Prevention and control of dengue

1st Dr. Sandeep Kumar Pandey, 2nd Hariom Singh,3rd Dr. Shashikant, 4th Dr.Alok ranjan,5th Akash

Masters in public health

Dr. G L Gupta Institute of Public Health and Public AffairsUniversity of Lucknow, uttar pradesh

ABSTRACT

Dengue is the most rapidly spreading mosquito-borne viral disease in the world. In the last 50years, incidence has increased 30-fold with increasing geographic expansion to new countries and, in the present decade, from urban to rural settings .An estimated 50 million dengue infections occur annually and approximately 2.5 billion people live in dengue endemic countries (1). The 2002 World Health Assembly resolution WHA55.17

(2) urged greater commitment to dengue by WHO and its Member States Of particular significance is the 2005 World Health Assembly resolution WHA58.3 on the revision of the International Health Regulations (IHR) which includes dengue as an example of a disease that may constitute a public health emergency of international concern with implications for health security due to disruption and rapid epidemic spread beyond national borders.

Keywords : *Dengue, WHO, High Fever, Non Steroidal ant inflammatory drugs (NSAIDS), Para Cetamol, Mosquito, Thermal fogs, community education, Larviciding*

INTRODUCTION

Dengue, the mosquito borne disease, transmitted by the bites of Aedes mosquitoes, primarily Aedes aegypti and Aedes albopictus, is considered the most prevalent human arboviral infection worldwide . Approximately, 3.8 billion people dwelling in 128 countries are perceived to be in danger of dengue infection. According to the WHO, every year about 20,000 deaths occurred on account of dengue globally. The cause ofdengue fever (DF) is the infection with any one of the 4 serotypes (DENV-1, 2, 3, and 4) of dengue virus and the DF may appear as fatal disease characterized by dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS)

The first dengue virus infection was found in South-East Asia [6] and about 52% of the people who are at risk of dengue globally live in this part of the world. Bangladesh is situated in South Asia and has become an appropriate habitat for the dengue vector and its transmission [7]. In Bangladesh, the first dengue contagion was detected in 1964 [1]. The sporadic cases and small outbreaks clinically suggest that the dengue occurred across the country from 1964 to 1999 but those were not officially reported [8,9]. In the year 2000, a severe outbreak of dengue occurred in Bangladesh with 93 mortality among 5551 morbidity cases [10]. In subsequent years dengue cases reduced remarkably to as low as 375 cases in 2014. However, in 2016, around 6100 dengue cases have been reported with a DENV-2 outbreak in Bangladesh [11]. Three years later, in 2019, Bangladesh experienced highest annual dengue incidence ever reported with 1,12,000 cases and 129 deaths.

SYMPTOMS

Symptoms, which usually begin four to six days after infection and last for up to 10 days,may include:-

- *Sudden, high fever*
- *Severe headaches*
- *Pain behind the eyes*
- *Severe bone, joint, and muscle pain*
- *Fatigue*
- *Nausea*
- *Vomiting*
- *Breathlessness*
- *Skin rash, which appears two to five days after the onset of fever*
- *Mild bleeding (such a nose bleed, bleeding gums, or easy bruising)**PREVENTION***

There is no specific medicine to treat dengue infection. If you think you may have dengue fever, you should use only Paracetamol for fever. "Avoid medicines with aspirin, Ibuprofen, Nemuslide, pain killers, etc. (NSAIDS), which could worsen bleeding. You should also rest, drink plenty of fluids, and see your doctor. If you start to feel worse after 24 hours or if fever goes up, you should get to a hospital immediately to be checked for complications.

If you get dengue, it's important to;1.rest

2. *drink plenty of liquids*
3. *use acetaminophen (paracetamol) for pain*
4. *avoid non-steroidal anti-inflammatory drugs, like ibuprofen and aspirin*
5. *watch for severe symptoms and contact your doctor as soon as possible if you noticeany.*

CONTROL

1. *Reduce Mosquito Habitat*
2. *Stay in well-screened houses*
3. *Use Mosquito Repellents*
4. *Wear Protective Clothing*
5. *Sleep Under Mosquito-net*
6. *Do not let Water Stagnate Anywhere*
7. *Keep Your House Airy and Well-Lit****ENVIRONMENTAL MANAGEMENT***

Aedes larvae are container-breeders which thrive in both clean and organically rich water in both natural and artificial containers. Hence, container management to reducethe sources of breeding habitats is one of the best approaches for controlling Ae. aegypti and Ae. albopictus.

CHEMICAL AND BIOLOGICAL METHODSCHEMICAL LARVICIDING

Chemical larvicides including organic synthetic insecticides such as temephos (Abate) and insect growth regulators (IGRS) such as methoprene (Altosid, juvenile hormone mimic) have been shown to be effective against container breeding Aedes mosquitos inclean water. The environmental impact of the above chemical larvicides is minimal if they are properly used in human premises

PERSONAL PROTECTION

For the control of adult mosquitos, personal protection measures involving household insecticide products, repellents and insecticide impregnated mosquito nets or curtains have been very much a part of active and sustainable community participation in the overall control of nuisance and disease-carrying mosquitos including Aedes vectors. Itis also highly desirable that the house itself or at least the bedrooms be screened.

SPACE SPRAY APPLICATIONS

The objective of space sprays (thermal fogging and ultra low volume aerosol sprays) invector control is to achieve rapid knockdown and eventual mortality of the adult Aedes vectors especially under epidemic conditions. They should be employed in situations of emergency Aedes control to suppress and interrupt an ongoing dengue epidemic or toprevent an expected

dengue outbreak from occurring. Adult Aedes vector densities, especially the older and

potentially infected populations, should be reduced to sufficiently low levels to prevent or interrupt transmission. Desirable spray characteristics include a sufficient period of suspension in the air, suitable drift characteristics, and penetration into target areas with the ultimate aim of impact on adult mosquitos.

THERMAL FOGS AND ULTRA LOW VOLUME AEROSOL SPRAY

Thermal fogs containing insecticides are normally produced when a suitable formulation condenses after being vapourized at a high temperature. Generally, a thermal fogging machine employs the resonant pulse principle to generate hot gas (over 200°C) at high velocity. These gases atomize the insecticide formulation instantly so that it is vapourized and condensed rapidly with only negligible formulation breakdown. Thermal fogging formulations can be oil-based or water-based. The oil (diesel)-based formulations produce dense clouds of white smoke whereas water- based formulations produce a colourless fine mist. The droplet (particle) size of a thermal fog is usually less than 15 microns in diameter, the exact droplet size depends on the type of machine and operational conditions. However, uniform droplet size is difficult to achieve in normal fogging operations.

COMMUNITY BASED ACTION

The cooperation and participation of the community are vital for the control of DF/DHF and other vector-borne diseases. Methods to educate and mobilize the community vary depending on local situations and attitudes. Public Health Officials must be innovative and bold in their search for the most effective form of community participation The following must be considered in enhancing community education and participation in dengue control programmes.

Community education

Community education must be clearly defined. Its purposes are: 1.To raise the level of awareness of the dangers of the disease;

2.To challenge the community to take an active role in prevention and control; 3.To outline benefits resulting from participation in community control activities; 4.To emphasize that DHF vector control is relatively simple and feasible.

5.To motivate mothers to seek early medical care for their sick children to prevent a serious outcome.

At national and state levels, community education may make use of television, radio, newspapers and other media. At the community level, methods include talks by health personnel at schools and in other local meetings, and the use of posters and pamphlets

MANAGING OUTBREAKS

COORDINATION AND PLANNING

Immediate control measures at an early stage during an outbreak are essential to prevent an outbreak from expanding. All senior health officers at district and state levels should be involved in supervision either directly or indirectly. Officers at the district level need to supervise more closely and more frequently compared with state level officers to ensure that all control and preventive activities are carried out completely and effectively.

All states and districts must have a contingency plan to increase the manpower needs and equipment for immediate action when an outbreak occurs. The location of suspected and confirmed cases should be plotted on maps to determine the size of area or areas to be sprayed to kill adult mosquitos. To plan accordingly, the number of vehicles mounted and portable sprayers available should be recorded, as well as the quantity of insecticide.

References

- *Md. Imam Hossain Knowledge, awareness and preventive practices of dengue outbreak in Bangladesh: A countrywide study*
- *Dengue: How to the identify, treat and prevent the mosquito-borne diseaseBy: Lifestyle Desk*
- *A joint publication of the World Health Organization (WHO) and the Special Programme for Research and Training in Tropical Diseases (TDR)*
- *https://www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue*
- *Dr. Nikita Toshi :Preventive Measures For Dengue That Are Simple & Effectivecheck circle*
- *GUIDELINES FOR DENGUE SURVEILLANCE AND MOSQUITO CONTROL*
  Western Pacific Education in Action Series No. 8