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EDITORIAL

ENCEPHALITIS MENACE IN INDIA : MAJOR CAUSE FOR CONCERN

BBC News India, July 22, 2014 reports - Viral encephalitis has killed hundreds of children in India over the last decade. At least 60 people died in a recent outbreak of viral encephalitis in the eastern Indian state of West Bengal. Doctors say patients come from seven affected districts in northern Bengal.

Times of India, Aug 5, 2014 states Japanese Encephalitis (JE) and Acute Encephalitis Syndrome (AES) have killed 1,890 people in the state since 2008, making Assam the second-most vulnerable state in the country in the last five years. In the year 2013, UP recorded 3,096 AES cases, resulting in 609 deaths.

The above two reports clearly indicate that the incidence of JE and AES in recent times, particularly in India is showing an increasing trend. It appears that JE has become one of the major public health problems in India with over 17 States affected by the disease, considering the quantum of the vulnerable pediatric population, the proportion of JEV infections among the encephalitic children and wide scattering of JE-prone areas. Mostly children below 15 years are affected. About 25 per cent of affected children die and among survivors about 30-40 per cent suffer from physical and mental impairment. Highest rates of JE have been reported from the states of Andhra Pradesh, Assam, Bihar, Goa, Haryana, Karnataka, Kerala, Tamil Nadu, Uttar Pradesh, and West Bengal.

According to the CDC (Centers for Disease Control and Prevention), USA, encephalitis occurs in approximately 0.5 in every 1000,000 individuals, most of them are children, elderly people and individuals with weakened immune systems. The National Health Service, UK places the figure at 1.5 cases per 100,000 people. Health authorities suspect incidence is higher than official figures because many cases go unreported when symptoms are mild.

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Wikipedia states - Encephalitis (from Ancient Greek, *enképhalos* "brain", composed of "in" and *kephalé*, "head", and the medical suffix *-itis* "inflammation") is an acute inflammation of the brain. Encephalitis with meningitis is known as meningoencephalitis. Symptoms include headache, fever, confusion, drowsiness, and fatigue. More advanced and serious symptoms include seizures or convulsions, tremors, hallucinations, and memory problems.

When there is direct viral infection of the brain or spinal cord it is called *primary encephalitis*. *Secondary encephalitis* refers to an infection which started off elsewhere in the body and then spread to the brain. As mentioned in Wikipedia, the most common causes of acute viral encephalitis are *rabies virus, Herpes simplex, poliovirus, measles virus, varicella zoster virus,* and *JC virus*. Other causes include infection by *flavivirus, St. Louis encephalitis virus* or *West Nile virus,* or by Togaviridae such as *Eastern equine encephalitis virus* (EEE virus), *Western equine encephalitis virus* (WEE virus) or *Venezuelan equine encephalitis virus* (VEE virus), *variola minor virus* and *variola major virus*.

Japanese encephalitis (JE) virus is a single-stranded RNA virus that belongs to the genus *Flavivirus* and is closely related to *West Nile* and *Saint Louis encephalitis viruses*. *Flavivirus* reproduces in pigs but doesn't infect them. So, pigs are amplifying hosts. Mosquitoes belonging to the *Culex tritaeniorhynchus* and *Culex vishnui* groups usually breed in flooded rice fields and prefer to take blood meals from pigs rather than from humans. But when the population of such mosquitoes increases exponentially during rainy season, human biting rate increases and thus *flavivirus* gets transferred from pigs to humans and causes JE. Man is the dead end host, i.e. JE is not transmitted from one infected person to other.

In Oct 2012, Government of India launched a Rs.4000 crore plan to tackle JE problem. Main Target States were Uttar Pradesh, West Bengal, Tamil Nadu, Bihar and Assam. This plan was jointly implemented by Ministries of Health and Family Welfare, Drinking Water and Sanitation, Social Justice and Empowerment, Housing and Urban Poverty Alleviation, Women and Child Development. The Plan had following components: Vaccination of Children (1.5 to 15 years age group), provide safe drinking water to the affected persons by replacing shallow tubewells with deep tubewells (to prevent AES), provide proper sanitation facilities, provide alternative means of livelihood for pig-rearing farmers, set up special schools for mentally challenged children.

Increase in population density, deforestation, and increase in agricultural area can lead to rise in JE. In areas known to have mosquitoes that carry encephalitis causing viruses, measures are to be taken to reduce the risk of being bitten. This may include wearing appropriate clothing, avoiding mosquito-infested areas, avoiding going outside at specific times during the day when there are lots of mosquitoes about, keeping homes and surrounding areas mosquito-free, using mosquito repellant, and making sure there is no stagnant water around the house. Vaccination proves to be the best to protect the individual against any disease. JEEV is the brandname of India's first indigenously developed vaccine launched in 2012 for JE. There is no other vaccine available to private doctors in India currently. But the company has yet to obtain approval of WHO to export this vaccine to other countries. It is also essential to immunize the pigs (amplifying host) to interrupt the transmission of the disease.

The question arises whether the Action Plan remains to be actually implemented at the ground level and whether proper utilization of the grant is actually undertaken. Until and unless a proper monitoring system is maintained for supervising the implementation of the plan at grassroot level and proper accountability of the fund is maintained, the cause for concern may turn into inevitable disaster.

Business Line New Delhi, August 4, 2014 states - India is looking for help from the US to identify the causes of the recent outbreak of JE and AES, which have taken several lives over the past few months. Atlanta-based Centre for Disease Control is investigating the cause of the outbreak along with the National Centre for Disease Control and Indian Council for Medical Research. Vaccination against JE has been completed in 57 of these districts, while the other three would be covered during this year, the Minister of Health, Harsh Vardhan, said to Business Line. He said the Ministry had released funds for setting up paediatric ICUs in 30 districts, while funds for the remaining 30 districts will be released soon. He informed that in 2014-15, Rs 48.75 crore has been allocated for JE and AES-related activities. Last year, the Centre sanctioned Rs 365 crore for a vaccination drive.

It is quite apparent that the Indian Government is well aware of the menace of JE and AES attack and has been allocating huge amount of funds on Action Plan since last

5 years to control spreading of these diseases along with Malaria and Kalaazar. However, when there is no dearth of funds and Government is fully aware of the oncoming major cause for concern, then why the spread of JE is not controlled and eradicated well in time? Why the vaccine for JE launched in 2012 is not being implemented and made mandatory as made for polio?. The question arises whether the Action Plan remains to be actually implemented at the ground level and whether proper utilization of the grant is actually undertaken. Until and unless a proper monitoring system is maintained for supervising the implementation of the plan at grassroot level and proper accountability of the fund is maintained, the cause for concern may turn into inevitable disaster. ❐

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