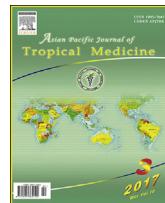




Contents lists available at ScienceDirect

Asian Pacific Journal of Tropical Medicine

journal homepage: <http://ees.elsevier.com/apjtm>



Letter to the Editor <http://dx.doi.org/10.1016/j.apjtm.2017.03.013>

Temperature and development of Zika virus infection: An Indonesian case

Ramadhan Tosepu[✉]

Faculty of Public Health, University of Halu Oleo, Kendari, Indonesia

Dear Editor,

World Health Organization declared that Zika virus is an international health issue [1,2]. Zika virus infection is a health issue occurring in Asia [3] and transmitted through mosquito bites [4], *Aedes aegypti* [5]. As the tropical areas, Southeast Asia has a lot of tropical diseases, some of which are endemic in this region, such as dengue fever, malaria, and chikungunya [6].

In Indonesia, Zika virus was discovered in early 2015 in the Province of Jambi, where the population was approximately 3 million people in 2014 with 51 000 ha of the area [7]. The case of Zika virus was discovered by the Eijkman Institute for Molecular Biology and it was detected from a 27 year-old man who had never traveled abroad. This was supported by the laboratorial test revealing that it was not a dengue virus although having the similar symptoms in dengue fever [8].

Zika virus cases in this Province were analyzed descriptively by connecting the factor of temperature in 2014. The data of temperature varied; the average of temperature in January, February, March, April, June, July, August, October, November, and December was 22.45 °C, while on May the temperature was 23.1 °C, and on September was 21.3 °C. Therefore, it was considered that the average of temperature for the development of Zika virus in the Province of Jambi was 22.4 °C. Chan *et al.* mentioned that the *Aedes aegypti* and *Aedes albopictus* are unlikely to develop at an average of temperature between 16.4 and 35.0 °C [9]. That temperature affects on the physiology of mosquitoes and can lead to increased transmission of the virus [10].

Conflict of interest statement

We declare that we have no conflict of interest.

References

- [1] Jamil Z, Waheed Y, Durrani TZ. Zika virus, a pathway to new challenges. *Asian Pac J Trop Med* 2016; **9**(7): 626-629.
- [2] Carlson CJ, Dougherty ER, Getz W. An ecological assessment of the pandemic threat of Zika virus. *PLoS Negl Trop Dis* 2016; **10**(8): e0004968.
- [3] Wiwanitkit S, Wiwanitkit V. Zika virus infection in Asia: reappraisal on phylogenetic data of Asian lineage. *Asian Pac J Trop Med* 2016; **9**(6): 614-615.
- [4] Kucharski AJ, Funk S, Eggo RM, Mallet HP, Edmunds WJ, Nilles EJ. Transmission dynamics of Zika virus in island populations: a modelling analysis of the 2013-14 French Polynesia outbreak. *PLoS Negl Trop Dis* 2016; **10**(5): e0004726.
- [5] Hayes EB. Zika virus outside Africa. *Emerg Infect Dis* 2009; **15**(9): 1347-1350.
- [6] Wiwanitkit S, Wiwanitkit V. Predicted pattern of Zika virus infection distribution with reference to rainfall in Thailand. *Asian Pac J Trop Med* 2016; **9**(7): 719-720.
- [7] Nurdiana A, Risdiyanto I. Indicator determination of forest and land fires vulnerability using Landsat-5 TM data (case study: Jambi Province). *Procedia Environ Sci* 2015; **24**: 141-151.
- [8] Perkasa A, Yudhaputri F, Haryanto S, Hayati RF, Ma'roef CN, Antonjaya U, et al. Isolation of Zika virus from febrile patient, Indonesia. *Emerg Infect Dis* 2016; **22**(5): 924.
- [9] Chan M, Johansson MA. The incubation periods of dengue viruses. *PLoS One* 2012; **7**(11): e50972.
- [10] Wu PC, Lay JG, Guo HR, Lin CY, Lung SC, Su HJ. Higher temperature and urbanization affect the spatial patterns of dengue fever transmission in subtropical Taiwan. *Sci Total Environ* 2009; **407**(7): 2224-2233.

[✉]First and corresponding author: Ramadhan Tosepu, Faculty of Public Health, University of Halu Oleo, Kendari, Indonesia.

E-mail: ramadhan.tosepu@aho.ac.id

Peer review under responsibility of Hainan Medical University.

Article history:

Received 15 Nov 2016

Received in revised form 16 Dec 2016

Accepted 10 Jan 2017

Available online 7 Mar 2017