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Clinical Gamut of Chikungunya Infection

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ABSTRACT

Objective: The study aimed to determine the frequency and distribution of various symptoms in patients diagnosed with Chikungunya infection and to compare the occurrence of Chikungunya infection symptoms across different genders and age groups. **Study Design:** cross-sectional study. **Settings:** Private clinic in Karachi Pakistan. **Duration:** 4 months from January 2025 to April 2025. **Methods:** A sample size of 370 patients was enrolled in this study. Patients with age ranging from 25 -75years, who fulfilled the inclusion criteria were included. They were advised to have Chikungunya serology done. If it comes out to be positive, then they were asked to fill out the Proformas. Approval was sought from the Ethical Review Committee. Data was collected in a pre-designed proforma. SPSS version 20 was used for data entry and analysis. **Results:** Among 370 patients with Chikungunya fever who were considered in this study, 150 (40 %) were males and 220 (59 %) were females. Most patients with Chikungunya fever were in the 20-30 years age group (32.4%), followed by the 31-45 years age group (27%). **Conclusion:** Chikungunya symptomatology varies significantly with age; young adults (20-30 years) are predominantly affected by joint pains, with fewer systemic symptoms. Middle-aged (31-45 years) have the broadest symptom profile, including headache, nausea, and muscle/joint pain. Older adults (46-60 yrs): Have a high prevalence of joint pain, joint swellings, and vomiting. Elderly (61+ yrs): Near-universal fever and muscle pains, but minimal GI involvement.

Keywords: *Alpha virus, Chikungunya fever, Karachi, Sanitary conditions.*

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INTRODUCTION

Chikungunya is an infection caused by the positive-sense single-stranded RNA chikungunya virus (CHIKV), belonging to the genus Alpha virus, and family Togaviridae. It is spread by the bite of infected Aedes aegypti and Aedes albopictus mosquitoes.[1,2]

In Pakistan and other Asian countries, variations in temperature have led to climatic changes that have increased the outbreaks of many arboviral illnesses, such as malaria, dengue, and Chikungunya fever. This disease is linked to the warm climate and the city's deplorable sanitary conditions. This year, the city of Karachi experienced a mild winter, with a notable decrease in temperature documented in December. Chikungunya vectors proliferate remarkably in mild temperatures. Secondly, the sanitary system of Karachi is atrocious. Due to miserable sanitary conditions, open sewage lines and stagnant water provide a breeding environment that favors mosquitoes, leading to the spread of chikungunya infection; therefore, prompt measures should be taken to eliminate the stagnant water sources.[3]

The disease was first reported in Tanzania in 1952. Since then, numerous outbreaks have been reported in various countries across different continents in 2007, 2017, and 2020.[4] The recent epidemic was reported in 2005 in India. In 2011, the first case of this disease in Pakistan was evident in Lahore. (4) Outbreaks have also been reported in different areas of the subcontinent, Pakistan, in the last two years (2016–2017).[5,6] Lately, the chikungunya Outbreak started in November 2016 in Karachi, Pakistan, infecting more than 30,000 Inhabitants of Karachi, and only 803 cases were reported to the World Health Organization (WHO) since December 2016. Chikungunya is considered in travelers who present with fever, rash, and arthralgia or arthritis and are traveling from countries worldwide with known chikungunya transmission, including the Caribbean.[7,8]

The incubation period of CHIKV infection varies from 1 to 12 days (7 days on average), The disease manifests usually 2 to 6 days after the mosquito bite as abrupt onset of high fever (>102 °F) accompanied by severe joint pains involving both small and large joints of upper and lower extremities, joint swellings, myalgias, headache, nausea, diarrhea and oral ulcers. The symptoms of joint involvement often mimic those of rheumatoid arthritis. Encephalitis and encephalopathy can occur as complications of the disease. Most of the diseased individuals recovered within a few days, but residual arthritis can persist for months.[9,10] This viral illness is often confused with dengue fever due to its symptoms, which include high-

grade fever, nausea, vomiting, and myalgia. Currently, there is no role for antiviral treatment in combating this infection.[11,12]

The only supportive treatment is adequate oral hydration or intravenous administration if the patient is unable to take medication orally due to severe nausea or vomiting. Additionally, non-steroidal anti-inflammatory drugs (NSAIDs) are used to provide symptomatic relief.[13,14] As it is the most important "emerging" pathogen nowadays, and its increasing global health impact on naive populations, awareness should be created among the people about this. This research will educate the public about the disease, its transmission and preventive measures, ultimately contributing to reduced morbidity and improved public health and enhance the diagnostic accuracy: It will inform the healthcare professionals about the clinical characteristics of chikungunya infection, improving its diagnosis and treatment policy: it will provide valuable insights for policy makers and public health officials to develop effective strategies for disease control and prevention. This research can add to the current understanding of chikungunya infection, facilitating further research and advancements in the field.

This study aims to determine the frequency of symptoms in patients diagnosed with Chikungunya infection and to correlate these symptoms across different age groups and genders.

METHODS

This cross-sectional study was conducted in a private clinic in Karachi over 4 months from January 2025 to April 2025, after the ethical approval was obtained from the ethics committee (BUHS-IRB#127/25) dated 16.1.25.

Consent was taken from the patients before data collection, after explaining the details of the study. Those patients who presented with symptoms of high-grade fever, nausea, vomiting, severe multiple joint pain, joint swellings, and muscle pains irrespective of gender between 25-75 years of age with or without comorbidities like diabetes or hypertension were included. They were asked to have Chikungunya serology done for the diagnosis of Chikungunya infection (day 4 of fever). Those Chikungunya-positive patients who visited the clinic for the first or second time were then asked to complete a questionnaire after providing their consent for participation in this study. A sample size of 370 was taken with a population size of 10000 a 95% confidence interval, and 5% margin of error.)

RESULTS

During the study period, a total of 370 cases of Chikungunya fever were found, among which 150 (40%) were males, and 220 (59%) were females. The youngest being 25years and the oldest being 75 years of age. Most of the patients who were positive for Chikungunya fever were in the age group 20-30 years (32.4%), followed by the 31- 45 years age group (27%).

Total Patients =370, Male = 150 (40%), Female = 220 (59%).

Figure 1: Frequency of chikungunya infection among male and female population

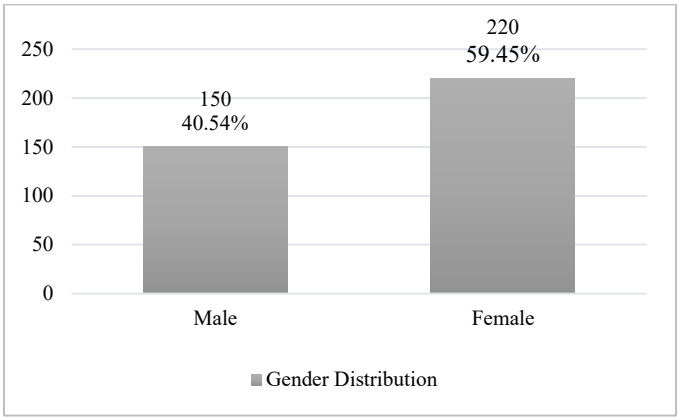

Table 1: Frequency of symptoms in chikungunya infection

Symptoms	Patients	% (n=370)
Fever	350	94% (n=370)
Headache	150	40% (n=370)
Joint pains	350	94% (n=370)
Joint swellings	280	75% (n=370)
Body aches	100	27% (n=370)
Nausea	120	32% (n=370)
Vomiting's	90	24% (n=370)
Muscle pains	330	89% (n=370)

Table 2: Frequency of different symptoms in chikungunya patients according to gender

Symptoms	Total No. of Patients n=370	Male n=150 (40%)	Female n=220 (59%)	Chi-Square (X^2)	P-Value
Fever	350	140 (93.3%)	210 (95.5%)	0.78	0.376
Headache	150	50 (33%)	100 (45.4%)	5.44	0.020
Joint pains	350	130 (86.7%)	220 (100%)	31	<0.001
Joint swellings	280	75 (50%)	205 (93%)	90.32	<0.001
Body aches	100	40 (26.7%)	60 (27%)	0.02	0.897
Nausea	120	30 (20%)	90 (40.9%)	17.80	<0.001
Vomiting's	90	40 (26.7%)	50 (22.7%)	0.75	0.386
Muscle pains	330	130 (86.7%)	200 (90.9%)	1.66	0.197

Table 3: Distribution of symptoms of chikungunya infection in different age groups

Symptoms	20-30yrs n=120	31-45yrs n=100	46-60yrs n=80	61+yrs n=70
Fever	100 (83.3%)	95 (95.0%)	80 (100.0%)	68 (97.1%)
Headache	50 (41.7%)	60 (60.0%)	20 (25.0%)	20 (28.6%)
Joint pains	120 (100%)	98 (98%)	77 (96.3%)	60 (85.7%)
Joint swellings	90 (75%)	80 (80%)	70 (87.5%)	50 (71.4%)
Body aches	40 (33.3%)	30 (30%)	10 (12.5%)	20 (28.6%)
Nausea	40 (33.3%)	50 (50%)	20 (25.0%)	10 (14.3%)
Vomiting's	30 (25%)	25 (25%)	30 (37.5%)	5 (7.1%)
Muscle pains	80 (66.7%)	94 (94%)	60 (75.0%)	70 (100%)

DISCUSSION

In our study, the most common symptoms observed were fever, joint pains, and muscle pains, followed by joint swellings. Less frequent symptoms included headache, nausea, body aches, and vomiting. These findings suggest that fever, joint involvement, and myalgia remain the hallmark clinical features of chikungunya infection.

Recent studies from endemic regions corroborate the findings of our study. It is reported that fever and severe polyarthralgia were present in over 90% of chikungunya patients, while myalgia and joint swelling were also frequent. Similarly, Bouquillard E *et al*. (2018)[15] and Puntasecca CJ (2021)[16] emphasized that musculoskeletal manifestations are the key differentiating factor of chikungunya compared to other arboviral infections, such as dengue and Zika, which often present with overlapping systemic symptoms.

The relatively lower prevalence of gastrointestinal symptoms, such as nausea and vomiting, in our study is consistent with recent evidence indicating that these features are supportive but not diagnostic of chikungunya. Furthermore, the persistence of joint-related symptoms in a significant subset of patients suggests an increased risk of post-viral arthralgia syndromes, which have been described as long-term sequelae.[17]

Overall, the symptom distribution in our cohort aligns with recent global and regional reports, reinforcing that fever, joint pain, and muscle pain remain the most reliable diagnostic indicators for clinical recognition of chikungunya virus infection, as shown in Table 1

In our study, fever was uniformly prevalent across both genders, indicating that fever is a non-discriminatory symptom of chikungunya. However, significant gender differences emerged for several other symptoms. Joint pains were reported by all female patients, and joint swellings were markedly higher in females than in males. Similarly, nausea was more frequent in females compared to males. Headache also showed a higher prevalence among females. Conversely, body aches, vomiting, and muscle pains showed no statistically significant differences by gender.

These findings suggest that while fever and muscle pain are consistent across genders, joint-related manifestations and gastrointestinal symptoms are disproportionately more common in females. This aligns with recent research highlighting sex-specific immune and hormonal influences on the clinical presentation of chikungunya. According to previous studies higher estrogen-related immune activation in females may contribute to increased inflammatory manifestations, including joint pain and swelling.[18] Similarly, it is observed that post-viral arthralgia syndromes are significantly more prevalent in women, possibly due to enhanced pro-inflammatory cytokine responses.

Moreover, a multicenter study also reported higher frequencies of nausea and joint complications in females, emphasizing that women may experience a greater disease burden and prolonged recovery compared to men. These findings are consistent with earlier evidence that immune and hormonal differences influence viral infection outcomes, making female patients more prone to severe musculoskeletal and systemic complications.

Thus, our study reinforces that gender plays a significant role in the clinical spectrum of chikungunya, with females being more affected by joint and gastrointestinal symptoms. Recognizing these differences is crucial for tailoring patient management and follow-up care, particularly in endemic regions, as illustrated in Table 2 and Figure 1. Women are disproportionately affected by chikungunya, particularly in terms of severity and persistence of joint-related symptoms. Hormonal and immunological differences, including estrogen-mediated modulation of immune responses, have been proposed as contributing factors to the increased burden observed in females.[19]

The analysis of chikungunya symptoms across age groups revealed distinct trends. Fever was the most consistent symptom across all age categories, reaching a maximum in the 46–60 years group. This indicates fever as the most reliable clinical hallmark regardless of age. Joint pains were nearly universal in all groups, but were slightly lower in elderly patients. Similarly, joint swelling was most frequent in the 46-60-year-old group.

Neurological and gastrointestinal symptoms showed notable age-related differences. Headaches were predominantly seen in younger and middle-aged adults, but were much less common in older patients. Likewise, nausea peaked among middle-aged adults but declined significantly in older patients. Interestingly, vomiting was most frequent in the 46–60 years group, while it was the least common among the elderly.

Muscle pains showed a reverse trend, being significantly more prevalent in older patients (100% in those aged 61 years or older) compared to younger adults (66.7% in those aged 20–30 years). This supports the hypothesis that immune-senescence and chronic inflammation in elderly individuals may predispose them to more severe musculoskeletal involvement.[20]

These findings suggest that while fever, joint pain, and muscle pain are consistent clinical hallmarks across all ages, younger and middle-aged adults experience higher rates of headache, nausea, and body aches, whereas older patients exhibit more severe muscle involvement with relatively fewer

gastrointestinal symptoms. Recent studies support this interpretation and demonstrated that age influences immune responses to chikungunya, with younger individuals showing stronger systemic and gastrointestinal symptoms, while older adults more frequently report musculoskeletal complications.[21,22] Similarly, past studies emphasized that aging-related immune changes enhance inflammatory pathways, explaining the higher prevalence of myalgia in elderly patients.

Thus, our study reinforces the age-related variability in chikungunya symptomatology, underlining the need for age-specific management strategies to address differing clinical burdens in younger versus older patients, as shown in Table 3.

CONCLUSION

This study highlights that fever, joint pains, and muscle pains are the most predominant clinical manifestations of chikungunya infection, affecting the majority of patients across all age groups. Gender-based analysis revealed that females were more likely to present with joint-related symptoms (pain and swelling) and gastrointestinal complaints such as nausea, likely due to hormonal and immunological differences. Age-wise distribution showed that while fever was consistently present in all age groups, younger and middle-aged adults experienced more systemic and gastrointestinal symptoms, whereas older adults exhibited higher rates of musculoskeletal involvement. These findings emphasize the importance of recognizing demographic variations in clinical presentation for timely diagnosis and management of chikungunya. Early identification of gender- and age-specific symptom patterns may help clinicians improve patient care, prioritize high-risk groups, and develop targeted public health strategies for outbreak control.

LIMITATIONS

The study was done in a single Centre. Some patients, despite exhibiting typical symptoms, were unable to obtain their serology test for infection confirmation due to financial constraints.

SUGGESTIONS / RECOMMENDATIONS

Further studies should be done to provide valuable insights for policymakers and public health officials to develop effective strategies for disease control and prevention.

CONFLICT OF INTEREST / DISCLOSURE

None.

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REFERENCES

1. Naqvi S, Bashir S, Rupareliya C, Shams A, Giyanwani PR, Ali Z, et al. Clinical Spectrum of Chikungunya in Pakistan. Cureus. 2017 Jul 6;9(7):e1430.
2. Mourad O, Makhani L, Chen LH. Chikungunya: An Emerging Public Health Concern. Curr Infect Dis Rep. 2022 Dec;24(12):217-228.
3. Poudine M, Parsi-Moud A, Mohagheghi-Fard AH, Bameri Z, Mirzaei I, Shahkhah M, et al. Seroprevalence of Chikungunya Virus Infection in Sistan and Baluchestan Province, Iran: A Pilot Study. Arch Clin Infect Dis. 2023 Dec;18(6):e139238.
4. Kajeguka DC, Kaaya RD, Mwakalinga S, Ndossi R, Ndaro A, Chilongola JO, et al. Prevalence of Dengue and Chikungunya Virus Infections in North-Eastern Tanzania: A Cross-Sectional Study Among Participants Presenting With Malaria-Like Symptoms. BMC Infect Dis. 2016 Apr;16:183.
5. Meraj L, Saleem J, Manzoor S, Ashfaq A, Khurram M. First Report of Chikungunya Fever in Rawalpindi, Pakistan. East Mediterr Health J. 2020 Jun;26(6).
6. Burt FJ, Chen W, Miner JJ, Lenschow DJ, Merits A, Schnettler E, et al. Chikungunya Virus: An Update on the Biology and Pathogenesis of This Emerging Pathogen. Lancet Infect Dis. 2017 Apr;17(4):e107-e117.
7. Aamir UB, Badar N, Salman M, Ahmed M, Alam MM. Outbreaks of Chikungunya in Pakistan. Lancet Infect Dis. 2017 May;17(5):483.
8. Mallhi TH, Khan YH, Khan AH, Tanveer N, Qadir MI. First Chikungunya Outbreak in Pakistan: A Trail of Viral Attacks. New Microbes New Infect. 2017 Jun 1;19:13-14.
9. Rauf M, Zahra F, Manzoor S, Mehmood A, Bhatti S. Outbreak of Chikungunya in Pakistan. Lancet Infect Dis. 2017 Mar;17(3):258.
10. Heath CJ, Lowther J, Noël TP, Mark-George I, Boothroyd DB, Mitchell G, et al. The Identification of Risk Factors for Chronic Chikungunya Arthralgia in Grenada, West Indies: A Cross-Sectional Cohort Study. Open Forum Infect Dis. 2018 Jan 3;5(1).
11. Amaral JK, Bitsborrow JB, Schoen RT. Chronic Chikungunya Arthritis and Rheumatoid Arthritis: What They Have in Common. Am J Med. 2020 Mar;133(3):e91-e97.
12. Lo Presti A, Cella E, Angeletti S, Ciccozzi M. Molecular Epidemiology, Evolution and Phylogeny of Chikungunya Virus: An Updating Review. Infect Genet Evol. 2016 Jul;41:270-278.
13. Khongwichit S, Chansaenroj J, Chirathaworn C, Poovorawan Y. Chikungunya Virus Infection: Molecular Biology, Clinical Characteristics, and Epidemiology in Asian Countries. J Biomed Sci. 2021 Dec;28:84.
14. Pouriayevali MH, Rezaei F, Jalali T, Baniasadi V, Fazlalipour M, Mostafavi E, et al. Imported Cases of Chikungunya Virus in Iran. BMC Infect Dis. 2019 Dec;19(1):1004.
15. Bouquillard E, Fianu A, Bangil M, Charlette N, Ribera A, Michault A, et al. Rheumatic Manifestations Associated with Chikungunya Virus Infection: A Study of 307 Patients With 32-Month Follow-Up (RHUMATOCHIK Study). Joint Bone Spine. 2018 Mar;85(2):207-210.
16. Puntasecca CJ, King CH, LaBeaud AD. Measuring the Global Burden of Chikungunya and Zika Viruses: A Systematic Review. PLoS Negl Trop Dis. 2021 Mar;15(3):e0009055.
17. Benjamanukul S, Osiri M, Chansaenroj J, Chirathaworn C, Poovorawan Y. Rheumatic Manifestations of Chikungunya Virus Infection: Prevalence, Patterns, and Enthesitis. PLoS One. 2021 Apr;16(4):e0249867.
18. Taylor M, Rayner JO. Immune Response to Chikungunya Virus: Sex as a Biological Variable and Implications for Natural Delivery Via the Mosquito. Viruses. 2023 Sep;15(9):1869.
19. Chirathaworn C, Chansaenroj J, Poovorawan Y. Cytokines and Chemokines in Chikungunya Virus Infection: Protection or Induction of Pathology. Pathogens. 2020 Jun;9(6):415.
20. Imad HA, Phadungsombat J, Nakayama EE, Suzuki K, Ibrahim AM, Afaa A, et al. Clinical Features of Acute Chikungunya Virus Infection in Children and Adults During an Outbreak in the Maldives. Am J Trop Med Hyg. 2021 Oct;105(4):946-954.
21. Bentvelzen JOM, de Roo AM, Gurgel do Amaral GS, Quist SW, Louwsma T, Vondeling GT, et al. Clinical Outcomes of Chikungunya Across Age Groups: A Systematic Review. PLoS Negl Trop Dis. 2025 Oct 21;19(10):e0013580.
22. Bertolotti A, Thioune M, Abel S, Belrose G, Calmont I, Césaire R, et al. Prevalence of Chronic Chikungunya and Associated Risk Factors in the French West Indies (La Martinique): A Prospective Cohort Study. PLoS Negl Trop Dis. 2020 Mar;14(3):e0007327.