Dengue Fever: A Drain on Health Resources

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Dengue fever is a very hot topic nowadays, not only among health professionals but among politicians as well. And it is rightly so because since 2010, Pakistan has been experiencing an epidemic of dengue fever that has caused 16 580 confirmed cases and 257 deaths in Lahore and nearly 5000 cases and 60 deaths reported from the rest of the country. The three provinces facing the epidemic are Khyber Pakhtunkhwa, Punjab and Sindh. This year Punjab has reported 2300 cases, of which 50% alone are from Rawalpindi District. In spite of allocation of additional funds it has resulted in draining much of the already meager health resources.

While handling the epidemic a lot of emphasis was on providing indoor treatment facilities including platelet transfusions to as many patients as possible. While doing so important principals of community medicine for dealing with epidemics were largely ignored because of the political pressure on the hospital administrators and doctors.

It is not only Pakistan facing this menace, it is estimated that about 2.5 billion people (over 40% of the world population) are at risk. There are about 50-100 million cases occurring in the population at risk every year. Dengue is transmitted by an Arthropod (mosquito Aedes aegypti) and caused by a Flavivirus infection, the primary host of which are human. Therefore the emphasis for controlling the disease should be on the vector control (mainly Aedes aegypti mosquito) and protection from mosquito bite. This is what the WHO recommends. Obviously the responsibility for vector control rests on Civic bodies and the society itself. In a country where leaking fresh water pipes, broken roads and ditches holding rain water, tyres and pottery shops are abundant with no sense of responsibility for regular garbage disposal and mosquito control, there is abundant space for breading of vector. This is added by underground fresh water tanks, most favorite site for Aedes to breed is in almost every house. The money which is spent upon providing treatment facilities, which are expensive, should be diverted towards improving civic services and creating awareness about the preventive measures, which are far less expensive. Prevention is better than treatment as it also reduces morbidity whereas treatment will only reduce mortality.

The World Health Organization recommends an Integrated Vector Control program consisting of five elements. If these are practiced in an integrated manner, the disease can be prevented. These are:

1. Advocacy, social mobilization and legislation to ensure that public health bodies and communities are strengthened;
2. Collaboration between the health and other sectors (public and private);
3. An integrated approach to disease control to maximize use of resources;
4. Evidence-based decision making to ensure any interventions are targeted

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appropriately; and

5. Capacity-building to ensure an adequate response to the local situation.

This should also be remembered that not every person suffering from fever, body aches and thrombocytopenia is suffering from Dengue. Malaria, especially falciparum malaria which is also caused by mosquito bite and which also occurs in about the same season has similar signs and symptoms. It is essential that all blood slides from suspected patient must be seen by a well-trained technician, if not by a haematologist. I have yet to see a case of falciparum malaria which does not have some degree of thrombocytopenia. Another important differential diagnosis is Chickengunya virus infection. It is also caused by bite of Aedes mosquito and has sign and symptoms very similar to Dengue. Therefore appropriate laboratory diagnosis is also important to establish the diagnosis of Dengue fever.

Even if the diagnosis is confirmed, patient needs not to be admitted in the hospital and if admitted he needs not to be in an isolation ward. Patients of Dengue are best isolated under a mosquito net in the same ward. WHO in 2009 gave new Dengue case definition to facilitate decision regarding indoor management of patients. These are:

A. Dengue without Warning Signs expanded: When there is fever and two of the following:

- Nausea, vomiting
- Rash
- Aches and pains
- Leukopenia
- Positive tourniquet test

B. Dengue with Warning Signs expanded: Dengue as defined above with any of the following:

- Abdominal pain or tenderness
- Persistent vomiting
- Clinical fluid accumulation (ascites, pleural effusion)
- Mucosal bleeding
- Lethargy, restlessness
- Liver enlargement >2 cm
- Laboratory: increase in HCT concurrent with rapid decrease in platelet count

C. Severe Dengue expanded: Dengue with at least one of the following criteria:

- Severe Plasma Leakage leading to:
  - Shock (DSS)
  - Fluid accumulation with respiratory distress
- Severe Bleeding as evaluated by clinician
- Severe organ involvement
  - Liver: AST or ALT ≥1000
  - CNS: impaired consciousness
  - Failure of heart and other organs

In (A) hospital admission is not required. Second stage requires close supervision and medical intervention but admission and vigorous treatment is essential in third case. Following WHO guidelines, both for prevention and treatment with strict monitoring and audit will not only substantially reduce the cost of Dengue control but may completely eliminate the disease.