DENGUE IN AYURVEDIC PERSPECTIVE AND ITS MANAGEMENT-

A REVIEW ARTICLE

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ABSTRACT

Dengue is caused by Aedes aegypti mosquito. Dengue is a viral disease that is similar in symptoms and etiology to the disease, Chikungunya. Dengue virus belongs to family Flaviviridae, having four serotypes that spread by the bite of infected Aedes mosquitoes. In allopathic, there is no treatment of this disease, treatment is based on the symptoms. In Ayurveda, Dengue fever is known as Dandakjwara which means joint pain that’s why this is also called breakbone fever. The symptoms of dengue and Dandakjwara are very similar. Ayurveda treatment provides relief for the disease.

Keywords: Dengue, Virus, Fever, Dandakjwara

INTRODUCTION

The word “Dengue” is derived from the Swahili phrase Ka-dinga pepe, meaning “cramp-like seizure”. Dengue fever is a disease caused by viruses that are transmitted to people by mosquitoes. The disease has also been termed "break bone fever" or "dandy fever". Four main characteristic manifestations of dengue illness are (i) continuous high fever lasting 2-7 days; (ii) hemorrhagic tendency as shown by a positive tourniquet test, petechiae or epistaxis; (iii) thrombocytopenia (platelet count <100x10^9/l); and (iv) evidence of plasma leakage manifested by haemococoncentration (an increase in haematocrit 20% above average for age, sex and population), pleural effusion and ascites, etc. Excellent work has been done at some of the centers in India on molecular epidemiology of Dengue immunopathology and vaccine developmentⅠ

In Ayurveda, jwara is very large and complicated disease. In all diseases, jwara is most popular and important disease. It is an independent disease and also found in all disease. Jwar occurs from both sharer and manas vikaras. Vata, pita, kapha three are sharer doshas. Raja and tama two are manas doshas. All dhatus are destroying in jwara. In Ayurveda there are many types of jwara with different causes and different stages. Dandak jwara is also a type of jwara which occurs from vata kapha dominant sannipatajwara. All symptoms of jwara are present in Dandak jwara and some special features also found which only present in Dandak jwara.Ⅱ

HISTORY-

Dengue virus was isolated in Japan in
1943 by inoculation of serum of patients in suckling mice and at Calcutta (now Kolkata) in 1944 from serum samples of US soldiers. The first epidemic of clinical Dengue-like illness was recorded in Madras (now Chennai) in 1780 and the first virologically proved epidemic of DF in India occurred in Calcutta and Eastern Coast of India in 1963-1964. 

**SIGNS AND SYMPTOMS**

- Dengue fever usually starts suddenly with a rapidly climbing high fever that’s why the temperature in dengue fever is called a “Saddle back” type temperature.
- Retro-orbital pain behind the eye.
- Nausea, vomiting and loss of appetite.
- Rashes develop on the feet or legs 3 to 4 days after the beginning of the fever.
- Swelling and pain in muscles and joints
- The joint pain in the body has given dengue fever the name that is “break bone fever”. The common symptoms of dengue fever may go in around 10 days, but complete recovery from Dengue fever can take more than a month.

**DIAGNOSIS**

Diagnosis of DV infection is routinely done by demonstration of anti DV IgM antibodies or by NS-1 antigen in patients’ serum depending upon day of illness using ELISA kits. Molecular methods (reverse transcriptase PCR) are being increasingly used in diagnosis of DV infection. A single tube nested PCR for detection and serotyping of DV was developed and used for detection of co-infection by two viruses. DV isolation in tissue culture cells and its sequencing is also being done.

**PREVENTION AND CONTROL**

Prevention depends on control of and protection from the bites of the mosquito that transmits it. The primary method of controlling A. aegypti is by eliminating its habitats. This is done by getting rid of open sources of water, or if this is not possible, by adding insecticides or biological control agents to these areas. People can prevent mosquito bites by wearing clothing that fully covers the skin, using mosquito netting while resting. However, these methods appear not to be sufficiently effective, as the frequency of outbreaks appears to be increasing in some areas, probably due to urbanization increasing the habitat of A. aegypti.

**IN AYURVEDA, DENGUE FEVER (DANDAKA JWARA)**

Jwar (fever) is a large disease in Ayurveda which describes in broad spectrum. Ayurveda, an ancient healing system refers fever as jwara, a condition in which the body condition goes beyond the normal temperature and is characterized by disturbance in normal functioning of the system. Separate chapter of Dandak jwara not available. Bt symptoms of vat-kaphaoilban sannipatajjwara are similar with Dandak jwara. It is acute and infectious disease. Fever suddenly rise and felling very weak.

Description of dengue as Dandaka Jwara is found in the parishishta chapter of Madhava Nidana. It has been described that a particular species of mosquito is the basic cause of spread of fever called Dandaka jvara. This fever mostly subsides within a week; however, it is more dangerous for the children and old people.

**Causative factor (Nidan)**

Main cause of Dandak jwara is toga virus which spread in body through Aedes Aegypti mosquito.

**Premonitory symptoms (Purvarupa)**

Angmard- bodyache, klam -tiredness without exertion, aruchi- anorexia, nausea, avsaad- depression.

**Symptoms (Rupa)**

Severe breaking pain in bone and joints. High temperature of 103 to 105 degrees F. may occur which gets subside and may relapse again within three to four days (Saddle back fever). On 8th day, it subsides on its own. Severe pains in bones, difficulty in walking, slow pulse, excessive weakness, loss of appetite are common symptoms. During fever, pulse is not proportionately as fast as it should be with fever. Symptoms of common cold (Pratishyaya) cough and throat pain are also common symptoms of Dan-daka jwara which becomes endemic due to virulence of kapha and vata dosha. 

Table-1 Symptoms of Dengue fever which can be correlated with jwaramakshanas mentioned in different Ayurvedic texts.

<table>
<thead>
<tr>
<th>Name of the text</th>
<th>Type of jwara</th>
<th>Chills</th>
<th>Arthralgia</th>
<th>Headache</th>
<th>Nausea</th>
<th>Vomiting</th>
<th>Sleeplessness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch.S.Ch.7</td>
<td>VP</td>
<td>-</td>
<td>+</td>
<td>+</td>
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<td>+</td>
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<tr>
<td>Su.S.U.10</td>
<td>VP</td>
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<tr>
<td>As.H.Ni.11</td>
<td>VP</td>
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</tbody>
</table>

[VP- Vata Pita Jwara; VK- Vata Kapha Jwara; +Present; -Absent] [Ch.S.Ch.- Charak Samhita Chikitsasthana 3/85-86; Su.S.U.- Sushruta Samhita Uttaratantra 39/47-49; As.H.Ni.- Astang Hridaya Nidansthana 2/24-25; Ma.ni.- Madhav Nidan 2/14-16].

Management (Chikitsa)-

There is no specific treatment for disease, Ayurveda stresses to strengthen immune system of the body and keeping a control on hyperthermia. No specific treatment for dengue fever exists. Drink plenty of fluids to avoid dehydration from vomiting and high fever.

There is no actual treatment is available for Dengue fever. Only symptomatic treatment is given and patient gets relief in fever. Allopath medicines give relief only for some time and side effects are more developed. No specific treatment is available for dengue fever.

So, in Ayurveda many medicinal plants are effective in Denguve fever and such a very important role in cure to Dengue fever. Ayurvedic medicines, herbs, rasayanas and much Ayurvedic therapy are use in treat for dengue fever.

Dengue fever is a life threatening infection in now a days. The treatment modalities of dengue can be categorized into symptom modifiers and general health promoters. The drugs which improve the Quality of Life (QOL) and vector control measures / agents are beneficial in the management of Dengue.12

A) Symptoms modifier- The agents that alleviate symptoms are categorized under symptom modifier.-

1. Jwara hara (anti pyretic)  
2. Soth hara (anti inflammatory)  
3. Vedana hara (algesics)

B) General health promoting agents- The agents that improve Quality Of Life (QOL), provides strength or resistance against the disease and facilitate early recovery are classified under General Health Promoters.- Aswagandha, Amalaki, Guduchi, Yasminadhu.

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

The commonly used Ayurvedic poly herbal/herbo-mineral/metallic formulations in the management of Dengue fever 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, Jwara</td>
<td>Dasmula kwath</td>
</tr>
<tr>
<td>2.</td>
<td>Jwara</td>
<td>Patoladi kwath</td>
</tr>
<tr>
<td>3.</td>
<td>Sandhi vedna</td>
<td>Maharasnadi kwath</td>
</tr>
<tr>
<td>4.</td>
<td>Jirna jwara</td>
<td>Arogyavardhani gutika</td>
</tr>
</tbody>
</table>

**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.

*Amrita (Guduchi)*, *Tulasi* (Holi basil), *Shunthi* (Dried ginger), *Erand-karkati* (*Papaya*) are the commonly available medicinal plants and used to prevent its complications by potentiating immune system so that disease gets controlled within a period of 4 to 8 days.

**GUDUCHI**

*Giloy* or *Amrita* is an anti-inflammatory (that reduces inflammation) and antipyretic (that reduce fever) herb.

**Botanical name**: *Tinospora cordifolia*

**Family**: *Menispermaceae*

**Chemical composition**: Columbin, tinosporaside, jatrorhizine, palmatine, berberine, temberterine, tincordifolioside, phenylpropene disaccharides, choline, tinosporic acid, tinosporal, and tinosporon have been isolated from *Tinospora cordifolia*.

**Medicinal properties**

- **Rasa** – Kashaya, Tikta
  - **Guna** – Laghu, Snigdha
- **Veerya** – Ushna
  - **Vipaka** – Madhura

- **Karma** - *Doshatrayahara*- balances tridoshas: vata, pita, kapha

**Part used** - Most used part is stem. Almost all the pharmacies use stem of *Guduchi*. Leaves and areal roots are also used for medicinal purpose.

**Dose** - *Stem powder* = 3-6 gram.

Water decoction = 50-100 ml.

There is a special extraction technique for *Guduchi*, called as *Guduchi satva*. It is useful in fever. *Guduchi satva* = 1-2 gram.

**Action of Guduchi**

The bitter properties present in the drug show antispasmodic properties which is helpful in preventing infectious diseases like dengue, swine flu, malaria etc. This wonderful *Ayurvedic* herb helps in raising the efficiency of protective WBC (white blood cells) and builds up the body's own protection mechanism known as immune system. *Giloy* has antibacterial, anti-inflammatory, anti-rheumatic, and anti-allergic actions. In dengue, platelets count is decreases and body strength is very weak. *Guduchi* increase platelet counts. *Guduchi* an amazing role in strengthening our natural immune system by helping the White Blood Cell count to increase in our body. This action of *Guduchi* as a major immunity booster is very remedial especially during the dengue spell. In dengue, immune power is very weak. *Guduchi* boost immunity in dengue fever. *Tinospora* is effective in promoting regeneration of the liver. Dengue is sometimes associated with the problems of degeneration of liver. This herb fights this degeneration by raising the efficacy of the WBCs in the body.
In recent times, papaya leaves are very effective and useful in management of dengue fever especially in increasing platelet count in dengue patients with low platelet count and those who develop hemorrhagic dengue fever.

**Botanical name** - *Carica papaya*

**Family** - *Caricaceae*

**Chemical constituents** - Papaya contains a chemical called papain, which is commonly used as a meat tenderizer. Papain breaks down proteins, carbohydrates, and fats. That’s why it works as a meat tenderizer.

**Medicinal Properties** -
- *Rasa* - katu, tikta
- *Guna* - laghu, ruksha, tikshan
- *Virya* - ushan
- *Vipak* - katu
- *Karma* - kapha - vata shakam, pachan,

**Useful part** - leaves, fruit, seeds.

**Dose** - Seed powder= 0.5 gram. Leaves water decoction= 40-80 ml.

**Uses** - Papaya is used for preventing and treating gastrointestinal tract disorders, intestinal parasite infections, and as a sedative and diuretic. It is also used for nerve pains (neuralgia).

**Action** - Papaya seeds are collect and leave for few days to dry them. When seeds properly dry, power them, seeds powder is used in accurate dose. Papaya leaves and seeds are inhibiting hemolysis. Platelets are very low in dengue. Papaya leaves increases thrombolytic counts. Papaya leaves also contain important nutrients, including vitamin A, C and E, they support the immune system.

**CONCLUSION**

Dengue disease continuously involves newer areas, newer populations. Prevention and vector control of dengue fever disease is not very well known. No vaccine is yet available for protection. In allopath, proper treatment is not available. So, in *Ayurveda* many herbs are available for dengue fever and no harm effect of these herbs. Some medicinal plants are described in this paper, which are more effective and more useful in dengue fever disease. They are immune modulator herbs which provide immunity and resistance against bacteria, virus, and any infection.

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