

Editorial

Vaccination Should be a Priority Approach for Japanese Encephalitis Prevention in Nepal

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Japanese encephalitis (JE) is a severe disease that is widespread throughout Asia and is spreading beyond its traditional habitat. JE is primarily a zoonotic disease infecting mainly vertebrate animals, *e.g.* pigs, birds, horses *etc.* Man is involved in transmission cycle as an incidental host and plays no role in perpetuating the virus. JE is principally a disease of rural agricultural areas, where vector mosquitoes live in close association with the main vertebrate hosts. Pigs, wading birds and ducks have been incriminated as important vertebrate amplifying hosts for JE virus. Humans and horses may become ill in transmission cycle.

In Nepal, a total number of 27584 Japanese encephalitis (JE) cases and 5382 deaths have been reported, with an average case fatality rate of 19.5% in aggregate since 1978 to 2004. Past trend of the disease has shown that JE outbreaks are circumscribed and do not cover large areas. However, it depends on the flight range of the vector mosquitoes, presence of pigs as an amplifying hosts and the presence of a susceptible human population. During twenty-six years period of time, the highest number of cases were reported in 1997 (2953 cases) and the second highest were in 1999 (2924 cases). Similarly, highest number of cases was reported from Far-western and Mid-western Development Regions. The lowest number of cases (54 cases) with mortality (CFR 29.6 percent) has been reported during the year 1981. The highest case fatality was observed in 1982 (CFR 46.3 percent). The overall mortality of JE varies from 8.5 percent (2004) to 46.3 percent (1982) (Joshi, 2004).

The study conducted in Kailali district of Nepal on economic impact of JE revealed that the total disability adjusted life years (DALYs) lost was 493.92. The average total time loss of the household (both patient and caretakers) was 90 person days. Thus, JE imposes multidimensional impact such as economic burden on the household, burden on the local health system, burden on society and increase in the marginal poor (Adhikari and Sharma, 2002).

In Nepal, recommendations have been made on vector control/insecticide spraying, awareness, vaccination, animal health sector coordination, water management and integrated farming and biological control for the prevention and control of JE. The government of Nepal had used DDT in very first intervention during 1994/95, followed by malathion during 1995/96, Lambdacyhalothrin and K-ornithrine *etc.* Currently, Lambdacyhalothrin is extensively being used in the visceral leishmaniasis,

malaria and JE endemic districts of Nepal (Ojha *et. al*, 2001). However, insecticide spraying is not found effective in reducing JE cases.

The vaccination program was conducted in certain districts of Nepal during 1999 to 2001. Altogether, 121,000 children in Bardiya, 56,000 in Banke and 46,000 in Kailali were vaccinated against JE with SA-14-14-2 live attenuated BHK-vaccine in 1999. The population-based coverage was 83.5 percent in Bardiya, 41.3 percent in Banke and 21.9 percent in Kailali districts (The overall estimated coverage 45.5 percent). During 2001 and 2002, 2 millions doses of inactivated JE vaccine (total 4 doses) was administered among six months to 10 years age-group population in Rupandehi, Dang, Banke, Bardiya, Kailali and Kanchanpur districts. Altogether, 481,421 children aged between 6months to 10 years were vaccinated during 2001/2002. It is revealed that in most instances the disease morbidity has been reduced except in Banke district during the year 2001. The incidence of the disease among non-vaccinated districts was found to be comparatively higher than the vaccinated districts. Vaccination has been found an effective intervention in reducing the JE morbidity and mortality. The case control study about the efficacy of single dose SA-14-14-2 vaccine against JE conducted during 1999 also revealed that the efficacy was 99.3 percent when administered only days or weeks before exposure to infection (Bista *et. al*, 2001). Therefore, it is recommended for regular JE vaccination in all endemic areas. Besides, the people visiting from non-endemic area to endemic areas, JE vaccination is highly suggestive.

References:

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