Editorial

Dengue Disaster 2011 in Punjab

Dr. Azhar Masud Bhatti
Addl. Director Health Services, EPI Punjab, Lahore
&
Editor in Chief

The global prevalence of Dengue fever has grown dramatically in recent decades. Dengue fever is now endemic to more than 100 countries. During the past decade Dengue Hemorrhagic Fever Epidemic (DHF) have occurred in China, Sri Lanka, India, Maldives, Bangladesh and Pakistan.

In Pakistan, an outbreak of Dengue fever was first reported in Karachi in 1994. The recent outbreak of Dengue fever in Pakistan confirmed the presence of all four types of Dengue viral infections. Two of these were reported in previous outbreaks in Karachi city while third has been reported in the Lahore outbreak of 2008. In 2011, all four types of Dengue Serotypes have been confirmed in Punjab. In this year, early and heavy monsoon rains in Punjab has provided ideal conditions for Dengue carrying mosquitoes to thrive in stagnant waters. In the last year, the spread of this virus in Pakistan was on the rise during October 10 till November 10, but this year the trend was witnessed earlier.

Dengue is not such a fatal disease as being described and we need to make a collective effort for prevention against it. Dengue was a self limited illness caused by a virus called "Dengue Virus" which was transmitted by a bite of a female mosquito to called 'Aedes Egypti'. More than 1.5 billion people all over the world were at risk of this virus.

According to details obtained through independent sources from different hospitals of Lahore from January 2011 to 24th October 2011, there are 30060 positive Dengue fever cases in Lahore alone. According to Health Department's report, the total number of Dengue patients reported in Punjab from January 2011 to-date has reached 18950 out of which over 16094 were diagnosed in Lahore alone and about 300 deaths occurred due to Dengue fever.

The Health Department said that vector surveillance activities were in progress in Lahore during which 1533 places around houses were examined and 94.4% of them were found vector free. During indoor surveillance 5902 places were checked out of which 97% places were declared vector free.

To curtail this outbreak, the involvement of the community is as important as the effort being done by the government. There were two aspects of prevention from this disease. First is to focus on the habitat of the mosquitoes that is to eliminate breeding sites to limit the growth of mosquitoes. Second is to prevent mosquito bites with the use of mosquito repellents and use of spray inside the homes in particular. Moreover, it is stressed to wear clothes that can cover our body parts well. Apart from this, one should take effective measures for not allowing stagnant water to be witnessed inside our homes during the monsoon season in particular.

The intensity of Dengue fever started decreasing in 3-4 days and the patient started recovering. The mortalities during the Dengue fever can be a result of some other complications prevailing in the patient being victim of Dengue fever.

You can save a lot of lives by timely referral of DHF patients, if you know and aware of critical signs and symptoms. Complications of Dengue fever can give rise to a more severe form called Dengue hemorrhagic fever (DHF) which is characterized by hemorrhaging blood vessels, pulse pressure less than 25 mm of Hg and may be bleeding from the nose, mouth and internal tissues. The untreated DHF may result in blood vessel collapse, causing usually fatal condition known Dengue Shock Syndrome (DSS).

In the laboratory investigations for Dengue fever, in the complete blood examination (CBC), Hemoglobin, RBCs, TLC and platelets may reduce, ESR and LFTs may rise. In serological profile, for Dengue positive, IgM will be positive in primary infection after three to four days of fever. IgG will be positive on the secondary infection. Dengue virus hampers and sometimes destroys the body's capacity to produce new platelets. The normal body's platelets is 1,50,000 to 2,50,000. A Dengue patients platelets count may have a

steep fall and become lower than 1,00,000 is alarming because it can impede clotting, cause hemorrhages and result in internal and external bleeding.

There has been a dearth of blood donations in the city which was utterly unprepared for an epidemic of this scale. A blood donation is not very easy to obtain. The fear of blood transfusion is baseless. Hospitals even governments once are very particular and strict about hygiene, blood screening for hepatitis, HIV, Syphilis and malaria and they work hard towards safe syringe disposal too.

According to the WHO report of 2009, some 2.5 billion people or two-fifths of the world's population was then (in March 2009) at a risk from Dengue , a figure which might very well have increased during the last two and a half years since the publication of this document though.

The Geneva based WHO, a specialized agency of the United Nations that is acting as a coordinating authority on international public health since 7th April 1948, had further estimated in March 2009 that there might be 50 million Dengue infections worldwide every year of which 2.5% actually die.

The afore-cited WHO report had stated: before 1970 only 9 countries had experienced Dengue hemorrhagic fever (DHF) epidemics, a number that had increased more than fourfold by 1995. The geographical spread of both the mosquito vectors and the viruses has led to the global resurgence of epidemic Dengue fever and emergence of Dengue hemorrhagic fever in the past 25 years. The DHF was first recognized in the 1950s during the Dengue epidemics in the Philippines and Thailand. This is how the encyclopedia Britannica, the oldest and the most scholarly of all encyclopedias in print today, describes Dengue: Dengue, also called breaking bone fever or dandy fever is an acute, infectious, mosquito born fever that is temporarily incapacitating but rarely fatal. Besides fever, the disease is characterized by extreme pain and stiffness of the joints. On Dengue's history the encyclopedia Britannica says the earliest account of Dengue like disease comes from the jin dynasty (265-420AD) in China. There is also evidence that epidemics of illnesses resembling Dengue occurred in the 17th century.

However three epidemics that took place in the late 18th century mark the arrival of the disease that is today recognized as Dengue fever. Two of these outbreaks involve an illness decidedly similar in symptoms and progression to Dengue and both occurred 1779-one in Cairo and other in Batavia (now Jakarta) in the Dutch East Indies (now Indonesia) which was reported by Dutch physician David Bylon. The third epidemic happened in 1780 in Philadelphia. American statesman and physician Benjamin Rush, who treated afflicted patients during the Philadelphia epidemic, provided the first clinical description of Dengue in his account of the Bilious, Remitting fever, which was published in 1789. Encyclopedia Britannica published in English language since 1770 at least, further states: because all three 18th century epidemics involved very similar diseases and occurred in port cities, it is believed that Dengue virus was spread from one continent to another via ships. In the early 1900s Australian naturalist Thomas Bancroft identified "Aedes Aegypti" as the carrier of Dengue fever and deduced that Dengue was caused by an organism other than a bacterium or parasite. During World War II, Dengue emerged in South East Asia and rapidly spread to other parts of the world, inciting a pandemic. In the 1950s hemorrhagic Dengue appeared in South East Asia, where it became a common cause of death among children in the 1970s. The Encyclopedia Britannica still has a bit more to say about Dengue : the serotypes continued to spread on a pandemic level, eventually reaching areas of South and Central America, Cuba and Puerto Rico where in 1977 an epidemic lasting from July to December some 355000 people. In the following decades the increasing incidence of Dengue particularly DHF persisted.

Tiny mosquitoes have claimed the lives of some of the most formidable human of all times sending a few to their graves and rendering others bed ridden, a casual scroll through history reveals. Nimrod, the mighty King of Babylon during the times of Prophet Hazrat Ibrahim or Abraham (A.S), had perished after a mosquito had entered his nostril and ultimately the membrane of his brain on Divine orders.

The "Qasas Al-Anbiya" (Tales or the stories of the prophets adapted from the Holy Quran and other Islamic literature) which was authored by Imam Imad-ud-din Abdul Fida Ismail Ibn Kathir, states; As reported from Ibn-e-Abbas, He said that Allah has sent a mosquito to Nimrod that stung his lip, and when he tried to catch it, it flew and entered his nose. Nimrod

tried to get rid of it, but all in vain as the mosquito finally found way into his brain. God tortured him for 40 nights and then finally destroyed him.

Abdullah Ibn-e-Abbas was a paternal cousin of Hazrat Muhammad (PBUH). He is well regarded by Muslims for his expertise in the Islamic Sunnah and Tafseer-ul-Quran or the Holy Book's exegesis. It is noteworthy that Umm al-Fadl Lubaba, the mother of Ibn-e-Abbas, was the second woman who had converted to Islam. The famous Greek conqueror Alexander the Great (356 BC-323 BC) may have died after being bitten by a mosquito. About Alexander's death, the National Geographic website states "Alexander the Great likely died of it,

At least three American Presidents-Messers George Washington (1732-99), Abraham Lincoln (1809-65) and Ulysses Grant (1822-85) had also suffered from the same ailment during their life times. George Washington suffered from Malaria, as did Abraham Lincon and Ulysses Grant. In the late 1800s, Malaria was so bad in Washington DC that one prominent physician lobbied-unsuccessfully to erect a gigantic wire screen around the city. A million Union Army casualties in the US Civil War are attributed to Malaria and in the pacific theatre of World War II casualties from the disease exceeded those from combat. Some scientists believe that one out of every two people who have ever lived have died of Malaria.

The World Malaria Report 2010 of WHO that there are more than 225 million cases of this disease per year-killing around 781000 or 2.23% of the total worldwide deaths. The Sydney Morning Harold (September 26, 2010) reads "Malaria is contracted by more than 250 million people a year and kills nearly 1 million".

Experts from different universities joined the Punjab University's Dengue Research Group formed to carry out research and curb Dengue virus. Vice Chancellor, University of the Punjab, Prof. Dr. Mujahid Kamran presided over third meeting of the group, which was attended by experts from University of Health Sciences (UHS), University of Veterinary and Animal Sciences (UVAS), Mayo Hospital, Fatima Memorial System and FC College University.

The experts said wrong information regarding Dengue fever has been conveyed to people. Prof. Dr. Aslam Khan of UHS said female Dengue mosquito bit humans from morning to evening and 2pm was it peak time. After sucking blood, the female mosquito need to lay eggs. He said crevices in trees and other such locations were ideal places for this. He said the Dengue mosquito did not rest inside homes. He said the Dengue virus was reported in the region before 1947 but after 1947, migrants used empty bottle and such other things which stopped its breeding. A American Dr. David Allan imported this virus from East Pakistan. In Southeast Asia, this virus came through the import of tyres.

The experts from Government College University Zoology Department has recommended for biological control of Dengue, observing that fumigation can be used as emergency measures but they are not the permanent solution.

"Mosquitoes after sometime develop resistance against the chemicals used in fumigation and sprays," said Zoology Department Chairperson Prof. Dr. Nusrat Jahan while addressing the university's faculty member son "prevention and control of Dengue fever" The GCU Chief Zoology said that biological control of "biocontrol" was the use of natural enemies to manage mosquito population with a minimum risk to humans, wildlife and the environment. The use of biological agent includes predatory insets and other invertebrates, such as copepods, parasitic ematodes, larvivorous fish and microbial entomopathogens including Bacillus thuringiensis. GCU Chief Zoologist further said after the first outbreak, a research was started in the varsity using many biological control agents and results were evaluated on the base of lethal concentration larval mortalities and pupae / adult emergence both in laboratory and field bioassays.

Chief Minister Punjab Muhammad Shahbaz Sharif has directed that establishment of an environmental police force in the province should also be considered so that the plan chalked out to permanently eliminate Dengue virus can be implemented effectively.

He was presiding over a meeting of the special committee against Dengue virus. Elected representatives, chief Secretary, administrative secretaries of various department sand experts attended the meeting. The Chief Minister appreciated the experts from Sri Lankan and Indonesian and appreciating efficiency of the health secretary. The chief minister said that efforts of health department and public awareness campaign had greatly helped in apprising the

people of preventive measures against Dengue virus. He said that the campaign for the eradication of the larvae of Dengue mosquito at virus places in the light of the report of surveillance committee was also yielding positive results.

He directed the chairman of the town emergency committees to also visit trust hospitals regularly besides the government hospitals and submit a daily report regarding medical facilities available in the hospitals. He directed that cleanliness arrangements in hospitals should further be improved.

The Chief Minister also praised the measures taken by the chairman of the surveillance committee, agriculture secretary, regarding detection of Dengue larvae at different places and said that it helped in eliminating virus.

He said that chairman of the surveillance committee should also visit different hospitals to ensure complete eradication of the larvae from hospitals. He directed that documentary film regarding detection of Dengue larva and its eradication should also be produced to create awareness in the people.

He said the assembly members should also undertake checking of tube wells in their respective areas and make arrangement to drain out stagnant water and immediate repair of water leakage, If found anywhere and submit a report to him.

He said that it had also been decided to enforce regulation to check spread of viral diseases under which it would be binding on all citizens to take all such measures as were necessary to control the growth of Dengue mosquito and the outbreak of the epidemic. In response to a proposal submitted in the meeting he directed the authorities concerned to consider establishment of an environmental police.

The chief minister said that activation of primary healthcare system was of vital importance as it would not only result in availability of quality health facilities to the people at their doorstep but would also reduce the rush of patients from big hospitals. He directed the additional chief secretary to submit a plan within a few days to activate primary healthcare system. He said that Ulema should also inform the people in the Friday sermons about preventive measures against Dengue virus and stressed upon them to play an active role in the ongoing campaign for Dengue eradication.

He also issued instructions to the authorities concerned for benefiting from the latest technology for effective monitoring of the measures for controlling Dengue virus.

He said a research cell for eradication of Dengue virus and other diseases. He said the special research cell, besides taking steps for eradication of Dengue virus should also pay attention to developing an anti Dengue vaccine. He said no anti Dengue vaccine had been developed in the world so far and hoped that with the blessing of Allah Almighty and hard work of experts, Pakistan might become the first country to develop such a vaccine."

The Gallop Pakistan conducted a survey among a sample of 2689 men and women in rural and urban areas of all four provinces in the country from September to October. A huge majority of 86% Pakistanis have expressed satisfaction over Punjab Chief Minister Shahbaz Sharif's efforts in fighting against the Dengue epidemic.

Punjab Government issued Punjab Prevention and Control of Dengue (Temporary) Regulations, 2011 on the instructions of Chief Minister Punjab with immediate effect. The prevention and control of Dengue is the mutual responsibility of Government and its citizens. Government of Punjab has enforced "Punjab Prevention and Control of Dengue (Temporary) Regulations 2011" which will remain effective till November 30, 2011. Under this law, citizens are bound to carry out specific measures at their houses, shops, workshops, factory etc, to overcome the outbreak of Dengue Epidemic. Important highlights of this act are the following.

1. Immediately remove any useless and waste material such as empty bottles, lids, tyres, shopping bags, vehicles spare parts, plant pots etc.
2. Remove any obstacle in the water drainage, gutters etc and keep them clean. Do not let water stagnate anywhere. Fill the pits and low lying areas with sand or any such substance.
3. Take special care of home appliances like room cooler, air conditions and refrigerators. Do not let water accumulate to impede mosquito breeding.
4. Remove, uproot or trim water plants and any other plant, bush or shrub which may promote the breeding of mosquito.

5. Drain the water in swimming pool, ponds or any artificial collection of water at least twice a week.
6. Keep the drinking pot and utensils of animals and bird clean.
7. Administration of educational institutes should carry out insecticidal fogging or spray in the premises. They should educate students regarding measures to prevent Dengue and safety measures such as full sleeves, socks and insect repellants.
8. Administration of hospitals and laboratories should segregate the Dengue patients from other patients and use safety measures for them. They should immediately report to Government or Health Inspector in case if any patient is found to be suffering from Dengue fever.
9. Health Inspectors have been appointed to oversee the proper cutting of plants, removal of waste material, oversee cleanliness and to penalize all violators of this law. Cooperating with Health Inspectors and officials is also part of this law.
10. Legal prosecution can be carried out against individuals who violate the law, do not comply or cause any obstruction in its implementation or effectiveness.

Health experts had inspected a number of tyre shops in different markets of the City and found a huge quantity of Dengue mosquito larva inside the shops. Later, they asked the CDGL officials to immediately evolve a strategy to eliminate the larva breeding site present in shops.

Presently there are around 2,567 tyre shops and godowns in all the nine towns of the city. Out of which 254 tyre shops are in Aziz Bhatti Town, 472 in Data Ganj Bakhsh Tow, 199 in Gulberg Town, 120 in Iqbal Town, 236 in Nishter Town, 363 in Ravi Town, 220 in Samanabad, 505 in Shalimar Town and 198 shops in Wahga Town.

Every tyre shop and godown owner must have to get licence for his shop after paying fee to the CDGL within next seven days. The tyre shops and godowns will be sealed by the district government which will not have the valid licence and registration number from the CDGL. Strict action will be taken against the tyre shops owners on violation.

As unlikely as it may sound, the Aedes Egypti mosquito has done several things for Pakistanis and Lahoris in particular for which we may one day be actually grateful.

It has laid bare the sorry state of our health apparatus. A few thousand cases have completely paralyzed the health system, because all of them went directly to tertiary care hospitals. First and second level care facilities where the major burden of the epidemic should have been managed were absent or ineffective. Every individual would be accountable and accessible to the citizens are carrying out essential civic functions such as solid waste disposal, water drainage, cleanliness, management etc.

The mosquito killing effect is transitory, variable in its efficiency as the aerosol may not penetrate indoors to micro-habitats where adult mosquitoes are sequestered and the procedure is costly and operationally difficult. Regular monitoring of the vectors' vulnerability to insecticides is essential to switch to a more suitable alternative when required. Hence, active monitoring and surveillance of the natural mosquito population should escort control efforts to establish effectiveness. Small mosquito-eating fish have also been used to reduce mosquitoes.

There is need of an integrated vector control strategy. The mosquito sprays are not sufficient as we need a multiple approach for mosquito eradication such as biological control, larvicide, mass awareness, quaranting for patients and travel advisory. Guppy fishes are the best agent for the biological control of Dengue mosquito.

There is also a need for larger clinical studies in Pakistan and other south Asian to better understand the range of infections, endemic patterns and genetic susceptibility of different populations to Dengue virus.

The Government must involve all relevant institutions to launch a concreted research programme on the basis of this year's Dengue epidemic data of patients and deaths and areas to devise a comprehensive strategy to combat the disease during the next season. Preventive and control measures against the Dengue virus must start in January next year to avert the crises in the season ahead, different strain of the virus could potentially play havoc with the live of the people, as a large majority of the people were already affected with a strain of the virus this season.

The Government may establish filter clinics at primary and secondary care level to lesson the load of patients on tertiary care hospitals to provide quality diagnostic and treatment facilities to patients efficiently.

Dengue was a medical as well as big social problem and whole society should play its effective role in checking it. Dengue was not an infectious disease but curable. Sri Lankan experts had a vast experience of fluid management of Dengue patients and local experts had an opportunity; to improve their expertise in the field due to which better patient management was being carried out in the Government hospitals and to avoid the Dengue epidemic next year. Every citizen and institution would have to work hard in an efficient way.

The Health Department must decide to enhance the capacity building of private practitioners and family physicians regarding Dengue and a training programme should be launched in all medical colleges of the Punjab. The main objective for holding the training programme for the GPs and family physicians to enhance their professional capability and capacity building for the treatment of Dengue patients at local level and patients with symptoms of hemorrhagic fever must immediately be referred to any secondary and tertiary care hospital so that the precious human lives could be saved by providing timely medical care.

Under the Dengue Control Regulations 2011, it should mandatory for every doctor to get training about Dengue and after this Health Department would issued a certificate to all the doctors participating in the programme.

The research was in progress on development of Dengue virus vaccine and it might be available till year 2014.