



So far dengue has claimed over 200 lives and infected about 7000 people since 1997. Dengue was first detected in the capital and gradually the viral fever spread to other cities like Chittagong, Khulna, Rajshahi, Jessor, Sylhet etc. Experts predicted that the mosquito borne disease may bring havoc unless the Aedes mosquito population is brought under control. A survey last year done by the DCC Surveillance Team indicated that several areas in the capital including Gulshan, Banani, Baridhara, Dhanmondi, Lalbag, Bongshal, Shakhari Bazar have very large population of young Aedes mosquito or Aedes larvae.

What is dengue?

Dengue is a mosquito-borne infection, which in recent years has become a major public health concern. Dengue is found predominantly in urban and semi-urban areas. Dengue is an acute flu-like fever caused by virus. It occurs in the forms of Dengue fever (DF) and Dengue hemorrhagic fever (DHF). Dengue Fever (DF) is marked by an onset of sudden high fever, severe headache and pain behind the eyes, pain in the muscles and joints. Dengue hemorrhagic fever (DHF) is a more severe form in which bleeding and sometimes shock occurs. This can lead to death. It is most serious in children. Symptoms of bleeding usually occur after 2-3 days of fever. The high fever continues for 5-6 days (103-105°F or 39-40°C). It comes down on the third or fourth day but rises again. The patient feels a lot of discomfort and is very weak after the illness.

Transmission

Dengue viruses are transmitted to humans through the bites of infective female Aedes mosquitoes. Mosquitoes generally acquire the virus while feeding on the blood of an infected person. After virus incubation for 8-10 days, an infected mosquito is capable, during probing and blood feeding, of transmitting the virus, to susceptible individuals for the rest of its life. Infected female mosquitoes may also transmit the virus to their offspring by transovarial (via the eggs) transmission, but the role of this in sustaining transmission of virus to humans has not yet been delineated.

Humans are the main amplifying host of the virus. The virus circulates in the blood of infected humans for two to seven days, at approximately the same time as they have fever; Aedes mosquitoes may acquire the virus when they feed on an individual during this period.

This mosquito rests indoors, in closets and other dark places. Outside, it rests where it is cool and shaded. The female mosquito lays her eggs in water containers in and around homes, schools and other areas in towns or villages. These eggs become adults in about 10 days.

Dengue mosquitoes breed in stored, exposed, water collection systems. The favoured breeding places are: barrels, drums, jars, pots, buckets, flower cases, plants saucers, tanks, discarded bottles/tins, tires, water coolers, etc and a lot more places where rainwater collects or is stored.

Characteristics

Dengue fever is a severe, flu-like illness that affects infants, young children and adults.

The clinical features of dengue fever vary according to the age of the patient. Infants and young children may have a non-specific febrile illness with rash. Older children and adults may have either a mild febrile syndrome or the classical incapacitating disease with abrupt onset and high fever, severe headache, pain behind the eyes, muscle and joint pains, and rash.

Dengue haemorrhagic fever is a potentially deadly complication that is characterised by high fever, haemorrhagic phenomena often with enlargement of the liver and in severe cases, circulatory failure. The illness commonly begins with a sudden rise in temperature accompanied by facial flush and other non-specific constitutional symptoms of dengue fever. The fever usually continues for two to seven days and can be as high as 40-41°C, possibly with febrile convulsions and haemorrhagic phenomena.

In moderate DHF cases, all signs and symptoms abate after the fever subsides. In severe cases, the patient's condition may suddenly deteriorate after a few days of fever; the temperature drops, followed by signs of circulatory failure, and the patient may rapidly go into a critical state of shock and die within 12-24 hours, or quickly recover following appropriate volume replacement therapy.

Recognition of dengue fever

1. Sudden onset of high fever
2. Severe headache (mostly in the forehead)
3. Pain behind the eyes which worsens with eye movement
4. Body aches and joints pains
5. Nausea or vomiting.

Recognition of dengue hemorrhagic fever and shock

1. Severe and continuous pain in the abdomen
2. Bleeding from the nose, mouth and gums or skin bruising
3. Frequent vomiting with or without blood
4. Black stools like coal tar.
5. Excessive thirst (dry mouth)
6. Pale, cold skin

Management and treatment

There is no specific treatment for dengue fever. Maintenance of the circulating fluid volume is the central feature of DHF case management.

Patients suspected of having DF or DHF must be examined by a doctor. Proper and early treatment can relieve the symptoms and prevent complications and death. Steroids like Aspirin and Brufen should be avoided in dengue fever, as they are known to increase the bleeding tendency and may lead to serious complication. Steroids are contraindicated in this condition. Paracetamol can be given on medical advice. Severe abdominal pain (black stools) bleeding on the skin or from the nose or gums sweating and cold skin etc. are danger signs. If any one of them is noticed take the patient to a hospital immediately. Give the patient fluids to drink while transferring him/her to the hospital.

Prevention and control

At present, the only method of controlling or preventing dengue and DHF is to combat the vector mosquitoes.

Aedes aegypti breeds primarily in man-made containers like earthenware jars, metal drums and concrete cisterns used for domestic water storage, as well as discarded plastic food containers, used automobile tyres and other items that collect rainwater. It also breeds extensively in natural habitats such as tree holes and leaf axils.

Vector control is implemented using environmental management and chemical methods. Proper solid waste disposal and improved water storage practices, including covering containers to prevent access by egg laying female mosquitoes are among methods that are encouraged through community-based programmes.

The application of appropriate insecticides to larval habitats, particularly those which are considered useful by the householders, e.g. water storage vessels, prevent mosquito breeding for several weeks but must be re-applied periodically. Small, mosquito-eating fish and copepods (tiny crustaceans) have also been used with some success. During outbreaks, emergency control measures may also include the application of insecticides as space sprays to kill adult mosquitoes using portable or truck-mounted machines or even aircraft. However, the killing effect is only transient, variable in its effectiveness because the aerosol droplets may not penetrate indoors to microhabitats where adult mosquitoes are sequestered, and the procedure is costly and operationally very demanding. Regular monitoring of the vectors' susceptibility to the most widely used insecticides is necessary to ensure the appropriate choice of chemicals. Active monitoring and surveillance of the natural mosquito population should accompany control efforts in order to determine the impact of the programme.

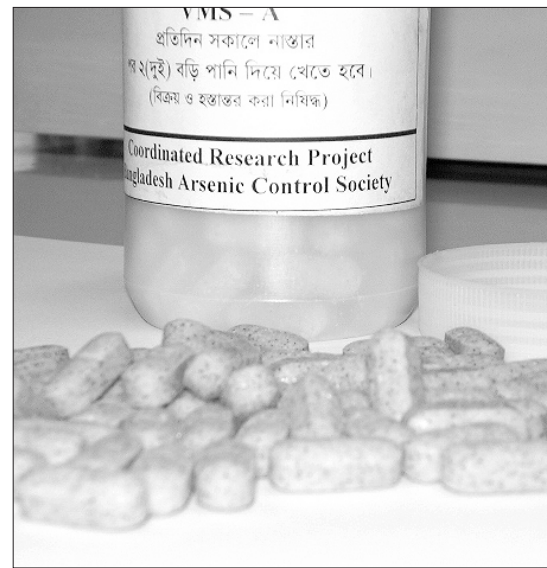
All control efforts should be directed against the mosquitoes. It is important to take control measures to eliminate the mosquitoes and their breeding places. Efforts should be intensified before the transmission season (during and after the rainy season) and during epidemics.

Bangladesh situation: Dengue outbreak history

1964: First documented outbreak of dengue in Bangladesh.
1977 - 78: Few cases of DF was found in a Clandestine Survey by IEDCR.
1982 - 83: of 2456 blood samples taken, 278 found DEN -1.
1984 - 86: 21 samples collected, 3 found positive by HI Test.
Upto 1986: Major cities were free to DHF.
1997: Cross sectional serological survey at CMCH tested 255 paired sera in which 35 were positive cases

An antidote to arsenic patients!

Bangladeshi scientists find remedy for chronic arsenic poisoning patients



(From left to right): Chronic arsenic patients in Barisal, VMS6 caplets now being used on trial, Dr Goalm Hasan Rabbani with other scientists in Hajiganj, Chandpur

NAIMUL HAQ

An experimental preparation called (VMS6) containing a blend of six vitamins and minerals has been found to be safe and useful in the treatment of patients with chronic arsenic poisoning in Bangladesh. Scientists who carried out the research claimed that the discovery would save millions of lives suffering from arsenic poisoning. This was disclosed to the **Star Health** last week by the president of Bangladesh Arsenic Control Society (BACS).

district, with support from the government and the Unicef. The results were remarkable and the scientists term the discovery as a 'break-through' in the history of modern science. Dr Golam Hasan Rabbani, a senior researcher at the most reputed research centre - ICDDR,B who is also the director of the project under which the research was carried out said that it is the first scientific evidence showing successful treatment using vitamins and minerals including vitamin C, E, beta carotene, selenium, folic acid, and zinc. Dr Rabbani pointed out, "The findings will not only be useful for arsenic-affected patients of Bangladesh but millions of patients in

Taiwan, China, Mexico, Argentina, Chile, USA, and India where large scale arsenic poisoning have also been reported but Bangladeshis would benefit from the discovery most as the magnitude of the problem is manifold here" Dr Rabbani continued, "The importance of this experimental study has been recognised internationally by the Global Health Council and I have been invited to present the findings in its Annual Conference in Washington DC, USA next month (26-30 May 2003)."

The findings indicate that daily intake of two VMS6 caplets for 12 months significantly increased urinary elimination, arsenic contents in hair and nail tissue are also reduced by 2-3 folds in 12 months. The results show that Bangladeshi patients excrete less arsenic in urine and retain more in the body because of poor ability to stimulating methylation or the process of breaking down of the toxic arsenic into less toxic elements. Thus VMS6 would be useful for patients to eliminate arsenic from the body through urine. These observations indicate that arsenic toxicity can not be fully cured by giving arsenic-free water alone, as believed by many scientists. For better effects it needs to be supplemented with antioxidant agents such as vitamins and minerals.

Dr Rabbani explained, "A combination of vitamin-minerals and arsenic-free water could be an important strategy for arsenic mitigation in Bangladesh. However, more studies will be needed to determine the best combination of vitamins, their doses, and duration of treatment. The effect of treatment in reducing the risks of long-term complications such as cancers needs to be determined. Once the product is scientifically validated, it can be recommended for general use"

Professor S M Keramat Ali, Professor M Alauddin (from New York), Dr H K Das, Dr Afzal Hossain, Dr P K Sengupta, Dr M Nasir, Moyenu Islam, and Dr S K Saha were co-researchers who also took part in the same study mostly spending time in the village.

Some facts about arsenic poisoning

It is estimated that roughly between 70 and 85 million people are now exposed to drinking arsenic contaminated water most of which are drawn from hand-pumped tubewells in 62 districts of the country. Several surveys show that on average more than 80 per cent of the tubewells in some severely affected villages are contaminated by naturally occurring arsenic in groundwater. Studies show that those who have been drinking arsenic contaminated water for five to fifteen years have developed various symptoms, the most common one being black and white spots on the skin termed as keratosis and melanosis.

The magic pill! In this study, each patient was given two caplets of VMS6 daily for six months and then on alternate months for another six months (total 12 months) along with arsenic-free water using simple two-bucket Sono water filter. Laboratory analyses were carried out at the same time at the Intronic Laboratory in Dhaka in collaboration with Wagner College, City University, New York. The mean age of patients were 42.2 years, most patients were malnourished and were exposed to arsenic for 4 - 8 years. The highest concentrations of arsenic in drinking water was 1400 parts per billion (ppb) with a mean of 619 ppb, most of the arsenic in water is in the inor-

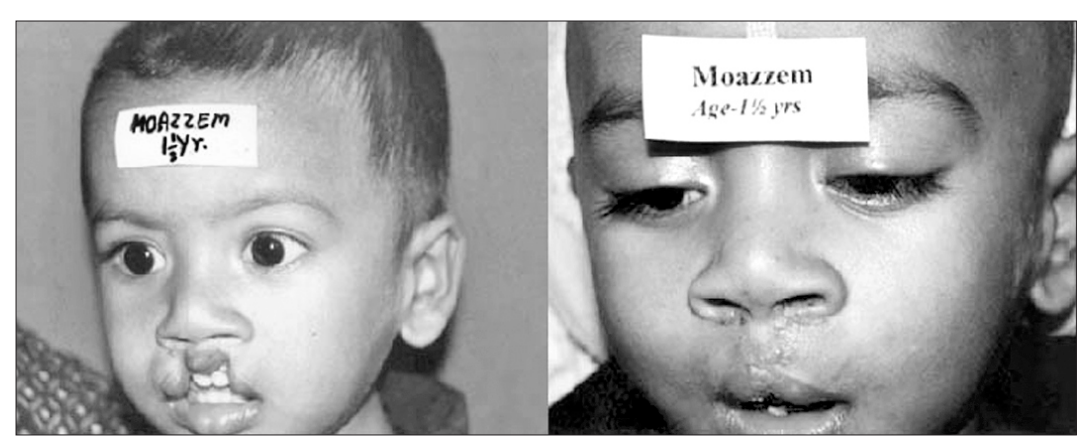
ganic form (AsIII and AsV) and the maximum level of arsenic allowed in drinking water by Bangladesh standard is 50 ppb. The mean age of patients were 42.2 years, most patients were malnourished and were exposed to arsenic for 4 - 8 years. The highest concentrations of arsenic in drinking water was 1400 parts per billion (ppb) with a mean of 619 ppb, most of the arsenic in water is in the inor-

convert (methylation) arsenic into less toxic MMA and DMA due to malnutrition and protein deficiency. In these patients, treatment with VMS6 significantly increases MMA /DMA contents in urine by

A lesson for our young doctors

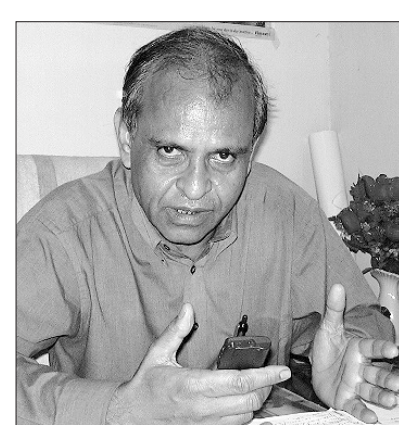
STAR HEALTH DESK

A team of doctors, nurses, anaesthetists and medical technologists have started a goodwill mission to help poor people who require simple surgery. The team has been organising mobile camps to perform surgery on mostly children and so far they have performed over 300 surgery all free of cost. Most of the beneficiaries said they could never afford paying for such surgery not to speak of covering cost of travelling and accommodation in capital where such surgery is widely available but expensive. The Star Health recently spoke to Dr SL Sen, one of the pioneers of the surgical team and explained how the mission was made successful despite hardships and fund constraints. The journey began in September 2001, when I myself along with Professor Khalilur Rahman (Anaesthesia), Brigadier General Nazmul Huda, Director of Dhaka Medical College Hospital, DMCH, Prof. Anowara Begum (Gynaecologist), Dr Lutfur Rahman (Civil Surgeon, Dhaka) and Dr Nasima (Unicef) went to Nawabgonj Upazilla Health Complex for a reproductive health programme. During the visit I observed that the health complex has all the facilities like an operation theatre (OT), a modern OT light and anesthesia machine but there was not much out put and then I thought to myself why patients crowd in capital for treatment especially for simple surgeries despite having adequate facilities at the thanalevel. It was really painful to see that a moderately well equipped hospital at rural setting was lying unutilised. I then recalled that I myself have organised visits by many plastic surgery teams from UK, Italy, USA,



One and a half years old boy before and after his surgery.

"I became a doctor using people's tax money. So it is my obligation to give something back to them. I enjoy every minute when I perform surgery on a poor travelling far away from the capital. In fact, my duty is not confined to the boundary of Dhaka Medical College Hospital (DMCH), the place where I work but I feel that experts like myself should travel and help transfer knowledge to our younger generation surgeons and encourage them to perform in the rural settings."



Dr Samanta Lal Sen

Prof. Khalilur Rahman

Belgium, Canada and India at Suhrawardy Hospital, RIHD or better known as Pongu Hospital, and at DMCH at different time of my 25 years of experience as a plastic surgeon. So, after seeing the well-equipped OT in the upazilla health complexes I was tempted to organise a camp for cleft-lip patients at upazilla level. I have noticed that the majority of cleft-lip patients are coming from rural areas and from poor socio-economic condition. With the idea of holding camps outside the city I immediately discussed the concept with Professor Khalilur Rahman and Brig Gen Najmul Huda both of who showed tremendous interest. This unique mission started from the 1st day of January 2002 and ultimately the DMCH Burn Unit in collaboration with Department of Anaesthesiology of the same hospital started the programme. According to an estimate number of cleft-lip and palate patients especially children is 300,000 in the country and majority of the children remain untreated largely due to lack of facilities and money. The camp has so far carried out 27 such surgeries in over 15 districts. Most of the patients are released after four to five hours after surgery and for follow up local doctors are given specific instructions. Often, if necessary, stocks of medicines are also left with local thana health complex. What is cleft lip It is a deformity of the upper lip joint that creeps up from the middle and joins into the lower side of the nose. Cleft-lip or disjointed lip occurs since birth and it is not a disease but simple disfigurement that can be corrected by surgery. It is also very common in rural area among low socio-economic group. There is a common belief that no

major surgery is possible at rural settings except ligation, vasectomy and recently introduced caesarian section at selected healthcare facilities. But I want to prove that this is not true. We have done surgeries despite hardships and with the support of the government and local people I am sure we can continue this mission. What we are trying to prove is that, if proper facilities are in place, almost all commonly done operation are possible at upazilla level. If we can ensure constant supply of inexpensive medicines and necessary accessories as well as experts going out in the rural areas once or twice a year training the young doctors I believe most patients coming to the capital for simple surgery can be stopped and the unnecessary financial burden on the poor can be avoided. When we started our camp in 2002 "SpaandanB" a California (USA) based Bangladeshi organisation was our main sponsor. After completion of a few camps a Bangladeshi gentlemen working in New York (USA) noticed our activities reading about us in several newspapers on the web and offered support. The gentleman, who refused to be identified, took the leadership in establishing an organisation called "HUMANITY WITHOUT BORDERS" in New York. The organisation is now our main sponsor but there are others who also joined in this mission. Ashiana Foundation, British Women Association in Bangladesh different branches of Inner Wheel Club and one individual Kaiser Ahmed Choudhury, they are all our partners in this mission. Dr Samanta Lal Sen is the Chief of Burn and Plastic Surgery of the 50-bed Burn Unit Project at Dhaka Medical College Hospital.