



Zika Virus Infection: New Threat in Global Health

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Zika virus is one Flavi virus, which is similar to dengue virus. At present, Zika virus infection occurs in some countries located in Central and South America. It is carried by *Aedes aegypti* mosquitoes, which are not living in Korea. However, *Aedes albopictus* has been spotted in Jeju Island and now this particular mosquito is known for carrying the virus, but at the current moment this mosquito is not carrying the Zika virus in Korea (1).

Zika virus was initially discovered in rhesus monkeys in Zika forest, Tanzania in 1947 (2). After that, the virus sporadically spread in Asia and Africa. Aside from the two continents, the first report of the outbreak came from Yap Island in the Federated States of Micronesia. At that time, it was recorded that 14.6 per 10 million people were infected by the virus (3). From this time on, French Polynesia in the South Pacific reported the largest outbreak of Zika virus infection in 2013; a rise was recorded where 28,000 people (approximately 11% of the population) had been infected in 2013-2014 (4).

On 1 February 2016, the World Health Organization declared a Public Health Emergency of International Concern to encourage prevention of international spreading of Zika virus infection. In Central and South America, including Brazil, about 1.5 million people were estimated to be infected by the virus in 2015. With the outbreak of Zika virus from 2015 to 16 January 2016, 3,893 babies with microcephaly or underdeveloped brains and skulls were born in Brazil and 49 babies died. Zika virus was confirmed in the amniotic fluid of pregnant women and the brain and body tissues of dead or stillborn children (5,6). However, it is unknown how Zika virus causes microcephaly when pregnant women are infected by the virus. The prevalence of Guillain-Barre syndrome also increases in endemic areas of Zika virus infection but relation of that syndrome and the infection is not proven (6,7). Nations where Zika virus is found recently are summarized in Table 1 (8).

Zika virus is rarely transferred between people. It is assumed

that the virus could spread through blood transfusion. When an outbreak of Zika virus was reported in French Polynesia between 2013 and 2014, 3% of blood donations tested positive by PCR (9). There was a report that Zika virus could be transmitted through sexual contact. When an outbreak happened in French Polynesia in 2013, semen samples of patients who were believed to be infected tested positive for Zika virus by PCR (10). Moreover, after a person travelled to Senegal, Zika virus was found in his semen and his wife was observed to have Zika virus infection symptoms after 4 days of having sexual contact (11). However, this is very rare. Further research will be needed to determine whether Zika virus could be transmitted by sexual contact. Although Zika virus was found in patients' urine or saliva, it is not confirmed transmittable through these kinds of body fluid (12, 13).

Zika fever is officially specified as a group 4 legal infectious disease by Korean Center for Disease Control and Prevention (KCDC) on 29 January 2016 (14). All medical staffs were directed to report to KCDC when they find patients who are suspected to have Zika virus infection or those who are confirmed to have the Zika virus infection. KCDC recommends that pregnant women do not visit nations where Zika virus is reported to have occurred in the last 2 months. KCDC started to promote means of preventing Zika virus infection to travelers who will visit the identified countries.

Since there is a possibility for Zika virus infection among travelers who visit high-risk countries, there is a need to monitor travelers coming from the countries identified to be at risk. Additionally, due to global warming, the ecosystem of mosquitoes in Korea has been changed. Monitoring the mosquitoes' habitat as well as research on the possibility of domestic occurrence should be continued.

Many climate scientists and infectious disease specialists have said that environment destruction, industrial developments, and

Table 1. Nations that Zika virus has been found from 2015

America	Barbados, Bolivia, Brazil, Colombia, Costa Rica, Curacao, Dominican Republic, Ecuador, El Salvador, French Guiana, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Martinique, Mexico, Nicaragua, Panama, Paraguay, Puerto Rico, Saint Maarten, Suriname, US Virgin Island, Venezuela
Pacific area	Samoa
Asia	Thailand
Africa	Cape Verde

global warming are the major reasons for the spread of mosquito-borne infections. Since 1970, destruction of tropical forests due to development of large-scale resorts, plantations, and industries has been happening in Southeast Asia and South America. Because of the urbanization of tropical forests and global warming, mosquitoes' growth condition is at its peak. This causes the outbreak of dengue fever in Southeast Asia and Zika fever in South America. Environmental destruction leads to a potential disaster that could totally change our life. Zika virus infection is a new disease that threatens global public health, as WHO declared. It is the time to come up with a long-term perspective and systematic preparations to control this disease.

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