

Is Iran threatened by Zika virus?

Rouhullah Dehghani¹, Msaoud Amiri^{2*}

¹*Social Determinants of Health (SDH) Research Center, Environment Health Dept., Kashan University of Medical Sciences, Kashan, I.R. Iran;* ²*Epidemiology and Biostatistics Dept., Sharekord University of Medical Sciences, Sharekord, I.R. Iran.*

Received: 15/Jan/2017 Accepted: 27/Mar/2017

ABSTRACT

Zika virus is an Arbovirus identified first time in 1947 in Uganda. Zika epidemic is a threat far greater than the Ebola outbreak. The World Health Organization has urged Asian countries to be vigilant about the risk of spreading Zika virus and preventive measures to control it. In Iran, 64 species of mosquitoes from Culicidae family have been reported three of which belong to the Aedes genus, and one of which is *Aedes albopictus*. Iran also has suitable climate for endemic transmission of Zika virus. Immigrants from neighboring countries for economic reasons, could increase the risk of disease transmission in Iran. The destination countries of Iranian passengers, especially in East Asia, are at risk or have been reported to have cases of Zika. So, traveling to areas where active Zika virus exists and its transmission is common, could potentially increase the risk of transmission of Zika. Close supervision alongside the borders is necessary when foreign people arrive in the country.

Keywords: Zika virus, Epidemiology, Iran.

INTRODUCTION

Zika virus is an Arbovirus identified first time in 1947 in Uganda among Rhesus monkeys during study on yellow fever.¹ Then, human cases were detected in 1952 in Uganda and Tanzania.² Zika virus outbreaks have been reported in Africa, America, Asia and the Pacific.³ In fact, from 1960 to 1980, human infection with this virus has been reported in Africa and Asia.⁴ First main outbreak of Zika was reported from the Island of Yap in Micronesia in 2007.⁵ In July 2015, the relationship between the Zika virus and Guillain-Barre syndrome was

reported in Brazil.⁶ In October 2015, the relationship between Zika virus infection and microcephaly was also reported from Brazil.⁷ From January 2014 to February 2016, Zika virus was endemic in 33 countries.⁸ Zika virus is transmitted by bite of mosquitoes from *Aedes* genus, especially *Aedes aegypti* in tropical areas.³ Transmission of Zika virus may also occur by mosquitoes of the genus *Culex*.⁹ Sexual transmission is likely as well.^{10,11} The World Health Organization declared that the Zika virus is a highly serious issue.³ Zika

***Corresponding author:** Msaoud Amiri, Epidemiology and Biostatistics Dept., Sharekord University of Medical Sciences, Sharekord, I.R. Iran, Tel: 00983833333710, E-mail: masoud.amiri@yahoo.com

epidemic is a threat far greater than the Ebola outbreak, because Zika epidemic is characterized by the microcephaly in newborns as well as rapid spread around the world, the most dangerous threat to global health.¹²⁻¹⁵ In fact, Zika virus has caused serious concern in the world since October 2015, is expanding rapidly in Latin America, and has caused the birth of more than 4,000 children with small head and brain.¹² Only 20% of infected people present signs of active Zika virus in the body.¹⁶ People with this disease have fever and pain; in fact, symptoms are flu-like.^{2,8} Pregnancy is the most dangerous period for Zika virus infection, because the virus can lead to neurological disorders in the growth of the baby in the uterus and may destroy growing brain cells and microcephaly.^{9,17} The World Health Organization has urged Asian countries to be vigilant about the risk of spreading Zika virus and preventive measures to control it.¹⁸ At present, China, Philippines, Thailand, and Indonesia are the most vulnerable countries to the spread of Zika epidemic. If it is not controlled quickly in this area more than two billion and 600 million of the world's population will be at serious risk.¹⁹ Iran, as an Asian country, has the mosquitoes vectors and therefore can be exposed to the risk of transmission of Zika.²⁰⁻²³

In Iran, 64 species of mosquitoes from Culicidae family have been reported three of which belong to the *Aedes* genus, and one of which is *Aedes albopictus*.²⁴ Iran also has suitable climate for endemic transmission of Zika virus.²⁵ Immigrants from neighboring countries for economic reasons, could increase the risk of disease transmission in Iran.²⁶

The virus can be transmitted through sexual intercourse, and therefore Iranians travelling to East Asia may increase the risk of disease transmission.¹⁴ The destination countries of Iranian passengers, especially in East Asia, are at risk or have been reported to

have cases of Zika.¹⁷ So, traveling to areas where active Zika virus exists and its transmission is common, could potentially increase the risk of transmission of Zika. The possibility of virus transmitting is higher in the summer and during the vacations.^{17,27-29} Close supervision alongside the borders is necessary when foreign people enter the country. Application of appropriate methods of mosquito control and personal protection is important to fight against disease.

REFERENCES

1. Hayes EB. Zika virus outside Africa. *Emerg Infect Dis.* 2009; 15(9): 1347-5.
2. Malone RW, Homan J, Callahan MV, Glasspool-Malone J, Damodaran L, Schneider Ade B, et al. Zika Virus: Medical Countermeasure Development Challenges. *PLoS Negl Trop Dis.* 2016; 10(3): e0004530.
3. WHO. Zika virus. Available from: www.who.int/mediacentre/factsheets/zika/en/.
4. Kindhauser MK, Allen T, Frank V, Santhana RS, Dye C. Zika: The origin and spread of a mosquito-borne virus. *Bull World Health Organ.* 2016; 94(9): 675-86C.
5. Duffy MR, Chen TH, Hancock WT, Powers AM, Kool JL, Lanciotti RS, et al. Zika virus outbreak on Yap Island, Federated States of Micronesia. *N Engl J Med.* 2009; 360(24): 2536-43.
6. Paploski IA, Prates APP, Cardoso CW, Kikuti M, Silva MM, Waller LA, et al. Time lags between exanthematous illness attributed to Zika virus, Guillain-Barre syndrome, and microcephaly, Salvador, Brazil. *Emerg Infect Dis.* 2016; 22(8): 1438.
7. Schuler-Faccini L. Possible association between Zika virus infection and microcephaly-Brazil, 2015. *MMWR Morb Mortal Wkly Rep.* 2016; 69(5): 65-9.
8. Wang H, Wang S. Zika virus: old rival, new threat. *Infect Dis Transl Med.* 2016; 2(1): 10-9.
9. Amraoui F, Atyame-Nten C, Vega-Rua A, Lourenco-de-Oliveira R, Vazeille M, Failloux AB. *Culex* mosquitoes are experimentally unable to transmit Zika virus. *Euro Surveill.* 2016; 21(35): 248-53.

10. Vorou R. Zika virus, vectors, reservoirs, amplifying hosts, and their potential to spread worldwide: what we know and what we should investigate urgently. *Int J Infect Dis.* 2016; 48: 85-90.
11. Aliota MT, Peinado SA, Osorio JE, Bartholomay LC. *Culex pipiens* and *Aedes triseriatus* Mosquito Susceptibility to Zika Virus. *Emerg Infect Dis.* 2016; 22(10): 1857-9.
12. Who. Zika outbreak is now a global emergency, says World Health Organization. Available at: <http://www.telegraph.co.uk/news/health/news/12134648/Zika-outbreak-is-now-a-global-emergency-says-World-Health-Organisation.html>.
13. Kindhauser MK, Allen T, Frank V, Santhana RS, Dye C. Zika: the origin and spread of a mosquito-borne virus. *Bull World Health Organ.* 2016; 94(9): 675-86C.
14. Zanluca C, Dos Santos CN. Zika virus: An overview. *Microbes Infect.* 2016; 18(5): 295-301.
15. Gulland A. WHO warns of risk of Zika virus in Europe. *Bmj.* 2016; 353: i2887.
16. Petersen EE, Staples JE, Meaney-Delman D, Fischer M, Ellington SR, Callaghan WM, et al. Interim guidelines for pregnant women during a Zika Virus Outbreak: United States, 2016. *Morb Mortal Wkly Rep.* 2016; 65(2): 30-3.
17. Maharajan MK, Ranjan A, Chu JF, Foo WL, Chai ZX, Lau EY, et al. Zika Virus infection: Current concerns and perspectives. *Clin Rev Allergy Immunol.* 2016; 51(3): 383-94.
18. CDC. Zika Virus in Southeast Asia. Available from: <https://wwwnc.cdc.gov/travel/page/zika-virus-southeast-asia>.
19. Ayres CF. Identification of Zika virus vectors and implications for control. *Lancet Infect Dis.* 2016; 16(3): 278-9.
20. Dehghani R, Zarghi I, Aboutalebi M, Barzegari Z, Ghanbari M. Fauna and habitat of aquatic arthropods of Kashan in 2010. *Bangladesh J Med Sci.* 2014; 13(3): 306.
21. Dehghani R, Miranzadeh MB, Yosefzadeh M, Zamani S. Fauna aquatic insects in sewage maturation ponds of Kashan University of Medical Science 2005. *Pak J Biol Sci.* 2007; 10(6): 928-31.
22. Dehghani R, Akbari H, Vazirianzadeh B. A prospective study on the seasonal frequencies of insect bites (Diptera: Culicidae and Phlebotominae) and the related environmental and protective method factors in the city of Kashan, central of Iran, 2009. *Pakistan J Med Sci.* 2012; 28(1): 158-61.
23. Dehghani R, Mosavi G, Ghasemi B, Ghasemi M, Saheb M, Mohhamadi R. A survey on residential areas infestation to house pests (Arthropods) in Kashan. *Zahedan J Res Med Sci.* 2013; 15(12): 36-9.
24. Azari-Hamidian S. Checklist of Iranian mosquitoes (Diptera: Culicidae). *J Vector Ecol.* 2007; 32(2): 235-42.
25. Mardani M. Update on Zika virus infections. *Arch. Clin Infect Dis.* 2016; 11(2): 69-71.
26. Lankarani KB, Alavian SM, Peymani P. Health in the Islamic Republic of Iran, challenges and progresses. *Med J Islam Repub Iran.* 2013; 27(1): 42-9.
27. Chang C, Ortiz K, Ansari A, Gershwin ME. The Zika outbreak of the 21st century. *J Autoimmun.* 2016; 68: 1-13.
28. Benelli G. Spread of Zika virus: the key role of mosquito vector control. *Asian Pac J Trop Biomed.* 2016; 6(6): 468-71.
29. Orsborne J, DeRaedt Banks S, Hendy A, Gezan SA, Kaur H, Wilder-Smith A, et al. Personal protection of permethrin-treated clothing against *aedes aegypti*, the Vector of Dengue and Zika Virus, in the Laboratory. *PLoS One.* 2016; 11(5): e0152805.

How to cite the article: Dehghani R, Amiri M. Is Iran threatened by Zika virus? *Int J Epidemiol Res.* 2017; 4(2): 91-93.