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AYURVED & MODERN PERSPECTIVE OF DENGUE FEVER (DANDAKA JWARA)

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ABSTRACT

Dengue fever is a Viral disease,which spreads to the people through the bite of an infected Aedes Species (Aedes Aegypti or Aedes albopictus) mosquito. Dengue virus belongs to the family of Flaviviridae,having four serotypes that spread by the bite of infected Aedes mosquitoes. Dengue is common in more than 100 countries around the globe. Modern medicine does not have any specific treatment for this disease.Whatever treatment is available that is based on the signs & symptoms in this disease. In Ayurveda,Dengue fever can be correlated with *Dandaka Jwara*,which means joint pain.Because of this,it is also known as Breakbone fever. As there is no treatment of Dengue fever in modern science ,Ayurveda can be very useful in managing the disease. But for this thorough understanding of Dengue fever from both the perspective i.e Modern as well as Ayurved is necessary.

KEYWORDS: Dengue fever, Dengue Haemorrhagic fever, Breakbone ,Dandaka jwar,Serotypes,Aedes Aegypti.

INTRODUCTION

Dengue fever has been a serious disease in most tropical areas of the world,especially in Asia & Africa, and over the past 20 years ,the disease has been considered the most widespread viral infection transmitted by insects. This particular disease has its dominance in Urban areas. The causative agent i.e Dengue virus is arbovirus from genus Flavivirus.[1] The virus belongs to the family of Flaviviridae and has four different serotypes (DEN-1, DEN-2, DEN-3, DEN-4).[2] This virus is transmitted in Tropical & Subtropical areas by the vector- Aedes Aegypti Mosquito.[3] Dengue is caused by one of the four related viruses: Virus 1,2,3,4. For this reason, a person can be infected with a dengue virus as many as four times in his or her lifetime.[4] There is no specific treatment in modern science to treat Dengue.Whatever treatment is available,is based on symptoms manifested in Dengue.[5] In Ayurveda, Dengue fever can be correlated with *Dandaka Jwara.* There is no separate chapter for *Dandaka Jwara.* The Description of *Dandaka Jwara* is given in the parishishta chapter of *Madhava Nidana*.[6] It has been described that a particular species of Mosquito is the basic cause of spread of the fever called *Dandaka Jwara.* This fever mostly subsides within a week,however it is said to be more dangerous for the children & old people. Symptoms of Dandaka Jwara & Dengue fever are very similar to each other.

Study of Dengue fever from Modern & Ayurvedic perspective is very vital in understanding this disease.

3. Modern Perspective (Dengue Fever)
Etiopathogenesis
Dengue fever affects people from all age group (Children, Adolescents & Adults). The proposed etiologies for Dengue virus infection.[7]
- Viral replication primarily macrophages.
- Direct skin infection by the Virus.
- Immunological & Chemical –mediated mechanism induced by host-viral interaction.

4. Clinical Features
Transmission of Dengue virus into the humans occur with the bite of a special mosquito named Aedes Aegypti.

4.1 Classic Dengue Fever (Breakbone Fever)
The incubation period is usually 4-6 days (range 3-14 days) followed by abrupt onset of Fever, Chills, Headche, Retro-Orbital pain and Backache.[8]

The fever is around 39-40° C & is followed by a remission phase lasting for few hours to 2 days, which is again followed by a second febrile phase of 1-2 days (Biphasic Curve).[9]

Severe Headache, Myalgia, Painful joints , Metallic taste, Loss of appetite, Vomiting & Stomach pain are the reported manifestations.[10] Dengue is also know as Breakbone fever because of the associated Myalgia & Joint pain.[11] A transient generalised erythematous rash may also appear during first 24-48 hours.

The physical examination may reveal relative Bradycardia & Lymphadenopathy.[12]

Leucopaenia & Neutropaenia is observed and Thrombocytopenia may occur due to increased platelet destruction, which contribute to bleeding.

Dengue fever may also be associated with haemorrhage, particularly Epistaxis, GI bleed, Haematuria, Menorrhagia. Dengue Haemorrhagic Fever (DHF) is the more severe form of Dengue fever.

4.2 Dengue Haemorrhagic Fever
Dengue Haemorrhagic fever (DHF) is more frequently observed during the secondary Dengue infection. Primary Dengue infection can also result DHF in infants due to maternally attained Dengue antibodies.[13]

It is defined as an acute febrile illness with minor or major bleeding, Thrombocytopaenia & evidence of plasma leakage & pleural & other effusions.

Susceptibility to DHF falls considerably after 12 years of age. Type 2 is more dangerous than other serotype.

Clinical Features[14]
- High grade fever (38-40°C) for 2-7 days.
- It has positive tourniquet test.
- Petechiae, easily bruised skin & subcutaneous bleeding at venipuncture sites are present.
- Transudate due to excessive capillary permeability collects at the pleural & abdominal cavities.

4.3 Dengue Shock Syndrome[15]
DSS is defined as DHF with the signs of circulatory failure, including narrow pulse pressure (30 mm of Hg), Hypotension or Frank shock.

The four warning signs of impending shock are:
1. Intense, sustained Abdominal pain.
2. Persistent Vomiting.
3. Restlessness or Lethargy
4. Sudden change from fever to hypothermia with sweating & prostration.

Patient may recover rapidly after volume replacement but shock may recur during the period of excessive capillary permeabilty.

5. Diagnostic Tests[16]
Laboratory tests for confirming Dengue virus infection may involve detection of the virus, Viral nucleic acid, antigens or antibodies, or a combination of these techniques.

After the onset of illness, the virus can be detected in serum, plasma, circulating blood cells & other tissues for 4-5 days. During early stage of the disease, Virus isolation, nucleic acid or antigen detection can be used to diagnose the infection. At the end of the acute phase of the infection, serology is the method of choice for diagnosis. IgM antibodies capture ELISA (MAC-ELISA) is especially useful in the diagnosis os recent infection.[17] IgM antibodies are relatively specific for Dengue, but do not distinguish between various serotypes.

6. Treatments[18]
Treatments of Dengue fever is symptomatic with paracetamol, rest & oral rehydration therapy.

In DHF the careful and repeated estimation of volume status and fluid replacement are the cornerstone in the management.

Dengue patients should preferably receive SDAP (Single donor apheresis platelets) as compared to RDP (Random donor platelets) to lower the risk of alloimmunisation,in case of severe Thrombocytopenia.

7. Ayurved perspective (Dandaka Jwara)
In Ayurveda, *Jwara* is considered as an important disease. It is an independent disease and also found in association with other diseases. *Jwara* as per Ayurveda ,occurs due to *sharir* & *manas* doshas. *Sharir doshas* like *Vata, Pitta,Kapha* and *manas doshas* like *Raja* & *tama*. There are various types of Jwara mentioned in Ayurveda.

Dengue fever can be correlated with *Dandaka Jwara*. In Ayurveda there is no separate chapter of *Dandaka Jwara*, the description of *Dandaka Jwara* is given in the parishishta chapter of *Madhava Nidana.*
Symptoms of *Dandaka Jwara* are similar with the *Vata-Kaphaj* & *Sannipataj Jwara.*

8. Purvarupa of Dandaka Jwara[19]
Purvarupa of Dandaka Jwara as mentioned in Ayurveda are
- Angamarda
- Klama
- Aruchi
- Avasad

9. Rupa of Dandaka Jwara[20]
Pupa (signs &symptoms) of Dandaka Jwara are:
- Severe breaking pain in the Bones & Joints.
- Swelling & tenderness over joints.
- Symptoms of common cold (Pratishyaya) like – Cough & Soar throat or Throat pain.
- Rise and Fall of Fever.

10. Treatments
As there is no treatment for Dengue in modern science Ayurveda can be very useful for providing an effective treatment and management of this disease. Ayurveda treatments particularly puts emphasis on strenthening the immune system and keeping the temperature of the body under control.

Ayurveda medicines will not only help in treating the symptoms like Jwara (By giving Jwarahar medicines) , Shoth(By giving Shothahar medicines) , Vedana(By giving vedanahar medicines) But also it will boost the immune system of the patient by giving him Balya & Rasayana medicines.

11. CONCLUSION

Dengue is posing a great challenge infront of our health care sector. As there is no effective treatment available in modern science to cure dengue. Chances of mortality with this disease increases manyfolds. By understanding the Ayurved aspect of this fever,it will be of much help in managing the patients of dengue. Ayurved medicines could be a game changer in the management of Dengue. So, understanding of Dengue fever from both the presective i.e Modern as well as Ayurved is of prime importance in managing the disease more effectively.

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