



Information for Healthcare Providers

Chikungunya Fever

Background

Chikungunya (CHIK) fever, caused by Chikungunya virus, is an arboviral disease transmitted by the bite of the infected *Aedes* mosquitoes.

The disease has affected millions of people and continues to cause epidemics in many countries. In late 2013, the first local (autochthonous) transmission in the Americas was documented.

Table 1 – Clinical features in Chikungunya fever

Common symptoms	Other potential symptoms	
Fever	Stomatitis	Photophobia
Arthralgia	Oral ulcers	Retro-orbital pain
Polyarthritis	Hyperpigmentation	Vomiting
Backache	Exfoliative dermatitis	Diarrhea
Headache	(children)	Meningeal syndrome
Rash	Myalgias	

Adapted from WHO SEARO. Guidelines on Clinical Management of Chikungunya Fever, 2008

Clinical manifestations

Presentation and acute disease

CHIK fever affects all age groups and both genders. Following an incubation period of **3-7** days (range: 1-12 days) from the mosquito bite, CHIK virus causes a febrile illness usually associated with arthralgia/arthritis (87%), backache (67%) and headache (62%) (Table 1). The joint pain tends to be worse in the morning, relieved by mild exercise and exacerbated by aggressive movements. Ankles, wrists and small joints of the hand tended to be the worst affected. Larger joints like knee and shoulder and spine were also involved. Migratory polyarthritis with effusions may be seen in around 70% of the cases

Outcome

In a majority of the patients, symptoms resolve in 1 to 3 weeks. However, some patients might have relapse of rheumatologic symptoms (e.g., polyarthralgia, polyarthritis, tenosynovitis) in the months following acute illness. Variable proportions of patients report persistent joint pains for months to years. Neurological, emotional and dermatologic sequelae are also described. Older individuals and those with underlying rheumatic and traumatic joint disorders seem to be more vulnerable to develop the chronic joint symptoms. Mortality is rare and occurs mostly in older adults.

When to refer patients

- Doubt with a disease requiring specific treatment
- Fever persisting for more than five days
- Intractable pain
- Postural dizziness, cold extremities
- Decreased urine output
- Any bleeding under the skin or through any orifice
- Incessant vomiting
- **Pregnancy**
- Persons above 60 years old and newborns

As CHIK fever is an emerging disease it has not received sufficient coverage yet in the medical curricula. Specific treatment is not available, and there is no vaccine. This publication comprises the experience of experts as published in a number of WHO/SEARO and PAHO/WHO guidelines.

Differential diagnosis

CHIK fever may not have the typical manifestations or it may co-exist with other infectious or non-infectious diseases. **Differential diagnosis should take into account epidemiological features such as place of residence, travel history and exposure.**

Some of the diseases which can be considered in differential diagnosis are:

- (1) **Dengue fever** Confirmatory laboratory diagnosis is possible.

Table 2 – Comparison CHIK and DEN (*)

Clinical features	CHIKV fever	Dengue fever
Fever	+++	++
Myalgias	+	++
Arthralgias	+++	+/-
Rash	++	+
Bleeding dyscrasias	+/-	++
Shock	-	+/-
Leukopenia	++	+++
Lymphopenia	+++	++
Neutropenia	+	+++
Trombocytopenia	+	+++

Adapted from PAHO/WHO Preparedness and response for Chikungunya virus in the Americas, 2010
 (*) Mean frequency of symptoms from studies where the two diseases were directly compared among patient seeking care; +++ = 70-100% of patients; ++ = 40- 69%; + = 10-39%; +/- = <10%; - = 0%

- (2) **Leptospirosis**

- (3) **Malaria**

- (4) **Meningitis**

- (5) **Post-infection arthritis**

- (6) **Other viruses:** Mayaro, rubella, measles, parvovirus, enteroviruses.

Laboratory diagnosis

The confirmation of CHIK fever is through any of the following tests: (refer to Table 2)

Table 3 - Laboratory tests for CHIKV

Test	Timing after illness
• Virus culture	First 3 days of illness
• RT-PCR	Day 1 -8
• IgM antibody assay	Day 4 - 2 months
• IgG or neutralizing antibody assay showing rising titers	Two samples separated by 14 days, where first sample is collected after day 7

No significant hematological finding is seen. Leucopenia with lymphocyte predominance is the usual observation. Thrombocytopenia is rare. Erythrocyte sedimentation rate is usually elevated. C-Reactive Protein is increased during the acute phase and may remain elevated for a few weeks.

Principles for clinical management

- There is no specific antiviral drug against CHIK virus
- Treatment is entirely symptomatic.
- Acetaminophen is the initial drug of choice until other etiologies, like dengue, are ruled out.
- Other analgesics like non-steroidal anti-inflammatory drugs or narcotics can be used if acetaminophen does not provide relief.
- During the acute stage of the disease, steroids are not usually indicated because of possible adverse effects.
- Aspirin should be avoided due to theoretical concerns of hemorrhage or Reye's syndrome.
- Mild forms of exercise and physiotherapy are recommended in recovering persons.
- During an epidemic, it is not imperative that all cases undergo virologic/serologic investigations.
- Treatment should be instituted in all suspect cases without waiting for serological or viral confirmation.
- **All suspected cases should be kept under mosquito nets during the febrile period of disease.**
- Communities in the affected areas should be sensitized about the mosquito control measures to be adopted in hospital premises and houses.

Effect on pregnancy

CHIK fever appears to have a direct impact on pregnancy with rare reports of spontaneous abortions and mother-to-child transmission in perinatal period.

Effect on neonates

Mothers afflicted with CHIK fever in the perinatal period (-4 days to +1 days before/after delivery) can transmit CHIK fever to neonates by vertical transmission. Caesarean section does not appear to prevent transmission. Neonatal CHIK fever is associated with fever, poor feeding, pain, distal edema, various skin manifestations, seizures, meningoencephalitis, and echocardiographic abnormalities in the newborn.

Public health measures relevant to clinicians

Patients infected with CHIK virus can be reservoirs of infection for others in the household and in the community. Therefore, public health measures to minimize mosquito exposure become imperative to prevent the outbreak from spreading.

Educate the patient and other members in the household about the risk of transmission to others and ways to minimize the risk by minimizing vector population and minimizing the contact with vector.

Minimizing vector population

- Intensify efforts to reduce larval habitats in and around the houses; remove stagnant water from all junk items lying around in the household and in the peri-domestic areas.

Minimize the vector-patient contact

- Have the patient rest under bed-nets, preferably permethrin-impregnated nets, as well as infants.
- Have the patient as well as other members of the household wear full sleeves to cover extremities.
- Wire-mesh/ nets on doors and windows are recommended.

Reporting

Occurrence of cases in the community needs to be communicated immediately to public health officials to allow for implementation of control measures in the community and district levels.

Case definition

- **Clinical criteria:** acute onset of fever $>38.5^{\circ}\text{C}$ and severe arthralgia/arthritis not explained by other medical conditions.
- **Epidemiological criteria:** residing or having visited epidemic areas, having reported transmission within 15 days prior to the onset of symptoms.

On this basis, cases are to be categorized as

- **Suspect case:** a patient meeting both the clinical and epidemiological criteria
- **Confirmed case:** a suspect patient meeting the laboratory criteria (refer to Table 3).

Blood, Organ and Tissue

Blood-borne transmission is possible. Ask donors to report any illness they experience after donating blood, while holding on to the blood donations for several days (e.g., 2-5 days) prior to releasing it.

References

1. PAHO/CDC. Preparedness and response for Chikungunya virus in the Americas. Washington, D.C.: PAHO, 2011. http://www.paho.org/hq/index.php?option=com_docman&task=doc_download&gid=16984&Itemid=&lang=en
2. World Health Organization, Regional Office of South East Asia Regional Office. Guidelines for the Clinical Management of Chikungunya fever. New Delhi, 2008. http://www.searo.who.int/entity/emerging_diseases/documents/SEA_CD_180/en/index.html
3. CDC. Information for Clinicians. http://www.cdc.gov/chikungunya/pdfs/CHIKV_Clinicians.pdf