ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 8, Issue, 06, pp.32638-32640, June, 2016

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

ZIKA – THE TERROR LOOMS LARGE OVER INDIA

***[1]Bhattacharya M. K., [1]Moitra, S., [2]Sharma Sarkar, B. and [3]Bhattacharya, A.,**

[1]National Institute of Cholera and Enteric Disease, Kolkata
[2]BankuraSammilani Medical College, West Bengal
[3]Post Graduate Medical Student, KPC Medical College, West Bengal Health University

ARTICLE INFO

Article History:
Received 24th March, 2016
Received in revised form
17th April, 2016
Accepted 28th May, 2016
Published online 15th June, 2016

Key words:

Zika,
Viral,
Fever.

ABSTRACT

The infection, known as Zika fever, often causes no or only mild symptoms, similar to a very mild form of dengue fever. Zika may spread from a pregnant woman to the baby. This may result in microcephaly and other severe brain problems. (Rasmussen, Sonja *et al*., 2016; "CDC Concludes Zika Causes Microcephaly and Other Birth Defects, 2016) Zika infections in adults can, rarely, result in Guillain-Barre. The Zika virus belongs to Flaviviridae and the genus *Flavivirus*, and is thus related to the dengue, yellow fever, Japanese encephalitis, and West Nile viruses like other flaviviruses. Zika can be transmitted from a man to his sex partners. Emphasis should be also given to manufacture vaccines and antivirals for zika virus, that much alertness and sincerity only can prevent India from the future dangers from zika.

Citation: Bhattacharya M. K. Moitra, S., Sharma Sarkar, B. and Bhattacharya, A. 2016. "Zika – The terror looms large over India", *International Journal of Current Research*, 8, (06), 32638-32640.

INTRODUCTION

In 2015 world have witnessed zikaoutbreak in Mexico, Central America, the Caribbean, and South America, that progressed into pandemic levels (Chastain, 2016). Before that the other significant outbreak is seen in Pacific Ocean 2013–2014 in Oceania to French Polynesia, New Caledonia, the Cook Islands, and Easter Island (Chastain, 2016). Mostly the infection, known as Zika fever, often causes no or only mild symptoms, similar to a very mild form of dengue fever (Malone, 2016), but after the outbreak investigation and research carried out all over the world that surfaced few interesting trait about the pathogenecity and nature and virulence of this virus. As of 2016, the illness cannot be prevented by medications or vaccines (Symptoms, 2016). Zika may spread from a pregnant woman to the baby. This may result in microcephaly and other severe brain problems (Rasmussen, 2016 CDC Concludes Zika Causes Microcephaly and Other Birth Defects, 2016). Zika infections in adults can, rarely, result in Guillain-Barré syndrome (WHO, 2016).

Corresponding author: Bhattacharya, M. K.
National Institute of Cholera and Enteric Disease, Kolkata.

Infective Agent

The Zika virus belongs to Flaviviridae and the genus Flavivirus, and is thus related to the dengue, yellow fever, Japanese encephalitis, and West Nile viruses. Like other flaviviruses, Zika virus is enveloped and icosahedral and has a nonsegmented, single-stranded, positive-sense RNA genome. It is most closely related to the Spondweni virus and is one of the two viruses in the Spondweni virus clade (Knipe, 2007 and Faye, 2014).

Transmission of Infection

Among the vertebrate hosts of the virus were primarily monkeys in a so-called enzootic mosquito-monkey-mosquito cycle, with only occasional transmission to humans. Before the current pandemic began in 2007, Zika "rarely caused recognized 'spillover' infections in humans, even in highly enzootic areas". Infrequently, other arboviruses have become established as a human disease though, and spread in a mosquito–human–mosquito cycle, like the yellow fever virus and the dengue fever virus and the chikungunya virus (Fauci, 2016).

Zika is primarily spread by the female *Aedesaegypti* mosquito which is active mostly in the daytime. The mosquitos must feed on blood in order to lay eggs (Dengue and the Aedesaegypti mosquito, 2012). The true extent of the vectors is still unknown. Zika has been detected in many more species of *Aedes*, along with *Anopheles coustani, Mansoniauniformis*, and *Culexperfuscus*, although this alone does not incriminate them as a vector (Ayres, Constância, 2016). Zika can be transmitted from a man to his sex partners (Oster, 2016). As of April 2016 sexual transmission of Zika has been documented in six countries – Argentina, Chile, France, Italy, New Zealand and the United States – during the 2015 outbreak (WHO, 2016). The Zika virus can spread from an infected mother to her foetus during pregnancy or at delivery (CDC Zika: Transmission, 2016). As of April 2016, two cases of Zika transmission through blood transfusions have been reported globally, both from Brazil (Vasquez, 2016), after which the US Food and Drug Administration recommended screening blood donors and deferring high-risk donors for 4 weeks ("Recommendations for Donor Screening, Deferral, and Product Management to Reduce the Risk of Transfusion- Transmission of Zika Virus, 2016 and "Zika virus infection outbreak, Brazil and the Pacific region, 2016). As of 2016, no vaccine or preventative drug is available. Symptoms can be treated with rest, fluids, and paracetamol (acetaminophen), while aspirin and other nonsteroidal anti-inflammatory drugs should be used only when dengue has been ruled out to reduce the risk of bleeding (For Health Care Providers: Clinical Evaluation and Disease, 2016).

The NIH Vaccine Research Center (U.S.) began work towards developing a vaccine for Zika per a January 2016 report (Sternberg, 2016). Bharat Biotech International (India) reported in early February 2016, that it was working on vaccines for Zika (Bagla, 2016) using two approaches: "recombinant", involving genetic engineering, and "inactivated", where the virus is incapable of reproducing itself but can still trigger an immune response with animal trials of the inactivated version to commence in late February (Siddiqi, Zeba, 2016). As of March 2016, 18 companies and institutions internationally were developing vaccines against Zika, but none had yet reached clinical trials (WHO, 2016). Nikos Vasilakis of the UTMB predicted that it may take two years to develop a vaccine, but ten to twelve years may be needed before an effective Zika vaccine is approved by regulators for public use (Cook, 2016).

Conclusion – Probable Danger in India

Though till date no documented cases of zika fever is reported from anywhere in india, yet, the report on 22 March 2016 Reuters reported that Zika was isolated from a 2014 blood sample of an elderly man in Chittagong in Bangladesh as part of a retrospective study (Bangladesh Confirms First Case of ZikaVirus, 2016). Seeing the case in neighbouring country is sending ominous signal among public health experts in India and west Bengal . As similar vector profile is aplenty in India, with migration across border, high population density, developing country mindset, poor health practices, low health care seeking attitude, high fertility rate, unhealthy sexual practices set the stage set for a future massive epidemic. What missing is the presence of agent, but this recent news of presence of zica virus in Bangladesh is sending chill down the spine in public health experts. That warrants keeping the vigil high, regular check up of patients with similar clinical profile, emphasis should be also given to manufacture vaccines and antivirals for zika virus, that much alertness and sincerity only can prevent India from the future dangers from zika.

REFERENCES

"Bangladesh Confirms First Case of ZikaVirus". Newsweek. 22 March 2016. Retrieved 22 March2016.

"CDC Concludes Zika Causes Microcephaly and Other Birth Defects". CDC. 13 April 2016. Retrieved14 April 2016.

"CDC Zika: Transmission". U.S. Centers for Disease Control and Prevention. 15 April 2016. Retrieved17 April 2016.

"Dengue and the Aedesaegypti mosquito" (PDF). Dengue Branch. Centers for Disease Control and Prevention. Retrieved 2 February 2012

"For Health Care Providers: Clinical Evaluation and Disease". Zika Virus. Centers for Disease Control and Prevention. 19 January 2016.

"Recommendations for Donor Screening, Deferral, and Product Management to Reduce the Risk of Transfusion-Transmission of Zika Virus" (PDF). Food and Drug Administration. February 2016.

"Symptoms, Diagnosis, and Treatment". Zika virus. Atlanta: Centers for Disease Control and Prevention. 3 March 2016. Retrieved 4 March 2016.

"WHO and experts prioritize vaccines, diagnostics and innovative vector control tools for Zika RandD". World Health Organization. 9 March 2016. Retrieved13 March 2016.

"Zika virus infection outbreak, Brazil and the Pacific region" (PDF). Rapid Risk Assessments. Stockholm: European Centre for Disease Prevention and Control. 25 May 2015. pp. 4–5. Retrieved 12 February 2016

"Zika Virus Microcephaly AndGuillain-Barré Syndrome Situation Report" (PDF). World Health Organization. 7 April 2016. Retrieved 8 April 2016.

"Zika Virus Microcephaly AndGuillain-Barré Syndrome Situation Report" (PDF). World Health Organization. 7 April 2016. Retrieved 8 April 2016

Ayres, Constância F J (4 February 2016)."Identification of Zika virus vectors and implications for control". The Lancet Infectious Diseases 16 (3): 278–279. doi:10.1016/ S1473-3099(16)00073-6.ISSN 1473-3099. PMID 26852727.

Bagla, Pallava (7 February 2016). "How Bharat Biotech Made Its Breakthrough In Developing A Vaccine For Zika Virus". Huffington Post (New Delhi). PTI. Retrieved 9 February 2016

Chastain, Mary (30 January 2016). "National Institutes of Health: Zika Virus Is a 'Pandemic'".Breitbart. Retrieved 13 February 2016.

Cook, James (27 January 2016). "Zika virus: US scientists say vaccine '10 years away'". BBC News. Retrieved 28 January 2016

Fauci, Anthony, S., Morens, David, M. (14 January 2016). "Zika Virus in the Americas – Yet Another Arbovirus

Threat". New England Journal of Medicine 374 (2): 601–4. doi:10.1056/NEJMp1600297.PMID 2676 1185.

Faye, Oumar; Freire, Caio C. M.; Iamarino, Atila; et al. (9 January 2014). "Molecular Evolution of Zika Virus during Its Emergence in the 20th Century". PLoS Neglected Tropical Diseases 8 (1): e2636.doi:10.1371/journal.pntd. 0002636. PMC 3888466.PMID 24421913.

Knipe, David M.; Howley, Peter M. (2007). Fields Virology (5th ed.). Lippincott Williams and Wilkins. pp. 1156, 1199. ISBN 978-0-7817-6060-7.

Malone, Robert W.; Homan, Jane; Callahan, Michael V.; et al. (2 March 2016). "Zika Virus: Medical Countermeasure Development Challenges". PLOS Neglected Tropical Diseases 10 (3): e0004530.doi:10.1371/journal.pntd. 0004530. ISSN 1935-2735.

Oster, Alexandra M.; Russell, Kate; Stryker, Jo Ellen; et al. (1 April 2016). "Update: Interim Guidance for Prevention of Sexual Transmission of ZikaVirus".MMWR. Morbidity and Mortality Weekly Report 65 (12): 323–325. doi:10.15585/ mmwr.mm6512e3.PMID 27032078.

Rasmussen, Sonja A.; Jamieson, Denise J.; Honein, Margaret A.; Petersen, Lyle R. (13 April 2016). "Zika Virus and Birth Defects — Reviewing the Evidence for Causality". New England Journal of Medicine. doi:10.1056/NEJMsr1604338. Retrieved 15 April 2016

Siddiqi, Zeba (3 February 2016). "Bharat Biotech says working on two possible Zikavaccines". Reuters. Retrieved 8 February 2016

Sternberg, Steve (22 January 2016). "Vaccine Efforts Underway as Zika Virus Spreads". US News and World Report. Retrieved 28 January 2016

Vasquez, Amber M.; Sapiano, Mathew R.P.; Basavaraju, Sridhar V.; et al. (2016). "Survey of Blood Collection Centers and Implementation of Guidance for Prevention of Transfusion-Transmitted Zika Virus Infection — Puerto Rico, 2016". MMWR. Morbidity and Mortality Weekly Report 65 (14): 375–378.doi:10.15585/mmwr.mm6514e1. ISSN 0149-2195.