-3	15	17.4
>3	11	12.7
SEVERITY OF POISONING		
Fever	86	100
Joint pain & swelling	72	83.7
Headache	80	93.0
Muscle pain	65	75.5
Skin rash	16	18.6
RESIDENCE		
Urban	30	34.8
Rural	56	65.1
CHIKUNGUNYA		
Yes	14	16.2
No	72	83.7

DISCUSSION:

In present study the prevalence for chikungunya detected was 16.2% while the study of Brazil confirmed chikungunya as 20,661 cases in 2015 and 271,824 cases in 2016 and 171,930 cases in 2017 [6]. Former studies reported prevalence for chikungunya as 23.5%, 48.1% and 41.9% [7-9]. It has been reported the existence of Aedes species in various regions of the world indicates the spread of infection during the month of July to September and is consistent with the present study [10]. In present study the mean ±SD for age and duration of disease was 27.86±8.76 (yrs) and 4.63±1.96 (days) respectively with predominance age and duration group was 12-20 year age group and 1-3 days of infection, the findings are consistent with the former studies [11, 12]. In current series the female population was predominant to have chikungunya infection and is contradictory and contrast with the former studies where higher chikungunya sero-prevalence was identified in male population and has been stated that gender variability in the risk of

chikungunya infection could be attributed to specific life style that leads to extensive exposure to Aedes mosquitoes bites and low protection measures [13]. In present study the majority of infected population belonged to rural areas of province and it might be due to way of living, exposure to unhygienic conditions and occupation that exposed the population vulnerable and at risk of mosquito bites and chikungunya infection, the observation is also consistent with the study conducted by Khatun S, et al [14]. In current study the common presenting features observed were fever, joint pain and headache and the similar clinical presentations were also reported by former literature [15]. Some positive tests for chikungunya infection have cross-reactivity with other viruses and at present we have limited data regarding the prevalence of other viruses in our population and no specificity and sensitivity of diagnostic assays are available while the low prevalence of chikungunya in our study might be due to sporadic identification of cases. Thus the factors attributable for chikungunya infection was environmental / climate alterations, frequent traveling, high endemic areas, mosquitoes breed, immune-compromised host and unhygienic atmosphere [16, 17]. So there is emerging need to stable and monitor the strategy of vigilance by surveillance & vector control program. Moreover the advance and extensive studies should be conducted on periodic basis as community base studies which provide the timely prevalence for chikungunya infection specially the population at risk.

CONCLUSION:

The present study identified 16.2% seroprevalence of Chikungunya with female population predominance (57.1%) at tertiary care hospital. Thus proper surveillance is mandatory to reduce the emergence and to combat these sporadic and impending outbreaks.

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