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GUIDELINES FOR SIDDHA PRACTITIONERS FOR CLINICAL MANAGEMENT OF DENGUE FEVER

Introduction

Dengue is considered to be one of the anthropod borne human viral infections. *Aedes aegypti* is the vector that spreads dengue fever. In Asian region, the death of most of the children is due to the dengue hemorrhagic fever. Dengue viruses belong to flaviviridae family. Dengue has four serotypes such as DNEV-1, DENV-2, DEVN-3, DEVN-4 which is mapped after the antibodies produced by the body after infection.

Epidemiology

Even though the infectious diseases are controlled by modern drug invention, the vector borne disease still remains a threat in the global health care. Dengue in Particular proves an economic burden to the developing countries Today about 2.5 billion people, or 40% of the world's population, live in areas with a risk of dengue transmission based on the information by World Health Organisation. Dengue is endemic in at least 100 countries in Asia, the Pacific, the Americas, Africa, and the Caribbean. The World Health Organization (WHO) estimates that 50 to 100 million infections occur yearly, including 500,000 Dengue Hemorrhagic Fever cases and 22,000 death, mostly among children.

Transmission of the Dengue

The dengue Virus is transmitted by the mosquitoes *Aedes aegypti* and *Aedes albopictus*, which are found throughout the world. Insects that transmit diseases are called vectors. Symptoms of infection usually begin 4 - 7 days after the mosquito bite and typically last for 3 - 10 days. For transmission to occur the mosquito must feed on a person during a 5-day period when large amounts of viruses are in the blood; this period usually begins a little before the person becomes symptomatic. Some people never have significant symptoms but can still be infected by mosquitoes. After entering the mosquito the virus will require an additional 8-12 days of incubation period before it gets transmitted to another human. The mosquito remains infected for the remaining period of its life, which may be days or a few weeks.

Clinical Stages and management:

Phases in Dengue

- Febrile Phase
- Hyperpyrexia, dehydration
- Critical Phase
- Severe hemorrhage, Plasma leakage and organ impairment
- Recovery Phase
- Recovering from illness

Febrile Phase:

- Fever with head ache
- Fever - "biphasic pattern"
- Muscle and Joint pain
- Generalized maculopapular rash
- Abdominal discomfort - Abdominal pain, nausea, vomiting and diarrhea
- Hemorrhagic rash
- Clinically, the platelet count will drop until after the patient's temperature is normal.

Critical Phase:

- High fever
- Thrombocytopenia (<100,000 platelets per mm³)
- Hematocrit - more than 20%
- Encephalitic occurrences
- Dengue shock syndrome
- Weak speedy pulse
- Narrow pulse pressure (Less than 20 mm of Hg)
- Cold clammy skin and restlessness
- Dengue shock syndrome as it is an emergency should be hospitalized immediately.

Dengue in Siddha:

Siddha system of Medicine describes all types of pyrexia under a heading Suram. It includes the vector borne diseases like malaria, dengue. Siddha correlates dengue to Pitha Suram.

Siddha literature, 'Agastiyar sura nool 300' describes that the 'Pitha suram' can cause bleeding and it can be correlated to the hemorrhage in dengue fever. The symptoms described by the above mentioned text can also be correlated to those given in the definition of Dengue Fever.

Treatment in Siddha System

1. Nilavembu Kudineer - 30 ml two times a day for 7 days.
2. Papaya Leaf Juice - 10 ml two times a day for 7 days.

Prevention:

Nilavembu kudineer - 30 ml two times a day for 3 days.

Dengue hemorrhagic fever:

10-20 drops of Adathodai (*Justicia adathoda*) leaf juice mixed with equal quantity of honey may be given for Dengue hemorrhagic fever.

In dengue hemorrhagic fever it is better to give drugs which are styptics and which will increase the platelet count. Along with any one of the above said prescriptions the following should be added.

Prescription Guide lines:

Management of Fever

Nilavembu kudineer, Pittasura kudineer, Bramhananda Bairavam Tablet.

Prevention of Hemorrhagic symptoms

- ✓ Imbural vatakam
- ✓ Padiga poongavi Chenduram
- ✓ Kavikkal Chooranam
- ✓ General health improvement
- ✓ Nellikai lehyam - 5 Gm BID
- ✓ Triphalachooranam tablet - 2 BID
- ✓ Amukkara chooranam tablet- 2

Prevention of recurrence:

Regular usage of Nilavembu Kudineer and Adathodai Kudineer will help much.

Haemorrhage - Papaya leaf juice 5 ml Daily increases platelet production.

Vector control:

- ✓ Application of Karpoorathy Thylam
- ✓ Neem leaves Fumigation
- ✓ Usage of Poonkarpooram instead of Mosquito repellent mats
- ✓ Closed Storage of Water.
- ✓ Spraying of Mosquito Cidal spray in Water logged areas.

Evidence Based Siddha Medicine:

Compound / Single Formulation evidence based

1. Nilavembu kudineer

a) Antipyretic, Analgesic, Anti-dengue activity proved.

The methanol extracts of *Andrographis paniculata* and *Memorida charantia* possess the ability of inhibiting the activity of DENV-1 in in vitro assays (Anna PK ling et al, 2012).

b) Ethanolic extract of **Nilavembu kudineer** chooranam (EENKC) possesses antipyretic, anti-inflammatory and analgesic activity which supports **Nilavembu kudineer** chooranam efficacy in chikungunya fever. (Anbarasu, 2011).

2. Adathodai kudineer (can also be used as larvicidal in prevention of vectors)

All the tested fractions have been proved to have strong larvicidal activity (doses from 100 to 250 ppm) against *C. Quinque fasciatus* and *A. aegypti* in Methanolic extracts of *A.vasica*.

3. Veppilai chooranam (Herbal powder)

The effect of *Azadirachta indica* leaf extract and the pure compound - Azadirachtin on the replication of Dengue virus type-2 has also been reported (Parida et al , 2002)

Compound / Single formulation (evidence based)

1. Amukkara chooranam

Ashwagandha prevents myelosuppression in mice treated with all three immunosuppressive drugs tested. A significant increase in hemoglobin concentration ($P < 0.01$), red blood cell count ($P < 0.01$), white blood cell count ($P < 0.05$), platelet count ($P < 0.01$), and body weight ($P < 0.05$) was observed in

Ashwagandha-treated mice as compared with untreated (control) mice. We also report an immune stimulatory activity: treatment with Ashwagandha was accompanied by significant increases in hemolytic antibody responses towards human erythrocytes (Ziauddin et al,1996)

2. Amman Pacharisi Karkam

The researchers subjected *Euphorbia hirta* leaves to decoction, a method of extraction performed through boiling. Tawa-tawa's platelet-increasing activity was tested on laboratory experimental rats, specifically Sprague-Dawley. According to Lopez, results of the study showed that the tawa-tawa extract was effective in increasing the platelet count of rats without notable effects in red blood cell and white blood cell counts.

The group also concluded that the platelet increasing property of tawa-tawa works through the stimulation of platelet production in the bone marrow (Lopez et al 2011)

Conclusion:

Medical system regains their value when they are effectively utilized in public health out breaks. In dengue outbreaks the details about Siddha intervention in dengue may be helpful and by which a large number of sufferers may be benefited.

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