

VARIOUS CLINICAL PRESENTATIONS OF CHIKUNGUNYA FEVER AND ITS OUTCOMEBheemasenachari Moka¹¹Associate Professor, Department of General Medicine, Government Medical College/General Hospital, Anantapuramu.**ABSTRACT****BACKGROUND**

Chikungunya is an emerging and rapidly spreading disease with varied clinical scenario/presentations, affecting largely areas colonized by the Aedes mosquito. Diagnosing, treating of Chikungunya fever and post Chikungunya (pCHIK) inflammatory arthritis is a challenging problem in both tropical and sub-tropical countries. Aim of the study is to find various clinical scenarios/presentations of Chikungunya fever and its outcome, so that it may help physicians to diagnose Chikungunya accurately.

MATERIALS AND METHODS

This prospective study includes 94 Chikungunya confirmed patients. Patients were diagnosed with Chikungunya using Chikungunya specific IgM antibodies test kits. Patient details were collected, local and systemic examination was done. Specific treatment using NSAIDS, Hydroxychloroquine and Steroids was given to patients based on clinical manifestations and the outcome was assessed.

RESULTS

Out of 94 Chikungunya confirmed patients, 100% had fever, polyarthralgia noticed among 90.4%, other presentations were malaise (87.2%), swelling of joints (74.4%), headache (76.5%), myalgia (72.3%), stiffness of joints (55.3%), dysgeusia (36.1%), bleeding manifestations (34%), cervical lymphadenopathy (23.4%), organomegaly (12.7%), cutaneous hypersensitivity (17%), depression (13.8%). Out of 94 patients, 24 (25.5%) responded promptly to simple analgesics like paracetamol or NSAIDS. 52 (55.3%) were treated with NSAIDS and Hydroxychloroquine combination. 18 (19.1%) severely toxic patients with persistent severe polyarthritis were treated with steroids along with hydroxychloroquine and NSAIDS.

CONCLUSION

When laboratory testing is restricted or during an outbreak it's a challenge for physicians to identify Chikungunya accurately based on clinical case definition in order to treat disease promptly and to stop progression of disease.

KEYWORDS

Chikungunya, Clinical Scenario, Outcome.

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BACKGROUND

Chikungunya virus is related to arbo viruses, responsible for Chikungunya fever. Chikungunya fever (CHIKF) is caused by a mosquito borne virus belonging to the Semliki Forest antigenic serocomplex family (genus Alphavirus, family Togaviridae) and is endemic in Africa and Southeast Asia.¹

There is a greater need to suspect and detect Chikungunya exactly with wider knowledge, as clinical and epidemiological characteristics of Chikungunya and dengue are similar. Chikungunya is an emerging and rapidly spreading disease with varied clinical scenario/presentations, affecting largely areas colonized by the Aedes mosquito.²

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During 2004 to 2014 Chikungunya re-emerged extensively in Africa, as well as regions within the Indian Ocean, Southeast Asia and the Pacific islands and Europe affecting 1.4 to 6.5 million people.³ At the end of 2013 Chikungunya transmitted to intertropical Americas,⁴ later after six months outbreak was occurred in Caribbean islands, which also spreads to northern South America and the United states.^{5,6}

Chikungunya fever clinical features can range from fever, severe polyarthralgia to potentially life-threatening manifestations.^{7,8} Chikungunya can affect all age groups and both sexes equally. Skeletal involvement is predominant in Chikungunya disease, arthralgia can persist for months to years. These Post Chikungunya rheumatic disorders were first described in South Africa at the end of 1970's. Fourie and Morrison first reported a pCHIK rheumatoid arthritic syndrome in 1979,⁹ Brighton et al observed a high prevalence of chronic polyarthralgia or stiffness occurring three years after disease onset.¹⁰

Chikungunya may present with different clinical scenarios and a protracted clinical course, giving many differential diagnosis. We have selected to do the study on various clinical scenarios/presentations of Chikungunya



fever and its outcome, so that it may help physicians to diagnose Chikungunya accurately.

MATERIALS AND METHODS

Patients confirmed with Chikungunya attending to General Medicine Out Patient Department at Government Medical College/General Hospital, Anantapuramu, Andhra Pradesh, India during the period of October 2017 to February 2018 were included in this study.

This prospective study includes 94 Chikungunya confirmed patients, cooperated well for studying clinical scenario. Informed consent has taken from all patients. Patients were diagnosed with Chikungunya using Chikungunya specific IgM antibodies test kits. The following data were collected from each patient: age, sex, address, occupation and personal history including hygienic measures, onset of symptoms, clinical course, and family history. Systemic Examination was done.

Local examination was properly assessed to notify exanthem (Macular/Maculopapular rash/petechial rash), joint swellings, conjunctivitis, abdominal tenderness, organomegaly, bleeding manifestations etc. Specific treatment using NSAIDS, Hydroxychloroquine and Steroids was given to patients based on clinical manifestations and the outcome was assessed.

Clinical scenario and outcome details were entered into excel sheet. Assessment was done, presented in the form of numerical, percentage, bar diagram.

RESULTS

Most of the patients confirmed as Chikungunya presented to tertiary care hospital in this area had clinical features including acute onset of polyarthralgia, malaise, moderate to severe myalgias, fever, headache.

Many members of this study population were hailing from rural areas. Females were predominantly affected. Out of 94 Chikungunya confirmed cases, 68 (72.3%) were females and 26 (27.65%) were males. Predominantly Chikungunya patients were observed in the age group 25-50 years.

Most common presentation observed was fever and polyarthralgia involving both small and large joints. Stiffness of joints was commonly noticed during morning times, responsible for inactiveness. Rare clinical presentations like dysgeusia, bleeding manifestations, cervical lymphadenopathy, organomegaly, depression were also noted. Cutaneous hypersensitivity especially burning sensation over lower limbs/rarely all over body was observed (Table 1).

Vomiting and diarrhoeal symptoms were not observed in this study. No purpuric spots, no conjunctival congestion, no cardiac/neuro presentation (except peripheral neuropathic pains), no specific liver abnormalities were noted.

Clinical Manifestations	No. of Patients (n=94)	Percentage (%)
Fever	94	100
Polyarthralgia	85	90.4
Involving peripheral joints	73	77.6
Involving proximal joints	12	12.7
Swelling of joints	70	74.4
Headache	72	76.5
Malaise	82	87.2
Myalgias	68	72.3
Stiffness of joints	52	55.3
Dysgeusia	34	36.1
Bleeding manifestations	32	34
Cervical lymphadenopathy	22	23.4
Organomegaly	12	12.7
Cutaneous hypersensitivity	16	17
Depression	13	13.8

Table 1. Percentage of Varied Clinical Scenario among Chikungunya Patients

The syndrome is characterised by abrupt onset of high-grade fever, chills, incapacitating polyarthralgia, headache, intense myalgia and, frequently, a mucocutaneous eruption. Typically, these manifestations subside within 7 days. Petechial rash noted during presentation time and also treatment time. Typical dark pigmentation especially over nose/ face observed during recovery as well as post ictal convalescence period (persists for longer duration). Depression, exhaustive feeling lasted for weeks.

Out of 94 patients, 24 (25.5%) responded promptly to simple analgesic paracetamol or NSAIDS. Most of the Chikungunya affected patients presented with persistent polyarthralgia, swelling of joints even after treating them with NSAIDS. Such patients were treated with Hydroxy chloroquine 200 mg twice a day along with NSAIDS, achieved proper response. 52 (55.3%) were treated with NSAIDS and Hydroxychloroquine combination. 18 (19.1%) severely toxic patients with persistent severe polyarthrits were treated with steroids along with hydroxychloroquine and NSAIDS. Topical creams were advised for hyperpigmentation. Physiotherapy advised to patients with persistent polyarthralgia (Figure 1).

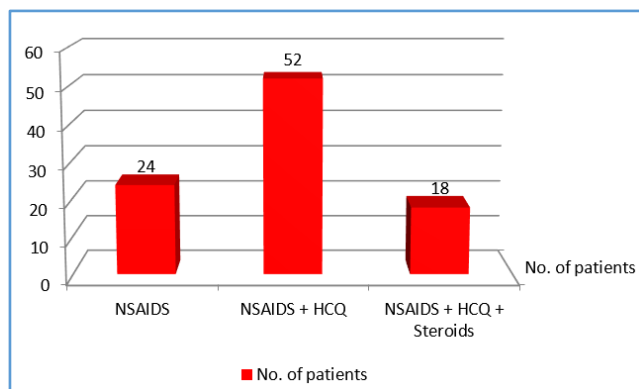


Figure 1. Various Treatment Modalities of Chikungunya

DISCUSSION

Chikungunya virus (CHIKV) is a re-emerging arbovirus responsible for a massive outbreak currently afflicting the Indian Ocean region and India, this alphavirus has already infected about one-third of the human population. Infection from Chikungunya virus typically induces a mild disease in humans, characterized by fever, myalgia, arthralgia, and rash. Recurrent polyarthralgia may persist and be disabling.¹¹

Chikungunya virus outbreak is predominant in Indian Ocean territories. Chikungunya outbreaks were reported in many other countries including Italy, America, and Europe. These outbreaks of CHIKV disease in a non-tropical area was to some extent unexpected and emphasises the need for preparedness and response to emerging infectious threats in the era of globalisation.^{12,13}

Out of 94 Chikungunya confirmed cases, 68 (72.3%) were females and 26 (27.65%) were males. Predominantly chikungunya patients were observed in the age group 25-50 years in this study. Daouda Sissoko et al¹¹ reported a strong linear association between symptomatic infection and age (v_2 for trend = 9.85, $P < 0.001$).

In the present study, out of 94 Chikungunya confirmed patients, 100% had fever, polyarthralgia noticed among 90.4%, other presentations were malaise (87.2%), swelling of joints (74.4%), Headache (76.5%), myalgia (72.3%), Stiffness of joints (55.3%), Dysgeusia (36.1%), Bleeding manifestations (34%), Cervical lymphadenopathy (23.4%), Organomegaly (12.7%), Cutaneous hypersensitivity (17%), Depression (13.8%). No gastrointestinal and central nervous system involvement observed. Therese Coudrec¹⁴ observed central nervous system involvement among severely affected Chikungunya neonates as well as adults with underlying conditions.

Winfried taubitzet al¹⁵ did a study on Chikungunya fever in 69 travellers; revealed that 69% of the patients had persistent arthralgia for >2 months, and 13% had it for >6 months, but no serious complications was observed. Daouda Sissoko et al¹¹ observed 440 (38.1%) out of 1154 study population had Chikungunya-specific IgM or IgG antibodies by enzyme-linked immunosorbent assay (ELISA). Of symptomatic participants, 318 (72.3%) had confirmed Chikungunya, the dominant symptoms reported were

incapacitating polyarthralgia (98.7%), myalgia (93.1%), backache (86%), fever of abrupt onset (85%) and headache (81.4%). The association of fever and polyarthralgia had a sensitivity of 84% (95% CI: 79–87) and a specificity of 89% (95% CI: 86–91). Emilie Javelle et al¹⁶ documented Ninety-four patients (59%) out of 159 participants who were free of any articular disorder prior to CHIK met the CIR criteria: rheumatoid arthritis (n=40), spondyloarthritis (n=33), undifferentiated polyarthrititis (n=21).

Numerous tropical or subtropical countries with middle or low income, CHIKF diagnosis is more challenging.¹⁷ Chikungunya virus can be diagnosed by either virus specific immunoglobulin IgM or IgG detection, viral RNA isolation in blood samples. Viral RNA isolation using reverse-transcriptase polymerase chain reaction is a reliable, quick diagnostic test, virus can be detected during the first week of illness.¹⁵ Even though sensitivity of Chikungunya antibodies detection diagnostic methods is lesser than viral RNA isolation techniques, they are very helpful in such healthcare facilities with less feasibility for viral RNA isolation in blood samples.

Out of 94 patients, 24 (25.5%) responded promptly to simple analgesic paracetamol or NSAIDS. 52 (55.3%) were treated with NSAIDS and Hydroxychloroquine combination. 18 (19.1%) severely toxic patients with persistent severe polyarthrititis were treated with steroids along with hydroxychloroquine and NSAIDS as per this study.

Rahim MA et al¹⁸ documented during febrile periods paracetamol is the mainstay of treatment, but non-steroidal anti-inflammatory drugs required over 50% of patients. In similar to our study Mylonas AD et al,¹⁹ Watson DA et al²⁰ did a validated study on pCHIK- MSDs, advised NSAIDS or Short course corticosteroids in long lasting rheumatic disorders following Ross River virus infection. Manimuda SP et al,²¹ Mathew AJ et al²² suggested to relieve symptoms and for early recovery, asthenia, psychological and daily life burdens must also be taken into account. Chopra A et al also²³ documented that in most of the patients, simple analgesics and/or non-steroidal anti-inflammatory drugs (NSAIDs) provide relief of Chikungunya symptoms.

Ravichandran R et al, Delogu I et al noticed Hydroxychloroquine and ribavirin were not much effective in treating Chikungunya fever.^{24,25} Methotrexate is more beneficial in treating pCHIK inflammatory arthritis.^{26,27}

Emilie Javelle et al¹⁶ observed a positive therapeutic response was achieved in 54 out of the 72 patients (75%) who were treated with methotrexate (MTX). Twelve out of the 92 patients (13%) received immunomodulatory biologic agents due to failure of contra-indication of MTX treatment. pCHIK – MSDs (Post Chikungunya – Musculoskeletal Disorders) were managed with pain-killers, local and/or general anti-inflammatory drugs, and physiotherapy.

CONCLUSION

Diagnosing, treating of Chikungunya fever and post chikungunya inflammatory arthritis is a challenging problem in both tropical and sub-tropical countries. As Chikungunya is endemic in India and neighbouring countries, there should

be an easy access for laboratory testing. Few conditions restrict early diagnosis of Chikungunya- laboratory testing is restricted to a few health care facilities, appearance of IgM and IgG antibodies in patients' serum samples takes time, during outbreak sufficient resources may not be available. In such conditions it is a challenge for physicians to identify Chikungunya accurately based on clinical case definition in order to treat disease promptly and to stop progression of disease.

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