

Management Guidelines of Chikungunya Fever

Introduction

Chikungunya fever (CF) is a vector borne viral illness. The disease was documented first time in Tanzania in 1952-1953.

- **Agent**

Chikungunya fever is caused by a single stranded, heat labile RNA virus that belongs to the *Alphavirus* genus of the *Togaviridae*, the family that comprises a number of viruses that are mostly transmitted by arthropods.

- **Vector**

Aedes aegypti is the common vector responsible for transmission in urban areas whereas *Aedes albopictus* has been implicated in rural areas. The adult female mosquito rests in cool and shady areas in domestic and peri-domestic settings and bites during day time.

- **Reservoirs**

During inter-epidemic periods, a number of vertebrates have been implicated as reservoirs. These include monkeys, rodents, birds, and other vertebrates. The exact nature of the reservoir status in South-East Asia Region has not been documented.

- **Incubation period:** 3-7 days (range 2-12 days)

- **Environment**

Outbreaks are most likely to occur in post-monsoon period when the vector density is very high. Human beings serve as Chikungunya virus reservoir during epidemic periods.

There is no significant sex predilection and the virus causes illness in almost all age groups.

Management

Clinical Feature

- Fever (92%)

The fever varies from low grade to high grade, lasting for 24 to 48 hours. Fever rises abruptly in some, reaching 102-104⁰F (39-40⁰C), with shaking chills and rigor and usually subsides with use of antipyretics. No diurnal variation was observed for the fever.

- Arthralgia (87%),

Many patients presented with arthralgia without fever. The joint pain tends to be worse in the morning, relieved by mild exercise and exacerbated by aggressive movements. The pain may remit for 2-3 days and then reappear in a saddle back pattern. Migratory polyarthritides with effusions may be seen in around 70% cases, but resolves in the majority. Ankles, wrists and small joints of the hand were the worst affected. Larger joints like knee and shoulder and spine were also involved. There is a tendency for early and more significant involvement of joints with some trauma or degeneration. Occupations with predominant overuse of smaller joints predisposed those areas to be affected more. (eg. interphalangeal joints in rubber tappers, ankle joints in those standing and walking for a long time e.g., policemen). The classical bending phenomenon was probably due to the lower limb and back involvement which forced the patient to stoop down and bend forward.

- Backache (67%) and
- Headache (62%)
- Rash

Incubation period: 2-4 days

Sequelae

- Persistent arthralgia
- Complete resolution in 87.9 %
- Episodic stiffness and pain
- Persistent stiffness without pain and
- Persistent painful restriction of joint movements.
- Enthesopathy and tendinitis of tendoachilles
- Neurological, emotional and dermatologic sequelae are also described.

Differential diagnosis

- Leptospirosis
- Dengue fever
- Malaria
- Meningitis
- Rheumatic fever

Clinical management

There is no specific antiviral drug against CHIK virus and treatment is entirely symptomatic

- Paracetamol (up to two 500 mg tablets four times daily), is the drug of choice with use of other analgesics if paracetamol does not provide relief
- During the acute stage of the disease, steroids are not usually indicated because of the adverse effects.
- Aspirin is preferably avoided for fear of gastrointestinal and other side effects like Reye's syndrome.
- Mild forms of exercise and physiotherapy are recommended in recovering persons.
- **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.
- Communities in the affected areas should be sensitized about the mosquito control measures to be adopted in hospital premises and houses.
- Cold compresses may help in reducing joint damage
- Consume plenty of water with electrolytes (approximately 2 litres of home available fluids with salt in 24 hours). If possible ensure a measured urine output of more than a litre in 24 hours.
- Refrain from exertion. Mild forms of exercise and physiotherapy are recommended in recovering persons.
- Adequate rest in a warm environment; avoid damp surroundings. Heat may increase/worsen joint pain and is therefore best to avoid during acute stage.

Laboratory Investigation

For treating Chikungunya fever laboratory testing for chikungunya is not encouraged, physicians are requested to not going for laboratory confirmation

The confirmation of Chikungunya fever is through any of the followings:

- Isolation of virus
- PCR
- Detection of IgM antibody
- Demonstration of rising titre of IgG antibody

IgM antibodies demonstrable by ELISA may appear within two weeks. It may not be advisable to do the antibody test in the first week. In some persons it may take six to twelve weeks for the IgM antibodies to appear in sufficient concentration to be picked up in ELISA

- Leucopenia with lymphocyte predominance is the usual observation.
- Erythrocyte sedimentation rate is usually elevated.
- C-Reactive Protein is increased during the acute phase and may remain elevated for a few weeks.

Control and Prevention:

Minimizing vector population

- Remove stagnant water from all junk items lying around in the household and in the peri-domestic areas
- Stagnating water in flower pots or similar containers should be changed daily or at least twice weekly.
- Introduce larvivorous fish in aquaria, garden pools, etc
- Weeds and tall grasses should be cut short to minimize shady spaces where the adult insects hide and rest during hot daylight hours
- Drain all water stagnating after rains
- Fogging and street sanitation with proper waste management (fogging does not appear to be effective, yet it is routinely implemented in epidemic situation)

Minimize the vector-patient contact

- At household level:
 - Have the patient rest under bed-nets, preferably permethrin impregnated nets
 - Have infants in the house sleep under similar bed nets
 - Insecticide sprays: bed rooms, closets and crevices, bathrooms, kitchens, nooks and corners; alternatively, coils, mats etc
 - Have the patient as well as other members of the household wear full sleeves to cover extremities, preferably bright coloured clothes
 - Wire-mesh/ nets on doors and windows

Risk communication to the household members

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

Reporting:

Reporting to the nearest health authority or Institute of Epidemiology, Disease Control and Research (IEDCR) if any outbreak suspected