



Diagnosis and treatment of chikungunya

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ABSTRACT:

Motivation behind survey in this audit, we endeavour to give the peruser a report on clinical conclusion, the board, and treatment of Chikungunya infection (CHIKV) contamination with respect to the course of the sickness and the job of clinical research facility. CHIKV contamination advances through three stages: intense, sub-intense, and constant. Convention for patient appraisal and the board ought to be in concurrence with each stage necessities. Ongoing discoveries in spite of its amiability, CHIKV disease has shown an expansion in extreme cases during late flare-ups. Among the most impacted gathering are youngsters, older populace, and patients with co-morbidities. Moreover, since CHIKV topographical dissemination and clinical range covers with other arboviruses, differential analysis becomes vital for doctors to guarantee great administration and treatment for patients. In this audit, we depict and look at the principle manifestations, confusions, and hazard bunches for CHIKV, Dengue (DENV), and Zika (ZIKV) contaminations, with respect to key elements will manual for a precise determination. Rundown CHIKV is a rising and reemergent arbovirus that showed up in the Americas in 2014, causing huge number of diseases. The intense febrile stage is like that of dengue yet with a higher extent of incapacitating arthralgia that can persevere for quite a long time or even a long time after contamination. Serious types of CHIKV disease can prompt constant polyarthralgia, neurologic indications, or multiorgan disappointment. Treatment of CHIKV disease is principally centred on steady consideration, which incorporates the utilization of pain relieving and calming drug, rehydration, and rest. ^[1]

KEYWORDS: Chikungunya, Health, Emergence Symptoms, Treatment.

INTRODUCTION:

Chikungunya infection (CHIKV) is an arthropod-borne infection that is sent by Aedes (Ae.) mosquitoes. It was first confined in 1952 in the Makonde Plateau of the southern area of Tanzania (previous Tanganyika). The infection transmission cycle requires contamination of female mosquitoes by means of a viraemic blood meal taken from a powerless vertebrate host and, following a reasonable outward hatching period, transmission to one more vertebrate host during resulting taking care of (Solignat et al., 2009). After a brooding period, most patients experience the ill effects of polyarthralgia and myalgia, with a huge effect on their personal satisfaction. Chikungunya fever is portrayed by an extremely high viraemic burden and associative anomalies like articulated lymphopenia and moderate thrombocytopenia. The pace of asymptomatic cases is lower, and the level of contaminated patients requiring clinical consideration is higher, than in most other normal arboviral diseases. After the intense stage, a few patients experienced backslide, diligent arthralgia or outer muscle torments. Increment old enough is the clearest hazard factor related with extreme infection or industrious manifestations in grown-ups, while in pediatric populaces, infants have a higher hazard of extreme illness. Since the primary reports of chikungunya fever in Africa in the early 1950s, in excess of 1500 logical distributions on various angles of the infection and its causative specialist have been created. Examination of these distributions shows that, following various investigations in the 1960s and 1970s, and without a trace of autochthonous cases in created nations, the interest of mainstream researchers stayed low. Be that as it may, in 2005 chikungunya fever suddenly reappeared through decimating pestilences in and around the Indian Ocean. These flare-ups were related with transformations in the viral genome that worked with the replication of the infection in Aedes albopictus mosquitoes. From that point forward, almost 1000 distributions on chikungunya fever have been referred to in the PubMed information base. The peruser is alluded to Supplementary Tables 1-6 for arrangements of all WHO episode notices, ProMED Mail cautions, viral groupings accessible on GenBank, and PubMed reports of clinical cases and seroprevalence studies.

Because of versatile changes of the viral genome, specifically the A226V transformation in the E1 glycoprotein, that increment viral replication in this particular vector. In view of the incomplete E1 underlying glycoprotein or complete genomic arrangements, three phylogroups of CHIKV (West-African, Asian, and East-Central-South-African) ^[1]

Which obviously course in areas that show distinctive biological foundations have been distinguished. No authorized antibody against chikungunya is industrially accessible, however a few methodologies are under study. In segments beneath we audit a few medications which have shown antiviral movement against

CHIKV or action against the incendiary manifestations related with CHIKV contamination. Treatment of standard introductions of chikungunya fever presently depends on paracetamol/acetaminophen what's more non-steroidal mitigating drugs. Chloroquine isn't suggested at the intense period of the sickness. Ribavirin has been utilized in a few extreme introductions however exceptionally restricted data is accessible to affirm its viability.^[3] Ongoing examinations might lead to the recognizable proof of new antiviral up-and-comers with an obviously characterized instrument of viral hindrance in cell-based frameworks and critical movement in creature models. Restorative conventions for extreme cases may likewise be set up in light of explicit immunoglobulins or then again particles that can impede a few parts of the provocative reaction related with CHIKV disease. For constant rheumatic appearance and fiery polyarthritis enduring more than 2-3 months, infection altering hostile to rheumatic medications such as methotrexate are suggested. As portrayed underneath, studies in creature models recommend that aggravation, macrophage tissue tropism and nearby popular perseverance are engaged with the foundation of constant sickness. ^[2]

HISTORY:

Chikungunya is a contamination brought about by the Chikungunya infection (CHIKV). Symptoms incorporate fever and joint pains. These commonly happen two to twelve days after exposure. Other indications might incorporate migraine, muscle torment, joint expanding, and a rash. Symptoms normally improve inside seven days; notwithstanding, sporadically the joint torment might keep going for a really long time or years. The danger of death is around 1 in 1,000. The extremely youthful, old, and those with other medical issues are in danger of more serious disease. The infection is spread between individuals by two sorts of mosquitos: *Aedes albopictus* and *Aedes aegypti*. They principally nibble during the day. The infection might flow inside various creatures including birds and rodents. Diagnosis is by either testing the blood for the infection's RNA or antibodies to the virus. The side effects can be confused with those of dengue fever and Zika fever. It is accepted a great many people become resistant after a solitary infection. ^[2]

The best method for counteraction is generally speaking mosquito control and the evasion of nibbles in regions where the infection is common. This might be somewhat accomplished by diminishing mosquito admittance to water and with the utilization of bug repellent and mosquito nets. There is no antibody and no particular treatment as of 2016. Recommendations incorporate rest, liquids, and prescriptions to assist with fever and joint pain. While the infection ordinarily happens in Africa and Asia, episodes have been accounted for in Europe and the Americas since the 2000s. In 2014 in excess of 1,000,000 speculated cases occurred. In 2014 it was happening in Florida in the mainland United States yet starting at 2016 there could have been no further privately procured cases. The sickness was first recognized in 1952 in Tanzania. The term is from the Kimakonde language and signifies "to become contorted". ^[3]

SYMPTOMS:

A great many people contaminated with chikungunya infection will foster a few side effects. Side effects ordinarily start 3-7 days after a contaminated mosquito tears into you. The most widely recognized side effects are fever and joint torment. Different indications might incorporate migraine, muscle torment, joint expanding, or rash. Chikungunya sickness doesn't frequently bring about death, however the indications can be extreme and handicapping. Most patients feel better inside seven days. In certain individuals, the joint aggravation might persevere for quite a long time. Individuals in danger for more serious illness incorporate infants contaminated around the hour of birth, more established grown-ups (≥ 65 years), and individuals with ailments, for example, hypertension, diabetes, or coronary illness. When an individual has been contaminated, the person is logical shielded from future diseases. After the chomp of a contaminated mosquito, beginning of disease ordinarily happens 4 after 8 days (however can go from 2-12 days). Chikungunya is described by an unexpected beginning of fever, habitually joined by joint agony. The joint aggravation is regularly extremely weakening; it generally goes on for a couple of days, however might be drawn out for weeks, months or even a long time. Consequently, the infection can cause intense, sub-acute or ongoing sickness. Other normal signs and manifestations incorporate muscle torment, joint expanding, migraine, sickness, weariness and rash. The side effects in contaminated people are typically gentle and the disease might go unnoticed or might be misdiagnosed. The manifestations can likewise be like other arboviruses; in regions where there is co-flow, chikungunya is regularly misdiagnosed as dengue2. In contrast to dengue be that as it may, chikungunya seldom advances to become perilous. Periodic instances of ophthalmological, neurological and heart inconveniences have been accounted for with chikungunya infection contaminations, just as gastrointestinal grievances. Genuine entanglements are not normal, but rather in more established individuals with other ailments, the illness can add to the reason for death. Most patients recuperate completely from the contamination, however sometimes joint agony might persevere for quite a long time, or even a long time. When an individual is recuperated, they are probably going to be resistant from future diseases. ^[4]

DIAGNOSIS:

These illnesses are spread by the very mosquitoes that send chikungunya. See your medical services supplier assuming you foster the side effects portrayed above and have visited a region with chikungunya.^[5-6] on the off chance that you have as of late voyaged, tell your medical care supplier when and where you voyaged. Your medical services supplier might arrange blood tests to search for chikungunya or other comparable infections like dengue and Zika. A few strategies can be utilized for determination of chikungunya infection contamination. Serological tests, for example, compound connected immunosorbent measures (ELISA), may affirm the presence of IgM and IgG hostile to chikungunya antibodies. IgM neutralizer levels are most elevated 3 to 5 weeks after the beginning of disease and persevere for around 2 months.^[5]

The infection might be straightforwardly identified in the blood during the initial not many long periods of disease also. Thusly, tests gathered during the principal seven day stretch of disease ought to be tried by both serological and virological techniques (especially invert transcriptase-polymerase chain response (RT-PCR)). Different RT-PCR strategies are accessible yet with variable awareness. Some are fit to clinical diagnostics. RT-PCR items from clinical examples may likewise be utilized for genotyping of the infection, permitting correlations with infection tests from different geological sources.^[6]

TREATMENT:

The clinical administration targets essentially to soothing the indications, including the joint aggravation utilizing against pyretic, ideal analgesics, drinking a lot of liquids and general rest. Medications, for example, paracetamol or acetaminophen are prescribed to relief from discomfort and lessening fever. Given the closeness of indications among chikungunya and dengue, in regions where both infections circle, suspected chikungunya patients ought to try not to utilize ibuprofen or Non-steroidal mitigating drugs (NSAIDs) until which time a dengue analysis is precluded (on the grounds that in dengue, these medications can build the danger of dying).^[6]

Get a lot of rest. Drink liquids to forestall drying out. Take medication like acetaminophen (Tylenol) or paracetamol to decrease fever and torment. Try not to take headache medicine and other non-steroidal mitigating drugs (NSAIDs until dengue is precluded to decrease the danger of dying). Assuming you are taking medication for one more ailment, converse with your medical services supplier prior to taking extra drug. Assuming you have chikungunya, forestall mosquito nibbles for the primary seven day stretch of your ailment. During the primary seven day stretch of disease, chikungunya infection can be found in a contaminated individual's blood and passed from that individual to a mosquito through mosquito chomps. A tainted mosquito can then spread the infection to others.^[7] The infection is seldom lethal, however the indications can be extreme and impairing. Most patients recuperate from the fever inside seven days, however the joint torment has been known to continue for quite a long time. Indeed, even following 1 year, 20 percent of patients report repeating joint agony. There are no particular medications to treat chikungunya; specialists just suggest rest and a lot of liquids. Over-the-counter meds will assist with facilitating fever and joint torment.^[8]

PREVENTION AND CONTROL:

On the off chance that you realize you have chikungunya, abstain from getting further mosquito chomps during the principal seven day stretch of disease. Infection might be flowing in the blood during this time, and along these lines you might communicate the infection to new mosquitoes, who may thusly contaminate others. The closeness of mosquito vector reproducing locales to human residence is a critical danger factor for chikungunya just as for different infections that Aedes mosquito species communicate. As of now, the primary strategy to control or forestall the transmission of chikungunya infection is to battle the mosquito vectors. Avoidance and control depends intensely on lessening the quantity of normal and counterfeit water-filled compartment natural surroundings that help reproducing of the mosquitoes. This requires activation of impacted and in danger networks, to void and clean holders that contain water consistently to restrain mosquito reproducing and the resulting creation of grown-ups. Supported people group endeavours to diminish mosquito rearing can be a compelling device to decrease vector populaces.^[7]

During episodes, insect poisons might be showered to kill flying mosquitoes, applied to surfaces in and around compartments where the mosquitoes land, and used to get water in holders kill the juvenile hatchlings. For assurance during flare-ups of chikungunya, clothing which limits skin openness to the day-gnawing vectors is encouraged. For the individuals who rest during the daytime, especially little youngsters, or wiped out or more seasoned individuals, insect spray treated mosquito nets manage the cost of good insurance, on the grounds that the mosquitoes that communicate chikungunya feed fundamentally during the day. Fundamental precautionary measures ought to be taken by individuals going to chance regions and these incorporate utilization of anti-agents, wearing long sleeves and pants and guaranteeing rooms are fitted with screens to keep mosquitoes from entering.^[9]

Pharmacological treatment of torment during the intense stage - The accompanying suggestions depended on a convention created by a multiprofessional bunch for the therapy of torment in chikungunya. The reference convention depends on the visual simple scale (VAS), in which torment force fluctuates from 0-10, with 0 implying the shortfall of torment and 10 showing its most extreme articulation.^[10] Every so often, the pressure brought about by the sickness will in general lead the patients to exaggerate their torment power. Therefore, we suggest supplementing VAS with a clinical assessment by a doctor. Specialized rules are also given in a report created by an organized work bunch in line with the French Ministry of Health. Prior to starting treatment during this stage, the doctor should notice specific safety measures to forestall unfortunate responses: Ask the patient with regards to any set of experiences of sensitivities or unfriendly responses to the drug that will be utilized (e.g., hypersensitive responses, blood vessel hypotension, tiredness, stomach related appearances). Research the presence of any comorbidity that might make antagonistic

responses the prescription utilized during this treatment stage, like diabetes, blood vessel hypertension, glaucoma, renal deficiency, and cardiomyopathies. ^[6]

Gentle power torment (VAS from 1 to 3) - The two most regularly utilized analgesics are dipyron and paracetamol, which offer very acceptable outcomes when they are accurately recommended. For a grown-up individual gauging in excess of 60 kg, dipyron is suggested at a measurement of 1.0 g each 6 h. Paracetamol might be endorsed at doses of 500-750 mg each 4-6 h, not surpassing the greatest day by day measurement of 4.0 g because of the danger of hepatotoxicity. Moderate-power torment (VAS from 4 to 6) - For torment characterized as moderate-force, i.e., VAS somewhere in the range of 4 and 6, dipyron and paracetamol ought to be recommended together in similar fixed doses (6/6 h), exchanging their organization each 3 h, accordingly giving the patient a pain relieving portion of an alternate item every 3 h. In instances of aversion to dipyron, tramadol hydrochloride ought to be utilized. ^[6] notwithstanding, the utilization of these two medications should be viewed as cautiously in pregnant or breastfeeding patients. At the point when moderate agony doesn't die down with the utilization of dipyron with paracetamol, the 4-Question Neuropathic Pain Diagnostic Questionnaire (DN4) ought to be applied (Bouhassira et al., 2005). For patients with extreme neuropathic agony, 25 or 50 mg of amitriptyline hydrochloride might be joined with the pain relieving being utilized (dipyron or paracetamol). Two different drugs may likewise enhance the pain relieving: 300 mg of gabapentin two times every day (complete of 600 mg/day), with a most extreme measurements of 1,200 mg/day or 75 mg of pregabalin two times per day as the beginning portion, which might be expanded to a greatest dose of 600 mg/day (300 mg two times per day). Severe safeguards should be followed with respect to the utilization of antidepressants and anticonvulsants. For instance, the utilization of amitriptyline ought to be kept away from in more seasoned grown-ups, for whom gabapentin is suggested and should be endorsed in moderate portions. Furthermore, the utilization of amitriptyline isn't suggested for patients with one or the other a past or existent history of cardiovascular arrhythmia. ^[13]

Extreme power torment (VAS from 7 to 10) - To ease serious force torment, dipyron or paracetamol ought to be joined with a narcotic. Narcotics might cause sickness and obstruction, which might be mitigated effectively with the utilization of routine antiemetic's and intestinal medicines. ^[5] Among the most often utilized narcotic medications are tramadol hydrochloride, which is ordinarily endorsed at a measurements of 50-100 mg orally every 6 h and 30 mg of codeine joined with paracetamol (500 mg) each 6 h. Should the aggravation endure at a similar power following multi week of utilizing a pain relieving with a narcotic, the DN4 survey should be applied. Whenever affirmed the neuropathic torment one of the recently depicted choices for moderate-power torment, with a similar trademark (neuropathic torment), ought to be utilized. Assuming that the DN4 survey results prohibit the presence of neuropathic torment, the utilization of corticosteroids or NSAIDs ought to be considered in light of the fact that, now, the infection will have as of now advanced for a little while. ^[14] The drugs and particular doses are equivalent to portray for torment in the post-intense stage. All precautionary measures in regards to the utilization of narcotics and corticosteroids should be followed and the avoidance models for these classes of medications should be examined completely in light of the fact that the commonness of conditions like diabetes, hypertension, glaucoma, and serious cardiomyopathies is very high among everyone in Brazil. ^[15]

Pregnant ladies - Paracetamol is the principal choice to assuage the aggravation brought about by chikungunya in pregnant ladies and the portion ought not to surpass 4 g/day. From the 24th seven day stretch of development onwards, all NSAIDs (counting anti-inflammatory medicine and effective NSAIDs) are contraindicated because of the dangers of fetal renal disappointment and conclusion of the ductus arteriosus. Playing out a caesarean segment to forestall the transmission of CHIKV to the infant has not been suggested. On the other hand, in spite of the fact that actions pointed toward postponing conveyance past the viraemic stage have been endeavoured, positive outcomes have not been reliably accomplished (Simon et al., 2015). ^[24]

Infants and youngsters - New-borns whose moms had affirmed viraemia in the period preceding birth ought to be set under neonatal observing for five days at a similar birthing office (Simon et al., 2015). Kids with exemplary chikungunya illness are dealt with apparently as grown-ups, keeping away from NSAIDs in new-born children more youthful than 90 days old enough or before 10 days of infection movement. Codeine isn't suggested for kids under 12 years old and ought to be held for cases stubborn to paracetamol. ^[11-12]

Treatment of agony in the post-intense stage - The post-acute stage is viewed as the period between the 22nd day after the beginning of sickness and the finish of the third month. As portrayed, the level of patients with supported clinical signs past the initial three weeks is variable. Recommending meds for patients in this stage is pointed toward assuaging joint agony, which is typically an outcome of joint and per articular incendiary cycles, and hence, relief from discomfort is contingent on the goal of the irritation. ^[23-25] The presence of a neuropathic part to the aggravation ought to stay being scrutinized utilizing the DN4 survey and, if present, the utilization of antidepressants or anticonvulsants ought to be suggested. Since the steadiness of aggravation and torment amplifies patient affliction, mental help is fundamental, and the utilization of antidepressants, regardless of neuropathic torment is irreplaceable. ^[16]

CONCLUSION:

There is an adage, 'Avoidance is superior to fix'. This is exceptionally huge if there should be an occurrence of chikungunya assault. The episode of chikungunya is currently a question of concern. There is treatment accessible however the immunization or explicit medication has not found at this point. The treatment design is connected with dengue, however not at all like dengue, the aggravation is extreme. As the transporter of this infection is mosquito, the evasion of mosquito nibble is the super preventive measure to forestall chikungunya fever. ^[21-22] there is right now no conclusive proof that medicines past moderate NSAID treatment in more serious cases have any viability. In cases hard-headed to torment easing by NSAIDs, frail narcotics, for example, tramadol or codeine can be added. While examinations concerning elective medicines like inhibitors of viral replication, against cytokine treatments, and siRNA have happened, their efficacies and utilities in a clinical setting are at this point unclear. While creature models have been valuable to concentrate on intense joint sickness exhibiting proof for viral tirelessness, no models exist for improvement of ongoing joint illness related with CHIKV disease. Consequently, to additionally clarify the likely job of CHIKV in

persistent cases and to build up the adequacy of elective treatments, clinical examinations are required. There is an incredible requirement for detailing clinical data related with both intense and ongoing cases. ^[17-18]

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