

the doctor says Dr Milton Lum

Do you know dengue?

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The recent statement by the Health Ministry that there is no foreseeable prospect of a decrease in the incidence of dengue is a source of serious concern.

THE dengue virus is transmitted by mosquitoes which get infected when they bite an infected person.

Other persons get infected when they are bitten by infected mosquitoes, of the *Aedes aegypti* and *albopictus* varieties.

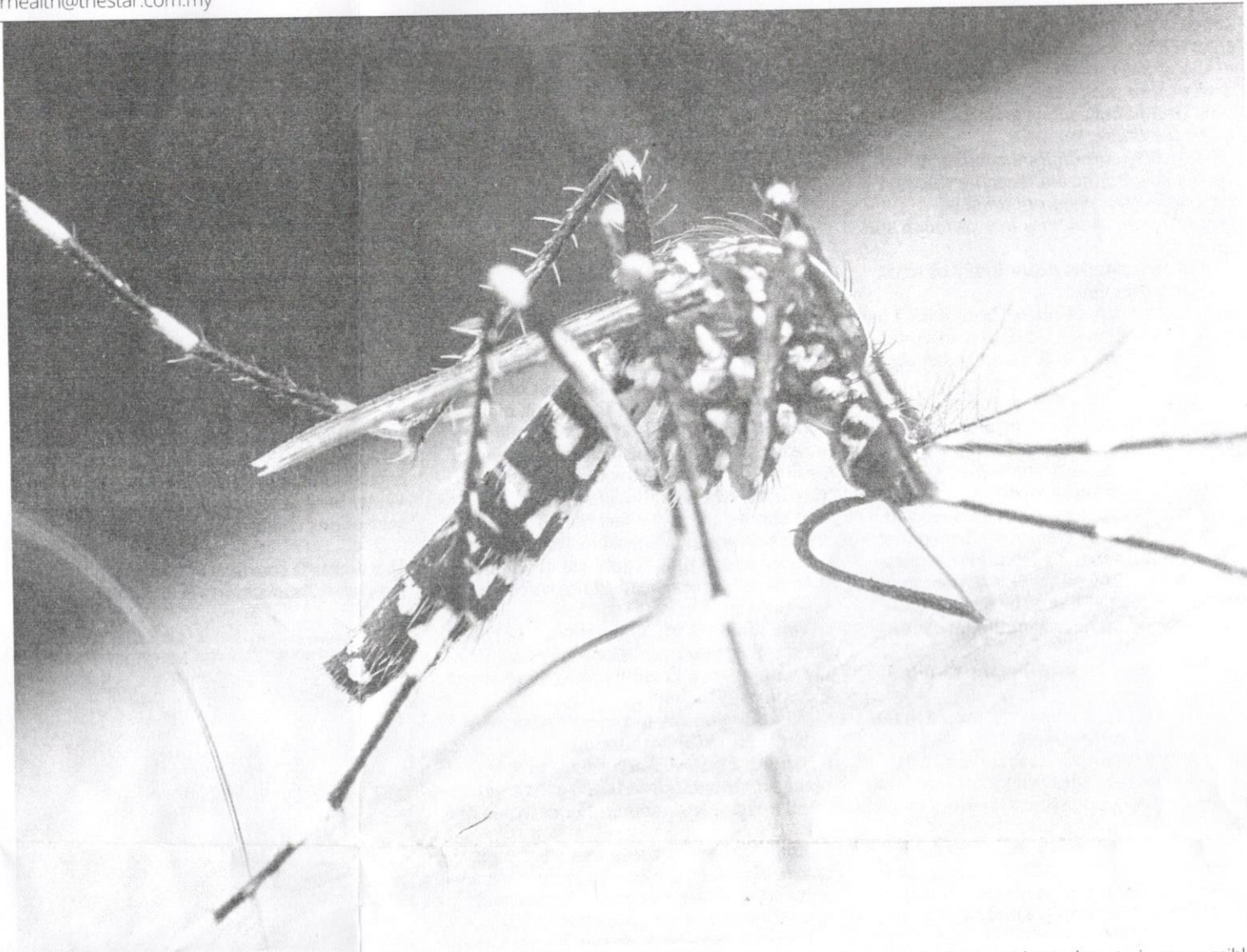
The cycle then continues. There is no direct spread of dengue from one person to another.

The mosquitoes' breeding sites are pools of stagnant water near human habitats such as construction sites, unused swimming pools, etc.

Dengue has been a media focus in recent years. The cumulative number of cases from January 1, 2015 to June 20, 2015, was 53,823, compared with 40,208 case in the same period in 2014, an increase of 13,615 (34%).

There were 158 deaths during this period in 2015 compared to 78 in the same period in 2014, an increase of 80 (103%).

There have been a marked increase in the number of cases in 2014 and 2015 which exceed that of previous years. Compare that with the number of cases in 2011 and 2012, which were 19,884 and 21,900 respectively;



and deaths, which were 36 and 35 respectively.

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Different strains

There are two variants of dengue infection – dengue fever (DF) and dengue haemorrhagic fever (DHF), and four different viral strains responsible, i.e. DEN 1, DEN 2, DEN 3 and DEN 4.

A person infected by one strain develops life-long immunity against that particular strain, but further infections with another strain are possible.

If a person is infected by a different strain, there is a slightly increased chance of developing DHF. This increased risk disappears if there is an infection with a third or fourth strain.

The jury is still out on whether the recent infection spike is due to the DEN 1 strain.

Clinical features of dengue

Dengue usually develops between four and seven (range three-14) days after infection and may last up to 10 days. There may be no symptoms, or the symptom spectrum may range from mild fever to severe disease, with changing clinical and blood profiles from day to day.

There are three phases in dengue. High fever occurs suddenly and is often associated with flushing, skin redness, generalised body and muscle aches, joint aches and headache.

Poor appetite, nausea and vomiting are common. There may be mild bleeding from body surfaces. These symptoms may be mistaken for that of common viral infections.

The next phase is critical and occurs towards the end of the fever phase, or when there is a speedy drop in temperature. In patients with DHF, there may be an increase in capillary permeability. Such patients

A person infected by one strain of dengue develops life-long immunity against that particular strain, but further infections with another strain are possible. – Filepic

either become better if there is no or minimal leakage of plasma, or worsen if a critical volume of plasma is lost.

Should this occur, there is damage to the blood vessels; internal bleeding; liver failure; respiratory failure; and circulatory failure which may lead to massive bleeding, shock and death.

This phase lasts about 24 to 48 hours, during which the changes in the clinical and blood profiles may accelerate by the hour or even minutes.

During the recovery phase in DF and DHF, the patient's general well-being improves, symptoms abate and there is recovery of the platelet count, which is usually preceded by a recovery of the white cell count.

Patients whose immunity are weakened and those with a second dengue infection are at increased risk of developing DHF.

The clinical diagnosis of dengue requires a high index of suspicion as the symptoms are often non-specific and mimic other medical conditions.

Laboratory diagnosis involves a blood test to check for the virus or antibodies to it. Antibody tests for dengue cross-react with that of other viruses, leptospirosis, malaria, syphilis and rheumatoid arthritis.

There is no cure for dengue. The treatment is symptomatic and supportive. For example, medicines are prescribed for fever and pain. The treatment for DHF includes intravenous fluids, blood transfusions and cardiorespiratory support.

Home or hospital

There are practical guidelines for the management of DF and DHF.

Many DF cases can be managed as outpatients provided there is frequent clinical and laboratory monitoring, which require almost daily visits to the doctor for a few days.

Patients who may be managed in an outpatient setting have to fulfill certain criteria – ability to tolerate food and drinks; good urine output and no history of bleeding; absent clinical alarm signals; no abnormalities on physical examination; and stable serial haematocrit (HCT) i.e. proportion of the blood that consists of packed red blood cells.

All patients who are managed in the outpatient setting should be provided with a disease monitoring record to ensure that all relevant information is available to all health-care providers.

Patients are vulnerable when there is a speedy drop in temperature. Many will be lulled into a false sense of security at this time as they may think they are getting better.

The warning signs are abdominal pain or tenderness; persistent vomiting; mucosal bleeding; restlessness or lethargy; tender enlarged liver; evidence of fluid accumulation (in chest and abdomen); and an increase in HCT with concurrent rapid decrease in platelets.

Prevention matters

The best way to prevent the infection is to prevent bites by infected mosquitoes. This involves protecting oneself and making efforts to keep the mosquito population down.

Individual protection includes being aware of one's environment; using mosquito repellants, even when indoors; wearing long-sleeved shirts and trousers, socks and shoes when outdoors; using air conditioning, if available; ensuring window and door screens are secure and have no holes; using mosquito nets if sleeping areas are not screened or air conditioned; and seeking medical attention early when sick.

If someone in the home has DF or DHF,

there has to be extra vigilance about preventing mosquito bites.

Mosquitoes which bite the infected person can spread the infection to others in the same residence.

The mosquito population can be reduced by getting rid of places where mosquitoes can breed. These include all places that collect rain and where water is stagnant.

This involves inspecting one's environment daily for stagnant water. Simple measures that can be taken include turning over or covering all water storage containers; clearing blockages in drains and gutters; and changing water in household containers on alternate days.

Prevention is the key, not treatment. While individual efforts are important, they do not count much if societal or governmental efforts are minimal.

More effective, innovative and sustained efforts from the Health Ministry and other governmental agencies are urgently required if this scourge is to be contained.

Dr Milton Lum is a member of the board of Medical Defence Malaysia. This article is not intended to replace, dictate or define evaluation by a qualified doctor. The views expressed do not represent that of any organisation the writer is associated with. For further information, e-mail starhealth@thestar.com.my. The information provided is for educational and communication purposes only and it should not be construed as personal medical advice. Information published in this article is not intended to replace, supplant or augment a consultation with a health professional regarding the reader's own medical care. The Star disclaims all responsibility for any losses, damage to property or personal injury suffered directly or indirectly from reliance on such information.