Epidemic Threat By Emerging Viruses In India: Cause For Concern

Epidemics of viral infections very often hit the headlines of newspapers in India. The most recent one being the epidemic of encephalitis which raged in Uttar Pradesh and Bihar, killing many children and creating a sense of despair in the community. Epidemics are known to go hand in hand with poverty, poor social conditions, and bad governance, creating untold tales of misery.

There are to date nine viruses which have caused major epidemics: Japanese Encephalitis, Dengue, Chikungunya, Kyasanur Forest Disease, Chandipura, Crimean Congo Hemorrhagic Fever (CCHF), Hepatitis E and Nipah virus. There are another nine viruses which have caused smaller outbreaks, but some of them have the potential to cause major outbreaks and enter into the first group. They include: Hepatitis A, West Nile, Measles, Rotavirus, Chicken Pox, Adenoviral Conjunctivitis, Coxsakie A24 conjunctivitis and Hepatitis B.

Recently the chikungunya virus has produced two large scale outbreaks. One in 2006 and another in 2009. Fortunately the mortality in these epidemics has remained low in contrast to the morbidity rates involving the small joints of the hands and feet seen in a large number of people. The emergence of Chikungunya virus producing such large epidemics has been attributed to the genetic changes seen in the recent virus strains, making them better adapted to the vectors and empowering the virus with high degree of transmissibility. The epidemic strain of recent outbreaks is thought to have emerged in the Reunion Island (a French island in the west Indian ocean) and spread to other parts. The Chikungunya experience makes us to look at the other emerging viruses which may become epidemic threats in India. They include Nipah virus, CCHF virus, Hanta virus, and Adult Diarrheal Rota Virus (ADRV).

Nipah Virus and CCHF virus have emerged as new epidemic agents in the recent years in India.[1] Nipah virus has caused an epidemic with febrile manifestations and encephalitis at Siliguri in West Bengal. Fever, headache, vomiting, convulsions, loss of consciousness, breathlessness and coma constituted the clinical picture. Among the 66 patients affected, the case fatality rate was 74%. The hospital staff and the visitors of the patients were among those affected due to transmission from the patients. There was family clustering and the disease spread from one hospital to another. Nipah virus which had earlier caused epidemics in Malaysia, Singapore and Bangladesh is known to be transmitted from bats to man or from bats to pigs and then on from pigs to man. The range of distribution of the reservoir bats (Pteropus giganticus) includes most of India and parts of Nepal and Pakistan calling for vigilance for the occurrence of Nipah virus in other parts of the subcontinent.

CCHF was earlier found to occur in Pakistan. We in India, were expecting it to arrive any time since 1976. Virus has made entry recently: there were 4 cases at Ahmadabad Hospital.[2] Last year a 42 year old woman who happened to be the Index case, presented with fever, body ache, abdominal pain, nausea, vomiting, and breathlessness. The laboratory findings were: leucopaenia, thrombocytopaenia, elevated ALT AST CPK LDH levels, and prolonged PT aPTT .She died of shock. The physician who looked after her and the nurse who nursed her in the ICU contracted the fatal hemorrhagic fever from her and died. The husband of the Index case who was admitted 9 days after her death was saved presumably by Ribavirin administration. CCHF viral RNA could be demonstrated in the blood from the nurse and the husband of the Index case. Ticks collected from the location had high content of CCHF viral RNA. This episode calls for investigating any undiagnosed hemorrhagic fever in the country for evidence of CCHF. Both the above episodes: Those of Nipah virus outbreak at Siliguri and CCHF virus infections at Ahmadabad stress the need to strictly follow standard precautions while dealing with patients as nosocomial infections can be fatal.

The recent publication of Hanta virus infections from Vellore, Tamil Nadu is another eye opener.[3] It testifies to the existence of Hanta virus, a rodent borne virus amidst us which potentially is capable of causing fatal infections any time.

Rota viruses, which are usually associated with infantile diarrhea, have recently caused rural epidemics involving adults in Gujarat and Maharashtra. Investigations have shown that the agent is a Group B Rota virus, known as Adult Diarrheal Rota Virus.[4] In the past, ADRV has caused explosive epidemics of diarrhea involving 12,000 to 20,000 adults in China. The existence of ADRV infections in the country and occurrence of rural epidemics are again of concern to us.

All these events in the spread of epidemic prone viruses call for great degree of alertness in diagnosing infections, planning, and preparedness to combat an epidemic situation when warranted.

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