Prevention and Control of Dengue by Herbal Remedies

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Abstract- *Dengue viruses are the causative agents of dengue fever (DF) and dengue hemorrhagic fever. Dengue virus belongs to family Flaviviridae, having four serotypes that spread by the bite of infected Aedes mosquitoes. It causes a wide spectrum of illness from mild asymptomatic illness to severe fatal dengue hemorrhagic fever/dengue shock syndrome (DHF/DSS), dengue fever can be controlled by the number of herbal formulation which can be easily obtained from the nature and also low cost and free from any side effects. Home remedies are used for treatment of dengue fever like Neem leaves and Papaya juice etc.*

Keywords- Albopictus, Arboviral infection, Aedes mosquito, Dengue viruses

I. INTRODUCTION

Dengue fever is the fastest emerging arboviral infection spore. The dengue virus is the cause of dengue fever.Dengue has become the most important arboviral infection worldwide with more than 30 million of dengue fever estimated to occur each year. Dengue viruses are arthropod born viruses (arboviruses) in the genus Flavivirus (family *flaviviradae*) with positive polarity. Single –stranded RNA. They utilize Aedes (stegomyia) spp primarily. Albopictus as vector for domatic and peridomasti transmission. Andarboreal Aedes vector for enzootic transmission the flavivirus is genus include others important pathogens has such as yellow fever, dengue viruses are the causative agents of dengue fever and dengue hemorrhagic fever Its genome is about 11000 bases that codes for three structural proteins (capsid protein C, Membran protein M, envelop protein E) and seven nonstructural proteins (NS1, NS2a, NS2b, NS3, NS4b, NS5) it also includes short non-coding reigns on both the 5 and 3 ends. The dengue virus genome is 11 644 nucleotides in length, and is composed of three structural protein genes encoding the nucleocaprid or core protein (C), a membrane-associated protein (M), an envelope protein (E), and seven nonstructural protein (NS) genes. Among non-structural proteins, envelope glycoprotein, NS1, is of diagnostic and pathological importance. It is 45 kDa in size and associated with viral haemagglutination and neutralization activity

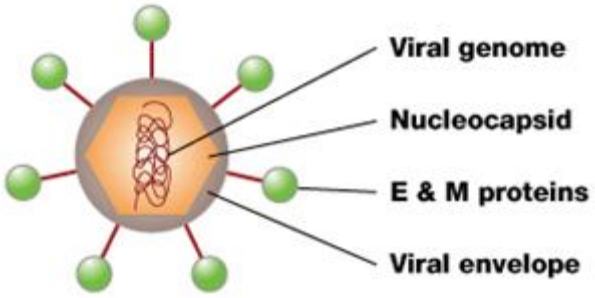

Fig:- Dengue virus

II. HISTORY

Dengue virus was isolated in Japan in 1943 by inoculation of serum of patients in suckling mice and at Calcutta in 1944 from serum samples of US soldiers. The first epidemic of clinical dengue- like illness was recorded in Chennai in 1780 and the first virologically proved epidemic of dengue fever in India occurred in Calcutta and Eastern Coast of India. The first major epidemic of the dengue hemorrhagic fever occurred in 1953-1954 in Philippines followed by a quick global spread of epidemics of dengue fever / dengue hemorrhagic fever. Dengue hemorrhagic fever was occurring in the adjoining countries but it was absent in India for unknown reasons as all the risk factors were present. The first major wide spread epidemics of Dengue hemorrhagic fever occurred in India in1996 involving areas around Delhi and Lucknow and then it spread to all over the country. A global strategy on dengue fever and DHF was developed in 1995 and its implementation was bolstered in 1999. Subsequently, the awareness of variable responses to the infection presenting a complex epidemiology and demanding specific solutions necessitated the publication of the Comprehensive Guidelines for the Prevention and Control of Dengue/DHF with specific focus on the WHO South-East Asia Region in 1999.

III. DENGUE FEVER

Dengue fever (DF) and its severe forms—dengue haemorrhagic fevers (DHF) and dengue shock syndromes (DSS)—have become major international public health concerns. Over the past three decades, there has been a dramatic global increase in the frequency of dengue fever

(DF), DHF and DSS and their epidemics, with a concomitant increase in disease incidence. Dengue is the most prevalent arthropod-borne viral illness in humans, with half of the world's population at risk for infection and up to 50 million cases of dengue estimated each year. Dengue fever, also known as break bone fever is a mosquito borne tropical disease caused by the dengue viruses the dengue is transmitted by several species of mosquito within the genus Aedes, .The virus has five different types usually gives lifelong immunity to that type but only short-term immunity to the other subsequent infection with a different type increase the risk of severe complication

Dengue fever is a common communicable disease characterized by occurrence of high fever, severe body aches and intense headache. It is a very common disease that occurs in epidemic form from time to time. Delhi and parts of North India experienced a large number of cases of Dengue in 1996, 2003 and 2006. The disease is quite severe in young children as compared to adults. The first symptom of the disease appears in about 5-7 days after the infected mosquito bites a healthy person. It is possible to become infected by dengue multiple times because the virus has four different serotypes. Although each infection confers lifelong immunity to that particular serotype, a subsequent infection with a different serotype increases the risk of contracting the much deadlier form known as dengue hemorrhagic fever (DHF). Dengue fever occurs in the world. Death rate varies from 5 per 100 cases to 30 per 100 cases.

Causes

It is caused by a virus (Dengue Virus) which has got four different types (Type 1, 2, 3, 4). Common name of the disease is 'break-bone fever'"(Haddi Tod Bukhar)" because of severe body and joint pains produced.

Spread

Just like in malaria, dengue fever is also spread by bites of mosquitoes. In this case, the mosquitoes are "Aedes" mosquitoes which are very tough and bold mosquitoes and bite even during day time .This disease occurs more frequently in the rainy season and immediately afterwards (July to October) in India. The Dengue virus is present in the blood of the patient suffering from Dengue fever. Whenever an aedes mosquito bites a patient of dengue fever, it sucks blood and along with it, the dengue virus enters into its body. The virus undergoes further development in the body of the mosquito for a few days. When the virus containing mosquito bites a normal human being, the virus is injected into the person's body and he/she becomes infected and can develop symptoms of dengue fever.

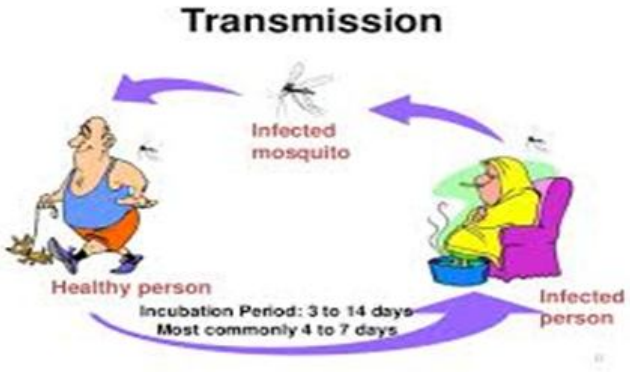

Figure: - Mode of transmission

Life cycle

Until a few hundred years ago dengue virus was transmitted in sylvatic cycles in Africa and Asia between mosquitoes of the genus Aedes and non-human primates with rare emergences into human populations. The global spread of dengue virus, however, has followed its emergence from sylvatic cycles and the primary life cycle now exclusively involves transmission between humans and Aedes mosquitoes. Vertical transmission from mosquito to mosquito has also been observed in some vector species.

Symptoms

- Sudden onset of high fever with feeling of chills ("Thandi Lagna").
- Severe Headache, Pains in muscles and joints.
- Pain behind the eyeballs especially on pressing the eyes or on moving the eyeballs.
- Extreme weakness, loss of appetite, feeling of nausea.
- Change in taste sensations in mouth.
- Pain in abdomen by itself or on touching.
- Mild pain in throat.
- Patient feels generally depressed and very sick.
- Rash on the skin: Pinkish red rash appears on the skin in the form of diffuse flushing, mottling or pinhead eruptions on the face, neck and chest. Later on, the rash may become more prominent. The entire duration of Classical Dengue fever lasts for about 5-7 days and the patient recovers.

Herbal and home remedies for dengue fever

There are many ayurvedic and natural plants and home remedies are used for cure of dengue fever they are

Following-

Neem

Its common name is Margosa. It consists of all aerial parts of plant known as *Azardirachta indica* belonging to family Meliacae. It is mainly found in India, Pakistan, Bangladesh, Sri -Lanka, Thailand, Malaysia, Fiji, East Africa etc**.** Neem leaves, Neem oil are a great purifying agent and should be applied on a damp warm cloth in dosages of between 15 to 60 gm 2-3 times daily. It should be noted that usage should be restricted in both males and females seeking pregnancy.

- Drink as much water as you can in order to replace fluid loss. It will also help to bring down body temperature.
- Avoid eating solid foods until the fever is gone. You can replace the foods by drinking plenty of distilled water and/or juices.

Coriander

The common name is coriander fruits. It is obtained from the fully dried ripe fruits of the plant *Coriandrum sativum Linn* .Belonging to family Umblliferae. It is mainly found in European country principally in Russia, Hungery, Holland, In India Andhra Pradesh, and Maharashtra [10, 11].The leaves of the coriander can be taken in the form of a tonic to reduce the fevers in dengue.

- Kakamachi is syrup like product that can be consumed as a soothing, cooling drink that can expel negative toxins such as those that build up during an attack of dengue from the digestive system and ultimately purify it. A cup twice daily is the recommended dosage.
- Fruits rich in vitamin C like Amla (*Embellica officinalis*) belonging to family *Euphorbiaceae* are advised as vitamin C helps in better absorption of iron.
- Chyavanprash can be taken as it is an immunobooster, blood purifier and increases blood count.
- Hogweed is used to bring down temperatures. Hogweed produces plenty of perspiration which flushes the toxins and brings the fever down.
- The seeds of hermal are powdered and taken as either an infusion

Tulsi

Its common name is Holy basil. It consists of fresh dried leaves of *Ocimum sanctum Linn* belonging to family Labiatae. Now a day's tulsi are cultivated for Volatile oil. Boiled tulsi that is basil leaves served in a warm drink like tea can help prevent an outbreak of dengue. This bitter and pungent herb has all the properties that strengthen the internal system against fever.

- Fifteen basil leaves should be chewed twice a day or these can be boiled in 200mL water on low heat. When half the quantity is left it can be taken 2-3 times a day. This strengthens the body's defense mechanism.
- Mix 360 mg of Shunthi Churna with 125 mg of Hinguleshwar and now take this mixture at least 4 times daily, you may take with tea or hot water. In case of the temperature of the patient rises beyond 104°F (40°C), then you may apply cold pad, on the forehead till the temperature subsides. Papaya juice is a natural cure for dengue fever. The juice of Papaya leaf is a sure cure for platelets deficiency.
- The Carica papaya leaves extract in water was given to the patient twice daily. The patient started vomiting as eating, so physicians recommended fruits and fruit juices. 25 ml of extract was given to the patient in the morning and evening. Two raw papaya leaves are pounded, and they are squeezed with a cloth to strain and filter the juice. Usually, one leaf gives one tablespoonful of juice and two tablespoonfuls of papaya juice are sufficient for a day. To preserve its strength, the juice should be taken raw, without altering, boiling or any additions. Neither saps nor stems of the papaya leaf should be included-only the leaf should be crushed. The powerful 'Pepsin' enzyme in the papaya leaf has the ability to dissolve proteins and is already used for indigestion and stomach inflammation while another enzyme from the papaya leaf, 'Chymopapain' is used successfully in spinal treatment
- Tulsi leaf ten pieces and one black pepper. This should be the proportion. Grind it and make pea size pills, use it with water
- The root of the cassia tree is used as a tonic for reducing dengue fever.
- Chirayata has tremendous medicinal properties in the reduction of fevers. It is used for remedying the convulsions that accompany fevers in dengue.
- Dhatura is obtained from the flowering tops of the *Dhatura metel var*. It is belonging to family Solanaceae. Dhatura is the Ayurvedic version of the belladonna. Its leaves have potency in reducing the seriousness of the dengue fevers. However, the dosage must not exceed 2 decigrams, or it will lead to severe negative symptoms
- An infusion of the Indian mallow is used as an efficacious treatment for reducing the dengue fevers.
- Fenugreek leaves are taken as herbal tea in order to reduce fevers. This drink acts as a soothing and cleansing tea for the human system.
- Blood wort is a traditionally used remedy for all types of fevers in Ayurvedic medicine. Bloodwort when used in the form of a hot infusion brings out sweat, which expels the toxins from the body and reduces the fever.

- Devil's tree is used in for the treatment of recurrent fevers as is seen in dengue. The herb is analogous in function to cinchona and quinine.
- To increase the blood count pomegranate juice/ black grape juice should be given. The orange juice helps with digestion, increased urinary output, promotes antibodies for fast healing and recovery.
- Goat milk while goat milk is believed to help in increasing platelet counts, there is no scientific proof yet to back this evidence.
- Porridge. Remember to always give pureed and soft foods for people with dengue fever. Porridge is easily swallowed and digested, and has plenty of fluids.
- Ginger water, basically dengue patients need lots of fluids. Give warm ginger water as a reinforcement of the body and reduce the effects of nausea that often they experienced.
- Coconut water, the content of electrolytes and minerals present in coconut water is good for the body ion replacement for dengue patients.
- Vegetable juice. Carrot, cucumber, and green leafy vegetables juice well to provide the basic nutrients that the human body needs.
- Fruit juices such as watermelon, guava, kiwi, papaya, and other fruits rich in vitamin C are must for dengue patients. It helps the production of lymphocytes and strengthens the immune system of the body
- Eat kiwi fruit the dengue fever outbreak in the city has now led to a spurt in the sales of kiwi fruit having the label Zespri, Green, New Zealand. Even though doctors are clueless about the medicinal value of this fruit and its effectiveness in treating the dengue fever, sales continue to zoom, leading to a spurt in the price of the fruit. It all started a few weeks ago with a few parts of the city witnessing a dengue fever outbreak. Following the outbreak, the kiwi fruit has now entered almost all the vegetable shops in the popular belief among patients that the consumption of this fruit will help them increase the platelet count in their blood. But doctors treating the patients are clueless.

IV. CONCLUSION

Dengue virus is the big problem for the human life. Dengue virus is causes the Dengue fever in human by the mosquito bite .Many people died by dengue fever. Then the problem is generated how to control dengue fever. There are many home remedies for control of dengue fever which can be easily obtained and cheap and also free from side effects.

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