ASSAM IS MORE VULNERABLE FOR JEV INFECTION AS COMPARED TO OTHER STATES IN INDIA: FEW IMPORTANT FACTS

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ABSTRACT

In 2014, large numbers of Japanese encephalitis cases were observed in Assam as compared to other states in India. Maximum numbers of Japanese encephalitis cases were reported from Assam, may be due to the improved laboratory diagnostic facility at district level as well as timely and sufficient surveillance system. Risk factor includes, increase in the number of swine population, remarkable rising of piggery firms, flooding, migration of people, presence of unvaccinated people, unhygienic condition etc. Special focus should be needed to control the domestic pigs and piggery firms. It is also important to find out those people who are not-vaccinated still today and immunized them with JEV vaccine.

Keywords: Assam, Japanese encephalitis, Swine.

INTRODUCTION

Assam is mostly vulnerable for Japanese encephalitis (JE) infection as compared to other states in India. It shares approximately 46.95% of total Japanese encephalitis (JE) positive cases reported all over the country in 2014 (www.nvbdcp.gov.in). From the observation of last six years JE scenario in Assam, it has been depicted that, maximum numbers of JE positive cases were detected during the year 2014. In the same year, the overall statistics shown that the nearby state West Bengal shares the second largest burden of JE only being next to Assam. Epidemiological history revealed that the incidence of JE has been reported from the early seventies in Assam. The first outbreak was reported in 1978 from Lakhimpur District of Assam [1]. Since then major outbreaks occurred from time to time in different parts of Assam (www.nvbdcp.gov.in).

Nowadays Acute encephalitis syndrome (AES)/JE cases are detected in 25 district of Assam. However, still today, AES/JE cases are not detected from three districts in Assam, namely Hailakandi, Karimganj and Dima Hasao. From the last few years, it has been seen that, the incidence of AES/JE cases was highest in seven upper Assam districts. However, during the year 2014, large numbers of AES/JE cases were also reported from Kamrup, Barpeta and Nalbari districts (Lower Assam). Transmission of AES/IE is year round. However, the peak season was noticed during the month of June to July every year. Earlier, JE is primarily considered as a disease of children, but nowadays JE records an age shift [2]. Depending upon the age shift of JE cases, the government of Assam has decided to vaccinate the entire population in the worst affected districts of Assam. As on 22nd February, 2014, adult vaccination was launched in nine districts of Assam. By this step, Assam is become the first state in the country to administer vaccination for Japanese Encephalitis (JE) for adults. This campaign including Kamrup (Dimoria development block and Chandrapur development block), Sivasagar, Golaghat, Jorhat, Dibrugarh, Tinukia, Dhemaji and Lakhimpur district of Assam. Before this, JE vaccination campaign was launched during 2006 wherein 11 most sensitive districts in Assam, Karnataka and Uttar Pradesh were covered. Again in 2011, the first phase of adult vaccination was introduced by the health department in mostly affected Sivasagar district of Assam to perceive the impact and efficacy of the vaccine.

Recent studies on JE in Assam

In 2014, a study was conducted by Sharma J et al., in Dhemaji district of Assam. According to the study, a total of 48 (forty eight) AES/IE cases were detected during 2013 from different areas in Dhemaji district of Assam. The positivity rate for JE was 28.13% with a case fatality rate of 44.44%. According to their findings, 0 to 15 years of age groups were mostly vulnerable for JEV infection. Clinical symptoms include fever and change in mental state as a common problem among the AES/IE patients. The initial case was noticed during the month of January and since then sporadic cases were reported from different villages in Dhemaji district over the year. However, the incidence of AES/IE cases was elevated during the month of June to July [3]. In 2013, Sharma J et al., carried out a prospective hospital-based study for AES/IE cases in Lakhimpur, Assam. This study was undertaken for a period of 5 years (January 2008–October 2012). During this period, a total of 217 (Two hundred and Seventeen) AES/IE suspected cases were found from different areas in North Lakhimpur District of Assam. During the period of five years, 54 (fifty four) patients expired due to AES/IE infection. Serological diagnostic test revealed that 66 (Sixty six) nos of cases were found to be positive for JE IgM antibodies. Case fatality rate for JE was 18.18%. Most of the AES/IE cases were observed between the age ranges of 6-30 years. Males were highly affected. A positive correlation was established between the nos of occurrence of AES/IE cases and monthly rainfall [4, 5].

In 2014, a total of 761 numbers of JE positive cases were detected in Assam (www.nvbdcp.gov.in) with a case fatality rate of 21.68%. Comparing the incidence from 2008, it was the first time that the numbers of JE positive cases crossed 500 or more. There are many reasons which are believed to be associated to the high incidence of AES/IE cases. The number of JE positive cases significantly increased due to improved laboratory facility at the district level. Before 2010, limited laboratory conveniences are available for diagnosis of JE. So, most of the AES cases were missed out for laboratory test and we cannot achieve the actual prevalence of JE. Another reason is the prompt and accurate surveillance system. Due to active engagement of health workers/officials from the periphery to higher level, any suspected AES cases could be detected and examined in the laboratory.

Factors responsible for JE transmission

The presence of unvaccinated people who refused to take the vaccine or the people who were not present in their locality during vaccination period, may be at risk for JE infection in near future due to lack of immunity against JE virus in their body. Beside this, recent increase in the swine population is a major reason for the rapid spread of JE in the region. Flooding of paddy fields makes a suitable environment for proliferation of the mosquito population and such increase in mosquito populations are responsible for spreading the flavivirus infection in human settlements. Beside this, the prevalence of animal, human and bird vectors is also greater in numbers in JE endemic areas in Assam than in the other parts of the state. Beside this, Nowadays it
has been seen that, pig firming gaining importance as pig is an integral part of the life of tribal people. In some rituals, pig is compulsory for tribal people. Some people used it as business purpose for income source. So, preventative measures should be taken properly. Education for pig rearing persons/vendors should be provided. The movement of pig must be controlled as they are the carrier. They must be kept one place and far away from residential house. Eliminating the pig population is an important step in the wake of outbreaks. Beside this, there are other risk factors that include globalization along with unplanned and uncontrolled urbanization, many developmental activities, poor environmental hygiene etc are playing a significant role in the spread and transmission of AES/JE cases in Assam [6]. Also, migration of people both within the country and across borders carrying greater risk of JE virus transmission. Although several risk factors have been recognized for an occurrence and subsequent outbreak of JE, but their exact roles in the regional context need to be studied to take decisions about the type and mode of intervention.

CONCLUSION
To control the burden, first and foremost thing is to provide awareness among the people regarding the cause and route of JE transmission. People should avoid themselves from contact with animal, exposure to mosquito bites, exposure to flooding water and ingestion of untreated water etc. By taking the above precautionary measure, one can expect to get rid of this serious infection.

CONFLICT OF INTERESTS
Declared None.

REFERENCES