

Dengue fever

1) General information

- **Cause**

Dengue fever is caused by viruses which are mostly from 4 species of Dengue virus included 1, 2, 3, 4 and rarely from Chikungunya virus.

- **Vectors**

Aedes mosquito is the important vector of the 2 viruses. This mosquito has been found in Bangkok all the year. *Aedes* mosquito is plentiful in rainy season.

- **Incubation source**

Incubation sources occur in human and mosquito, sometimes occur in monkey and other pets. Dengue virus does not spread between person to person but persons become infected by infected *Aedes* mosquito bites. The dengue virus always splits in the mosquito's body and the mosquito will spread virus to people. After dengue virus has infected in the mosquito for 8-12 days, people who are bitten by infected mosquitoes will have incubation stage for 3-15 days then symptoms will appear. Patients still have dengue virus in the body for 5-7 days after symptoms have appeared. *Aedes* mosquito always bites during the day and lays eggs in still and clean water such as jar, vase.

- **Symptoms**

Most infected patient has no symptom. Patients who have a symptom mostly are at the aged of 5-9 years, commonly under 15 year olds. Nowadays, the increasing of dengue fever has been found in adult aged 15 years up.

The symptoms are classified to 3 phases

1. High fever phase

- Have a high fever for 3-7 days.
- Face and body turn red.
- Have a poor appetite.
- Vomiting
- Headache
- Abdominal pain at epigastrium or right subcostal, hepatomegaly (an enlarge liver), tenderness.
- Muscle pain, drowsiness in children on day 2-3, joint pain, bone pain
- Rash or hemorrhagic skin
- Tourniquet test is positive. Accuracy bases on duration of sickness. Hepatomegaly has been found at 60-90%.

2. Critical phase (shock and bleeding phase)

- Fever becomes lower quickly (around day 3-6 of onset).
- If having a fluid leaking in blood vessel, a condition of shock could happen.
- Irritability
- Cold hands and feet
- Fast pulses-low blood pressure
- Severe vomiting
- Stomachache
- More inactive in some cases
- Less urine
- Often bleeding such as bleed in stomach
- If patients do not have any complications and receive a treatment quickly and appropriately, this phase takes 24-28 hours and then turns to phase 3.

3. Recovery phase

- General symptoms are better.
- Blood pressure becomes normal.
- Normal pulse
- Urine has increased.
- An enlarged liver will be smaller in 1-2 weeks.
- Better appetite
- Legs and hands have a rash and itchy.

- **Diagnosis**

1. Clinical symptoms compare to duration of sickness. Other physical examinations are normal, but it may show hepatomegaly.
2. Tourniquet Test gives an accurate positive result if getting it done before early phase 2 to the beginning of recovery.
3. Laboratory test
 - Blood
 - Blood concentration is higher than normal except having a lot of bleeding.
 - Low white blood cells but most of them is normal and a few cases have high white blood cells.
 - Platelets have decreased before fever becomes lower.
 - Maybe have hepatitis, liver enzyme is increase. Level of liver enzyme relates to severity of disease.
4. Chest x-ray could demonstrate pleural effusion.
5. Accurate diagnosis is from a blood test to check for dengue virus in the blood that could occur in only the first 5 days of onset by using NS1 Antigen method (the result comes out in 1 hour) or PCR method that is more accurate or a blood test to determine antibody of dengue virus.

2) Alternatives

- No

3) Risks and side effects

General risks

- No

Specific risks

- No

4) Pre/Post Cares

- **Management and treatment**

- Paracetamol or Acetaminophen should be prescribed. Aspirin should not be prescribed because of causing stomach irritation and it causes stomach bleeding easily and abnormal platelet's function.
- Patients who do not vomit should drink a lot of water or ORS. Urine should be clear if patients drink enough water.
- Should regularly go to see the doctor by appointment for monitoring closely the symptoms that may cause dangerous.
- If patients have a lot of nausea, drowsiness, tired, shock and bleeding, they should go to hospital and be monitored closely to have a treatment quickly when patients have other complications such as severe hepatitis, liver failure, encephalitis which should get the treatment in the hospital.
- Vaccine is still being studied for safety and efficiency.

- **Prevention**

1. Avoid mosquito bites.
2. Suppress and destroy breeding places that mosquitoes always lay eggs in the stagnant and clean water, in any containers that have stagnant water inside.
3. Patients with dengue fever should not be bitten by mosquitoes within the first 5 days of disease because patients still have dengue virus in the blood and could spread to other people.
4. Report the patients to the province hospital or principle health office to send staffs to damage breeding ground before spreading out increases.