CHIKUNGUNYA IN AYURVEDIC PERSPECTIVE AND ITS MANAGEMENT-A REVIEW ARTICLE

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ABSTRACT

Chikungunya is caused by an arbovirus and transmitted by Aedes aegypti mosquito. Chikungunya is a viral disease that is very similar in symptoms and etiology to the disease, dengue fever. The virus responsible for chikungunya is alpha virus, which is transmitted through the aedes aegypti mosquito, which is active only in the daytime. The aedes aegypti mosquito is the same mosquito that is responsible for the transmission of dengue fever among humans. High fever and arthritic pain, especially severe pain on extremities is characteristic of chikungunya fever. In allopathic, there is no treatment of this disease, treatment is based on the symptoms. In Ayurveda Chikungunya is known as Sandhijvara which literally means "Fever of the joints". The symptoms of Sandhijvara and Chikungunya are very similar and hence Ayurveda treatment provides relief for the disease.

Keywords: chikungunya, arbovirus, aedes aegypti, sandhijvara,

INTRODUCTION

Chikungunya is a mosquito-borne viral disease first described during an outbreak in Southern Tanzania in 1952. It is an RNA virus that belongs to the alphavirus genus of the family Togaviridae. The name “chikungunya” derives from a word in the Kimakonde language, meaning “to become contorted”, and describes the stooped appearance of sufferers with joint pain (arthritis).

HISTORY

The word 'chikungunya' is believed to have been derived from a description in the makonde language, meaning "that which bends up", of the contorted posture of people affected with the severe joint pain and arthritic symptoms associated with this disease¹. The disease was first described by Marion Robinson² and W.H.R. Lumsden³ in 1955, following an outbreak in 1952 on the Makonde Plateau, along the border between Mozambique and Tanganyika (the mainland part of modern-day Tanzania).

According to the initial 1955 report about the epidemiology of the disease, the term 'chikungunya' is derived from the makonde
root verb *kungunyala*, meaning to dry up or become contorted. In concurrent research, Robinson glossed the Makonde term more specifically as "that which bends up". Subsequent authors apparently overlooked the references to the Makonde language and assumed the term to have been derived from Swahili, the *linguafranca* of the region. The erroneous attribution to Swahili has been repeated in numerous print sources. Many erroneous spellings of the name of the disease are also in common use. Since its discovery in Tanganyika, Africa, in 1952, chikungunya virus outbreaks have occurred occasionally in Africa, South Asia, and Southeast Asia, but recent outbreaks have spread the disease over a wider range.

**Signs and symptoms:**

Chikungunya is characterized by an abrupt onset of fever frequently accompanied by joint pain. Other common signs and symptoms include muscle pain, headache, nausea, fatigue and rash. The joint pain is often very debilitating, but usually lasts for a few days or may be prolonged to weeks. Hence the virus can cause acute, subacute or chronic disease. Most patients recover fully, but in some cases joint pain may persist for several months, or even years. Occasional cases of eye, neurological and heart complications have been reported, as well as gastrointestinal complaints. Serious complications are not common, but in older people, the disease can contribute to the cause of death. Often symptoms in infected individuals are mild and the infection may go unrecognized, or be misdiagnosed in areas where dengue occurs.

**Transmission:**

Chikungunya has been identified in over 60 countries in Asia, Africa, Europe and the Americas. This virus is transmitted from human to human by the bites of infected female mosquitoes. Most commonly, the mosquitoes involved are *Aedes aegypti* and *Aedes albopictus*, two species which can also transmit other mosquito-borne viruses, including dengue. These mosquitoes can be found biting throughout daylight hours, though there may be peaks of activity in the early morning and late afternoon. Both species are found biting outdoors, but *Ae. aegypti* will also readily feed indoors. After the bite of an infected mosquito, onset of illness occurs usually between 4 and 8 days but can range from 2 to 12 days.

**Diagnosis:**

Several methods can be used for diagnosis. Serological tests, such as enzyme-linked immunosorbent assays (ELISA), may confirm the presence of IgM and IgG anti-chikungunya antibodies. IgM antibody levels are highest 3 to 5 weeks after the onset of illness and persist for about 2 months. Samples collected during the first week after the onset of symptoms should be tested by both serological and virological methods (RT-PCR). The virus may be isolated from the blood during the first few days of infection. Various reverse transcriptase–polymerase chain reaction (RT–PCR) methods are available but are of variable sensitivity. Some are suited to clinical diagnosis. RT–PCR products from clinical samples may also be used for genotyping of the virus, allowing comparisons with virus samples from various geographical sources.

**Treatment:** There is no specific antiviral drug treatment for chikungunya. Treat-
Prevention and control

The proximity of mosquito vector breeding sites to human habitation is a significant risk factor for chikungunya as well as for other diseases that these species transmit. Prevention and control relies heavily on reducing the number of natural and artificial water-filled container habitats that support breeding of the mosquitoes. This requires mobilization of affected communities. During outbreaks, insecticides may be sprayed to kill flying mosquitoes, applied to surfaces in and around containers where the mosquitoes land, and used to treat water in containers to kill the immature larvae.

For protection during outbreaks of chikungunya, clothing which minimizes skin exposure to the day-biting vectors is advised. Repellents can be applied to exposed skin or to clothing in strict accordance with product label instructions. Repellents should contain DEET (N, N-diethyl-3-methylbenzamide), IR3535 (3-[N-acetyl-N-butyl]-aminopropionic acid ethyl ester) or icaridin (1-piperidinecarboxylic acid, 2-(2-hydroxyethyl)-1-methylpropylester). For those who sleep during the daytime, particularly young children, or sick or older people, insecticide-treated mosquito nets afford good protection. Mosquito coils or other insecticide vaporizers may also reduce indoor biting.

Basic precautions should be taken by people travelling to risk areas and these include use of repellents, wearing long sleeves and pants and ensuring rooms are fitted with screens to prevent mosquitoes from entering.

AYURVEDIC APPROACH TO CHIKUNGUNYA:

In Ayurveda Chikungunya is known as Sandhijwara which literally means "fever of the joints". The symptoms of Sandhijvara and Chikungunya are very similar and hence Ayurveda treatment provides relief for the disease. Since there is no medicine for Chikungunya in allopathy, people increasingly turning to traditional Indian medicines (ayurveda). Some of the kashayams (decotions) prescribed are Amritharista, MahasudarshanaChurna, panchathikthakashayam, SudarshanChurnam, DhanvantaramGutika and AmruthotharamKashayam. Ancient ayurveda describes a similar condition called Sandhijvara which is similar to Chikungunya in its symptoms (joint pain). Hence some of the medicines can soothe joint pain.

Though there is no direct reference of Chikungunya, but it can be equated with the condition when Jvara is associated with arthritis. In Ayurvedic literature, we can find such references where fever is associated with arthralgia/ arthritis. The symptoms of Vata Pitta Jvara and VataKaphaJvara are similar to the symptoms of Chikungunya fever to some extent. (Table-1) The description of SandhigataSannipataJvara mentioned by Bhava Prakkasha (1550AD) can be equated with Chikungunya fever. SandhigataSannipataJvara is characterised by fever, joint pains and swelling, sleeplessness, cough etc., Bhela Samhita (Sutra Sthana, 13) has mentioned Sharadajvara – a seasonal fever that occurs preceding the rainy season, usually attributable to viral fevers.
**Sandhigasannipatajvara:**
According to bhavprakashsamhita following symptoms are found in sandhigajvara\(^9\) -
1. severe pain in joint.
2. Swelling in the joint.
3. Too much kapha accumulation in the mouth.
4. Loss of sleep.

**Table-1 Symptoms of Chikungunya which can be correlated with Jvaralakshanas mentioned in different Ayurvedic texts.**

<table>
<thead>
<tr>
<th>Name of the Text</th>
<th>Type of Jvara/Roga</th>
<th>Fever</th>
<th>Chills</th>
<th>Arthritis/Arthralgias</th>
<th>Headache</th>
<th>Nausea</th>
<th>Vomiting</th>
<th>Fatigue</th>
<th>Sleeplessness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch.S.Ch(^10)</td>
<td>VP</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
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<tr>
<td>VK</td>
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<td>-</td>
</tr>
<tr>
<td>Su. S.U.(^11)</td>
<td>VP</td>
<td>+</td>
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<td>+</td>
<td>+</td>
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<tr>
<td>VK</td>
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</tr>
<tr>
<td>As. H. Ni</td>
<td>VP</td>
<td>+</td>
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<td>VK</td>
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</tr>
<tr>
<td>As.S.Ni.(^12)</td>
<td>VP</td>
<td>+</td>
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<td>VK</td>
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</tr>
<tr>
<td>Ma.Ni(^13)</td>
<td>VP</td>
<td>+</td>
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<td>+</td>
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<td>VK</td>
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<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bh.Pr. Ma.(^14)</td>
<td>Sandhigata Sannipatajvara</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
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<td>+</td>
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</tbody>
</table>


**Management of Chikungunya in Ayurveda:**

Chiktsa according to bhavprakashsamhita as mentioned in sandhigajvara\(^15\)
1. decoction of sathis, surtaru ,uttma(triphala), sthaviradaru(vrdhhdaru), rasna, nagara ,sudha(guduci), shatavari and pura(guggulu), prepared over mild fire and consumed cure sandhigajvara (fever associated pain in the joint) taking care not to indulge in cold comforts(water and other drink, food, bath etc).
2. decoction of vacha, kavaca (parpata), kachura (dhanyasava), sahchara, amrita, bhangura (ativisha), surahva (devadaru), Ghana (musta), nagara,atarundaru (vraddhadaru),


rasna, pura, vrsa (brahtadanti), taruna (aranda), and bhiru (shatavari) consumed cure sandhikagraha (pain in the joint), inactivity of the thighs, inability of walking, giddiness and even hemiplegia.

3. Suradaru, sati, sudha ,lata(guduci), suvaha(rasna), sunthi and amrita made into decoction, added with pura (guggulu) and consumed continuously for some days cure sandigatavata.

4. musta, aranda, pranada (haritaki), bana (nilasahachara), daru (devadaru), echinna (guduci), rasna, bhiru (shatavari), karura, tikta (katuka), vacha, visva, panchamula(brahta), and ashwagandha—all made into decoction and consumed cures stiffness of the neck, pain in the joints etc.

**Chikungunya is not a life threatening infection. The treatment modalities of Chikungunya can be categorised into symptom modifiers and general health promoters; more specifically to say the drugs which improve the Quality of Life (QOL) and Vector control measures/ agents are beneficial in the management of Chikungunya.**

(a.) **Symptom modifiers:** The agents that alleviate symptoms are categorised under symptom modifiers such as-

1. **Jvara hara** (anti pyretics)
2. **Sotha hara** (anti inflammatory)
3. **Vedanaa hara** (analgesics)
4. **Kushtghna** (Skin diseases)
5. **Kandughna** (anti pruritic)
6. **Kasa hara** (anti tussive)
7. **Swasa hara** (anti dyspnoeic)
8. **Atisara hara** (anti diarrhoeal) etc.,

(b) **General Health Promoting agents**

The agents that improve Quality Of Life (QOL), provides strength or resistance against the disease and also facilitate early recovery are classified under General Health Promoters such as

1. Balya (Tonic)
2. Rasayana (Immunomodulator)

(c) **Vector control measures/agents**

Vector control measures are mostly physical measures for environmental cleanliness.

1. Dhoopana ( for Fumigation)
2. Bhuthaghna & Rakshoghna (Anti microbial agents)

List of some single drugs can be used in Chikungunya fever –

(a). **Symptom Modifiers:**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Sanskrit Name</th>
<th>Botanical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Guduchi</td>
<td>Tinosporacordifolia</td>
</tr>
<tr>
<td>2.</td>
<td>Sunthi</td>
<td>Zingiberofficinale</td>
</tr>
<tr>
<td>3.</td>
<td>Patha</td>
<td>Andrographispaniculata</td>
</tr>
<tr>
<td>4.</td>
<td>Tulsi</td>
<td>Oscimum sanctum</td>
</tr>
<tr>
<td>5.</td>
<td>Nimbi</td>
<td>Azadiractaindica</td>
</tr>
<tr>
<td>6.</td>
<td>Haritaki</td>
<td>Terminalia chebula</td>
</tr>
<tr>
<td>7.</td>
<td>Vibhitaki</td>
<td>Terminalia belerica</td>
</tr>
<tr>
<td>8.</td>
<td>Amalaki</td>
<td>Emblica officinalis</td>
</tr>
<tr>
<td>9.</td>
<td>Manjishta</td>
<td>Rubiacordifolia</td>
</tr>
<tr>
<td>10.</td>
<td>Musta</td>
<td>Cyperusrrotundus</td>
</tr>
<tr>
<td>11.</td>
<td>Katuki</td>
<td>PicrorrhizaKurro</td>
</tr>
<tr>
<td>12.</td>
<td>Rasna</td>
<td>Pluchealanceolata</td>
</tr>
</tbody>
</table>
13. Guggulu Commiphorawightii
14. Haridra Curcuma longa
15. Shallaki Bosweliaserrata
16. Nirgundi Vitexnegundo

(b). General health Promoters:
1. Aswagandha Withaniasomnifera
2. Amalaki Emblica officinalis
3. Guduchi Tinosporacordifolia
4. Yastimadhu Glycyrrhizaglabra

(c). Vector controlmeasures
1. Tulsi Ocimum sanctum
2. Nimba Azadirachtaindica
3. Aparajita Clitoreaterneta
4. Vacha Acoruscalamus
5. Jatamansi Nardostachysjatamansi
6. Guggulu Commiphorawightti
7. Salaparni Desmodiumgangeticum
8. Sala Shorearobusta

The commonly used Ayurvedic poly herbal/ herbo-mineral/ metallic formulations in the management of Chikungunya symptoms viz., fever, arthritis/ arthralgia, etc.,

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Indication</th>
<th>Name of the Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Parsvasula, Jvara</td>
<td>DasamulaKvatha</td>
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<tr>
<td>2.</td>
<td>KaphaJvara</td>
<td>NimbadiKvathaCurna</td>
</tr>
<tr>
<td>3.</td>
<td>Jvara</td>
<td>PatoladiKvathaCurna</td>
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<tr>
<td>4.</td>
<td>Jvara</td>
<td>PanchatiktaKvathaCurna</td>
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<tr>
<td>5.</td>
<td>Sandhi vedana</td>
<td>MaharasnadiKvathaCurna</td>
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<tr>
<td>6.</td>
<td>Jvara</td>
<td>SadangakvathaCurna</td>
</tr>
<tr>
<td>7.</td>
<td>Sandhi sotha, Vataroga</td>
<td>MahaYogarajGuggulu</td>
</tr>
<tr>
<td>8.</td>
<td>Sandhi sotha, Vataroga</td>
<td>YogarajGuggulu</td>
</tr>
<tr>
<td>9.</td>
<td>Jvara</td>
<td>SudarshanCurna</td>
</tr>
<tr>
<td>10.</td>
<td>Jvara</td>
<td>Ananda bhirava Rasa</td>
</tr>
<tr>
<td>11.</td>
<td>JirnaJvara</td>
<td>ArogyavardhaniGutika</td>
</tr>
</tbody>
</table>

Jvara hara Dhoomachurnas described in BhaishajyaRatnavali
1. AstangaDhooma Guggulu, Nimba Patra, Vacha, Kushta, Haritaki, Yava, Sarasapa and Ghrita all mixed together and burnt.

2. AparajithaDhoomaCurna

Guggulu,Gandhatrina, Vacha, Sarja, Nimba, Arka, Agaru, Devadaru mixed together and burnt.

Diet and Life style adoption:-
Ahara (Diet):
1. Always have home made fresh food, plenty of lukewarm liquids, light and warm diet, liberally use ginger and turmeric in foods.
2. Always avoid food prepared under unhygienic conditions, contaminated and stale food, Cold drinks, beverage etc.,

**Vihara (Life style):**
1. Avoid visiting the disease prevalent areas
2. Proper sanitation measures to be followed.

**CONCLUSION**
Chikungunya is not a fatal disease and proper Chikungunya treatment can help you to combat it. However, it is important to keep the surroundings clean to prevent the spread of the disease. Ayurvedic management is extremely good and helps patients recover faster. Because there is no allopathic treatment so we have no other choice. in ancient period chikungunya was not found but we can correlate this disease with sandhigatja-ra which mentioned in the bhavprakasham-hita.

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