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RAJASTHAN ZIKA STRAIN IS ENDEMIC TO ASIA, SAYS NEW STUDY

Relevant for: Developmental Issues | Topic: Health & Sanitation and related issues

A file photo of a municipal worker fumigating a residential area to check the spread of Zika and other mosquito-borne diseases in New Delhi.APManish Swarup

The Zika virus that infected 159 people in an outbreak in Rajasthan last year, could have been circulating in India for several years and is endemic to Asia, according to a new study published in the journal *Infection, Genetics and Evolution* this week.

The study, led by authors from Pune's National Institute of Virology (NIV), an institute under the Indian Council of Medical Research (ICMR), is the first to sequence full Zika virus genomes from India.

Confers herd immunity

"The finding that the outbreak was caused by an endemic virus is quite important," said Nathan Grubaugh, an epidemiologist from the Yale School of Public Health, who was not involved in the study.

"It suggests that people in the region may have been previously exposed to the virus, building herd immunity that may limit future outbreaks."

During the latter half of 2018, India recorded its first major Zika outbreaks in Rajasthan and Madhya Pradesh.

Around then, the ICMR said the Rajasthan virus had been sequenced and was closely related to a virus that had caused large epidemics and birth defects in Latin America in 2015.

Then, in November 2018, the Ministry of Health and Family Welfare issued a press release, citing the NIV's research, to say that "known mutations" for foetal microcephaly were not present in the Rajasthan strain.

The Hindu has previously reported that the statement about "known mutations" was interpreted by MP's health authorities to mean that the Indian viral strain could not cause birth defects. The Ministry and ICMR were criticised for the misleading wording, but did not issue a clarification.

Crucial contradictions

This week's publication contradicts the ICMR's previous statements in two ways. First, it indicates that the Rajasthan Zika strain is not closely related to the Brazilian one.

"It appears that the Indian strain has been around for a while…The Brazilian strain diverged more recently," said Farah Ishtiaq, who studies the effects of infectious diseases on ecology at Bengaluru's Indian Institute of Science.

Prof. Grubaugh adds that the phylogenetic analysis in the paper, along with previous research, suggests that the virus has been in Asia for "at least 50 years".

“Based on limited data, I suspect it is [endemic to India],” he added.

While this is good news, because it implies that a portion of the population could be immune, it could also mean that Zika-related birth defects such as microcephaly were occurring even before the virus was first detected in India.

The NIV paper is also more cautious than the Ministry’s press release on the implications of a mutation in the viral genome called S139N.

In a 2017 paper published in *Science* , the existence of this mutation in the Brazilian strain was linked, using animal data, with microcephaly.

Based on this paper, the Ministry press release had said the Rajasthan strain didn’t have the “known mutation”.

The current paper says: “A word of caution should be maintained on the claims of these mutations on the development of microcephaly in humans, given no direct clinical evidence of their effect.”

Emailed questions to Devendra T. Mourya, NIV Director and corresponding author of the paper, were not answered.

While endemicity means that large outbreaks, such as the Brazilian one, may not occur in India, serosurveys are needed to confirm this, said Prof. Grubaugh. In a serosurvey, a sample of the population is tested for Zika antibodies.

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