Minireview Article

Zika, an emerging zoonosis, vector-borne and sexual transmission disease, a threat to the next generation

Abstract

ZikaZika, is considered a zoonoticconsiderd as an zoonotic, emerging vector-borne and sexual transmissiontrasmission disease, a threat to the next generation.generation . The objective is to collect allall the current informationinfromations about zika for providing aguideline for disease control. An intensive search of theof scientific literature was conducted on 'PubMed', 'Webdone in "PubMed", "Web of Knowledge', 'Scopus', 'Google Scholar', 'SID',Knowledge", "Scopus", "Google Scholar", "SID", etc.The resultResult showed that this vector-borne disease isdisease also transmitted by sexual transmission and mainly affectsaffect on the comingforthcoming generation.Due to theto novel method of transmission of disease from onedisease to another,human, global collaboration is required inabout disease control.control is required.

Keywords: Zika, Aedes, Sexualsexual transmission, Controlcontrol

Introduction:

Zika diseases is a zoonoticZoonotic disease. The vector is *Aedes* (family: culicidae).transmission by female *Aedes* mosquito between sunrise and sunset, lays eggs on surface of the stagnant water, andwater, the eggs can abide in unfavorable conditions for long time (months). Several species of mosquitoes belonging to the subgenus *Stegomyia* and *Dicerimyia* of *Aedes* are probably enzootic vectors in Asia and Africa. *Ae. albopictus & Ae. aegypti* are the main vectors (Fig.1).

Stegomyia, black and white pattern, tiger mosquito,~~Mosquito,~~ tropical and subtropical areas, feeds~~feeds the~~ blood meal during the day, prefers~~prefer~~ to live close to human habitations.The breeding places~~place~~ of larvea are: pottery jugs, water storage tanks, empty pots, broken bottles. *Aedes aegypti* has high vectorial capacity, feeds frequently on humans, bites~~human, bite~~ multiple humans~~human~~ in a single meal, has an imperceptible bite, lives in the community of the humanhabitation nearby,~~nearby humans' habitation community,~~ It has been the main vector of the~~of~~ American ZIKV outbreak. *Aedes albopictus*was founded in Asia at the first, a suitable vector for 22 arboviruses, despite the short flight,~~flight~~ it has spread well, spread throughout tropical and subtropical areas by commercial trade,~~trades~~ and can exist in more temperate areas than *Ae.aegypti.*

Fig.1. Vectors of Zika: *Aedes aegypti, Ae. albopictus*

Life cycle of zika in mosquitoes:~~mosquito:~~

Mosquitos bite the infected patient, and~~an~~ then take the combination of Zika virus, pass through the epithelial midgut cell, settle~~settlement~~ in the salivary gland, incubation is 5-10 days, find in the saliva, and then can infect the human. The Zika~~Zika~~Transmission Routes~~transmission routes~~are~~is~~ presented in Fig.~~fig.~~ 2.

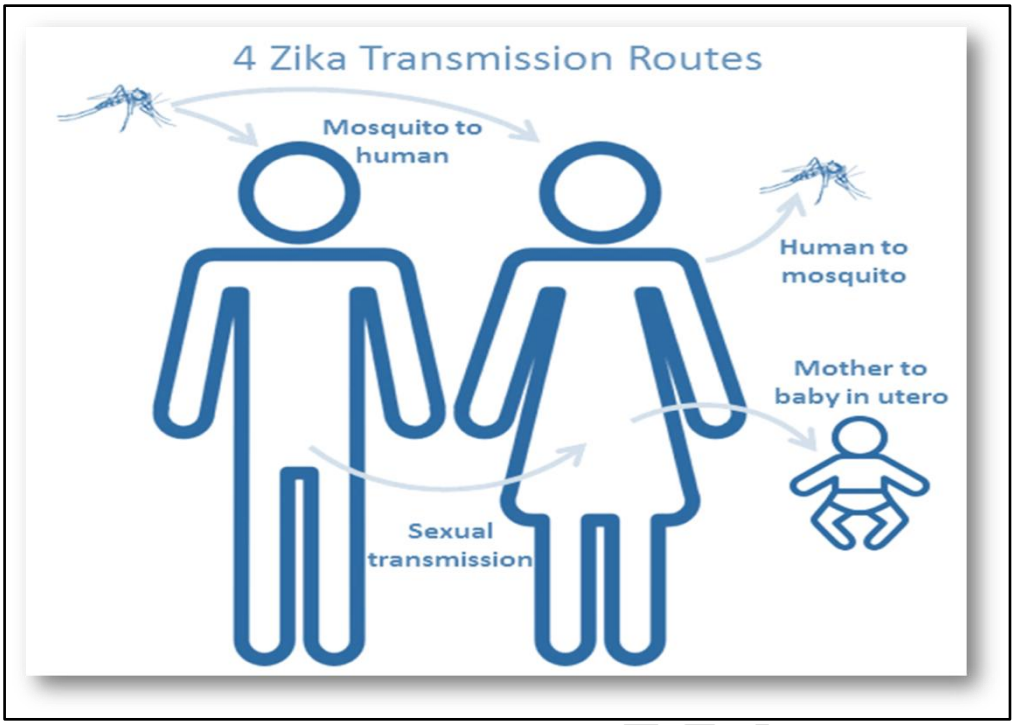

Fig.2. Zika transmission routes

The disease has a~~has~~ sylvatic cycle which is Monkey-mosquito-monkey by *Aedes* mosquito. The urban~~Urban~~ cycle is human-mosquito-human by *Ae.aegypti Ae.albopictus, Ae.hensilii* (Fig.3).

Life cycle of virus in humans:~~human:~~

Feeding blood by infected mosquito and then injecting~~Inject~~ the zika to skin, effect of derma and epidermal cells,~~cell,~~ pass through the lymphatic system,~~lymphatic,~~ get to blood stream,~~stream~~ and finally infect~~infect the~~ organs and tissue.~~tissue~~

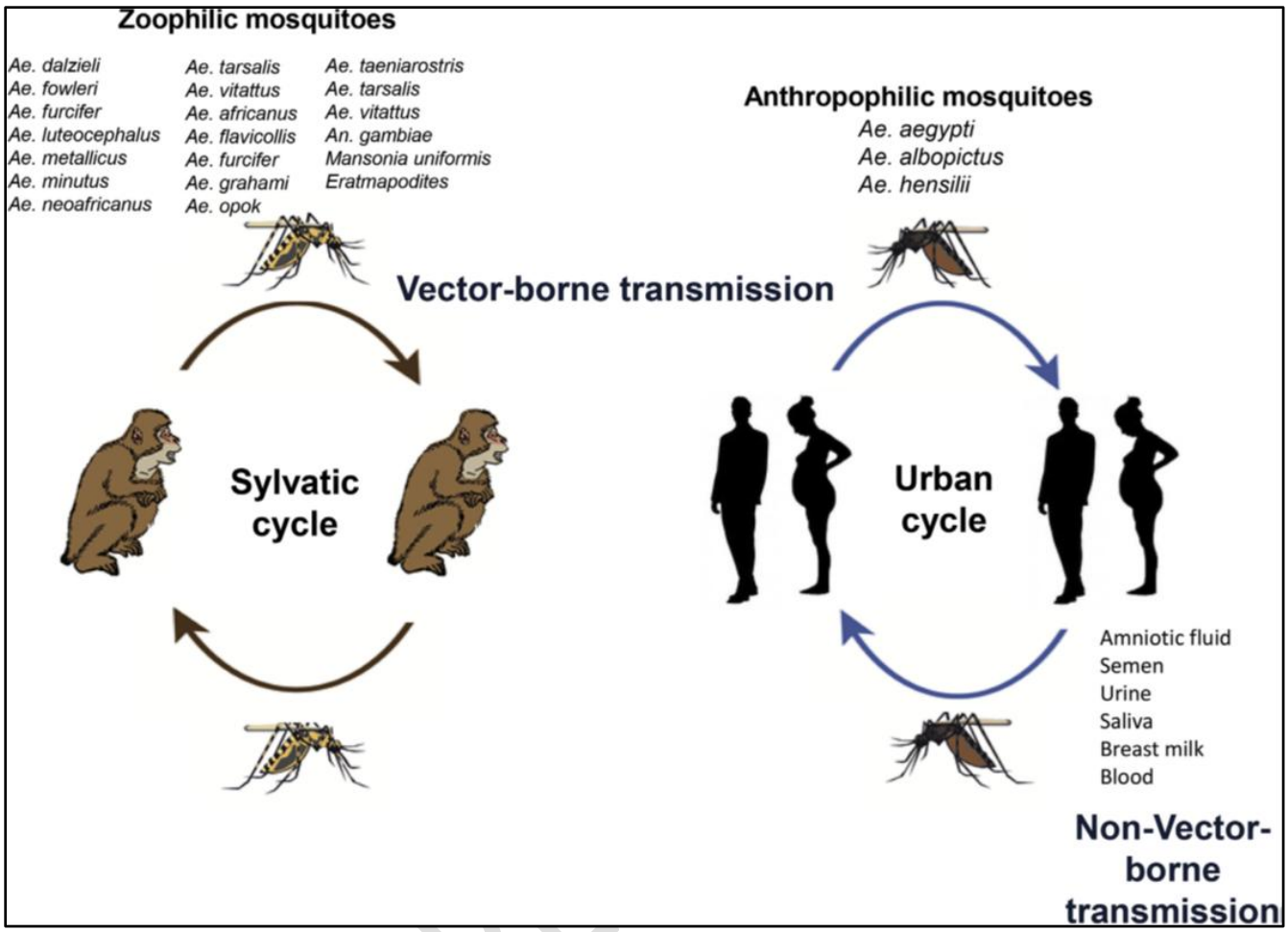

Fig.3. Zika disease cycle

The agent~~Agent~~ is Flavivirus (family:flaviviridae).Flavivirus closely related to other flaviviruses, Dengue, Yellow fever, Japanese encephalitis. The~~It is~~ first detection~~detected~~ was in 1947 in the zika forest(Uganda). The zika virus was isolated on several occasions from *Ae.africanus* in 1948.~~1948 .~~ By 2000 only 12 cases of human disease had been reported, which fortunately were declared safe.

Symptoms of Zika

20% of patients show~~show the~~ clinical symptoms, similar to other arboviruses (such as dengue~~(as Dengue~~ or chikungunya), they have low-grade~~Chikungunya), it has low grade~~ fever, rash, arthralgia, myalgia, and~~myalgia,~~ conjunctivitis. Its can

be effect on adult, fetus and children.Clinical symptoms are: fever, rash, myalgia. Clinical symptom in18% of patients have been observed. First endemic transmission in Brazil 240000-1300000 suspected cases. Microcephaly (Figs.4,5) .It could be infected the monkeys and others mammalian.

Fig. 4.~~Fig.4.~~ Symptoms of Zika

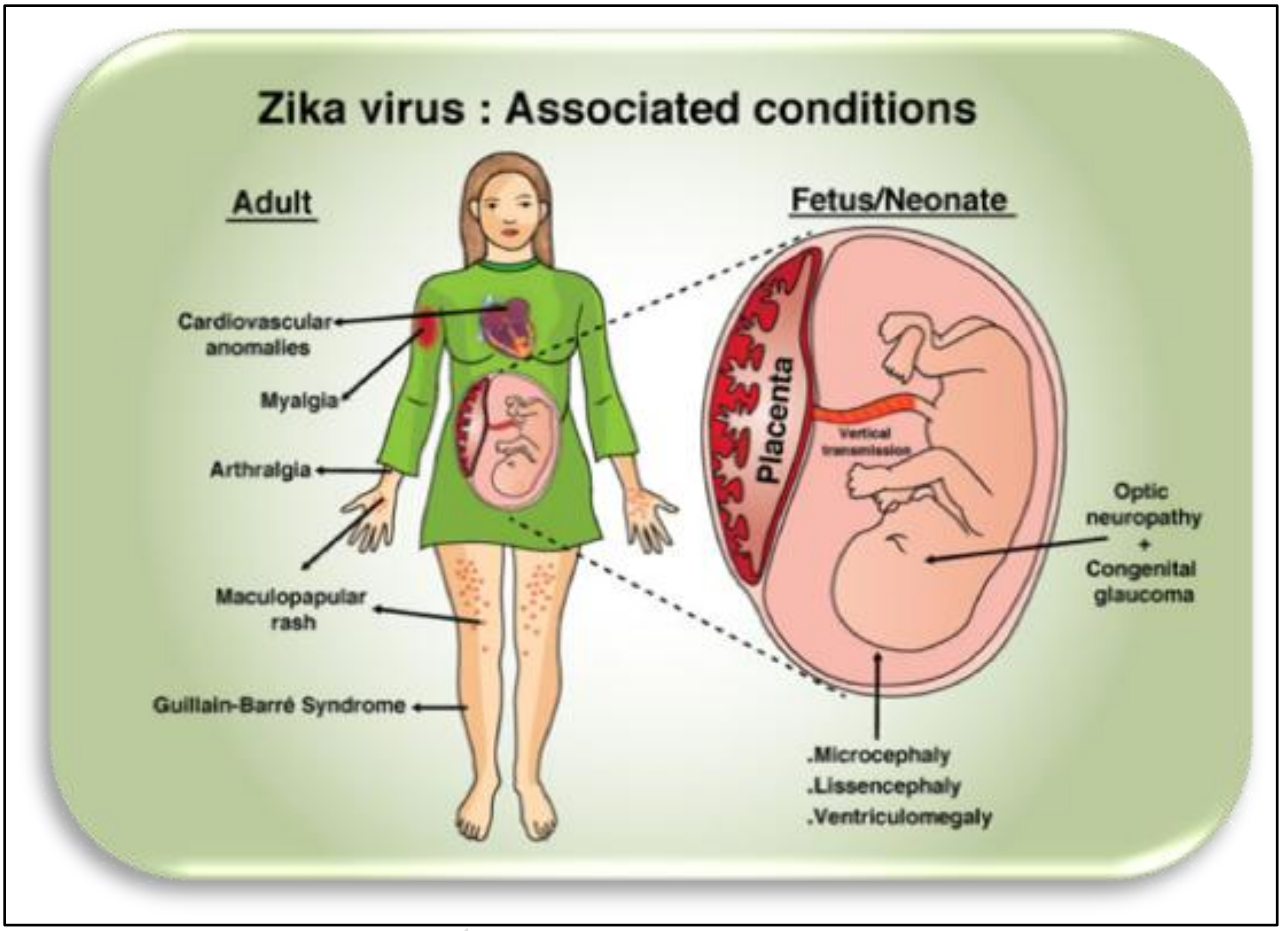

Fig.5. Symptoms of Zik

Global distribution of Zika

The global~~Global~~ distribution of Zika is shown in Fig.6.

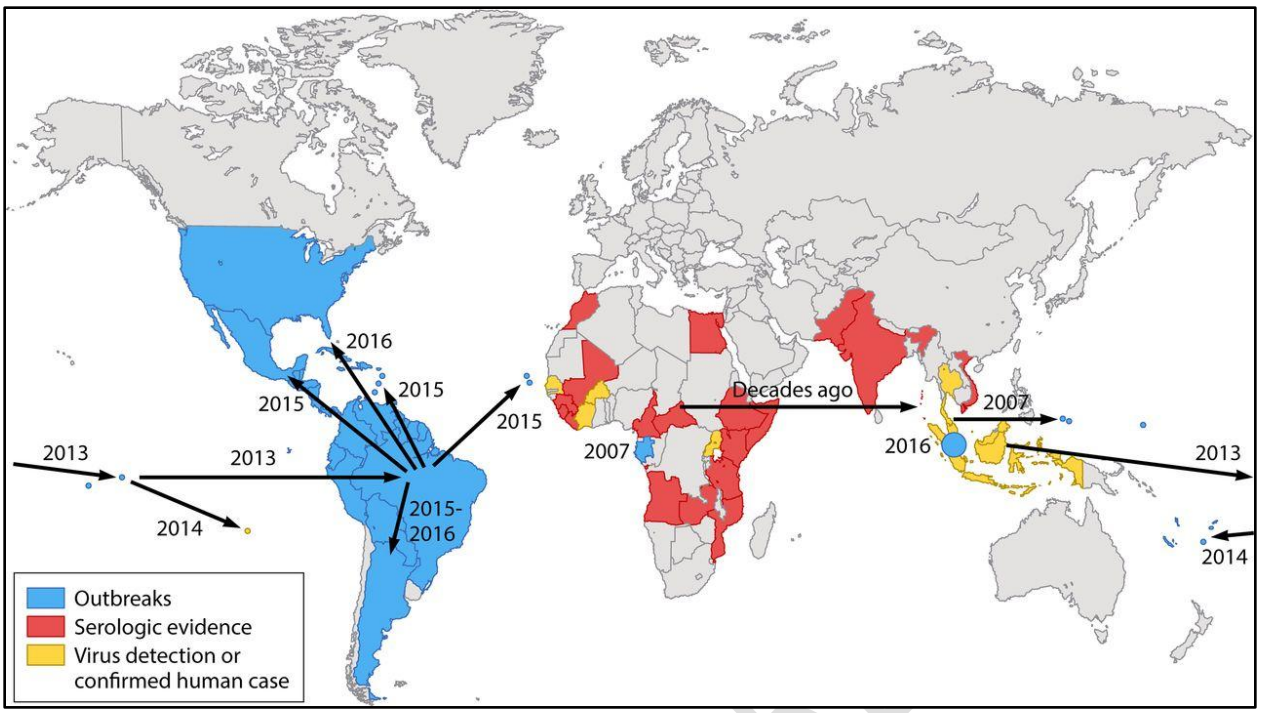

Fig.6. Global distribution of Zika

The strategy of treatment

So far, thereThere is no Zika virus vaccine.vaccine so far. Vaccine candidates could bebe: nucleic acid vaccines,vaccines live attenuated vaccines, inactivated whole virus vaccines,vaccines and using antivirus drugs.

Personal protection

AvoidAvoidance mosquito bite, useusing impregnated bed nets, useusing permethrin insecticide for clothes, useusing insect repellents, and useusing screens on windows and doors.

Discussion and conclusionconclusion:

Global strategy for disease control:

Rapid suppression of new populations, expansion,expansion and amplification of monitoring of these mosquitoes, establishment of quarantine system, regular and more accurate inspection of entry from native of such disease (1-10).

References:

1 Díaz-Menéndez M (2017). Zika Virus Infection Risk of Spreading in Europe. Spriger.

2 Boyer S, Calvez E, Chouin-Carneiro T, Diallo D, Failloux AB (2018). An overview of mosquito vectors of Zika virus. Microb Infect1: 20(11-12):646-60.

3 Higuera A, Ramírez JD (2019) Molecular epidemiology of dengue, yellow fever, Zika and Chikungunya arboviruses: an update. Acta Tropica 1:190:99-111.

4 Singh RK, Dhama K, Malik YS, Ramakrishnan MA, Karthik K, Tiwari R, Saurabh S, Sachan S, Joshi SK (2016) Zika virus–emergence, evolution, pathology, diagnosis, and control: current global scenario and future perspectives–a comprehensive review. Vet Q 36(3):150-75.

5 Hilgenfeld R, Vasudevan SG (2018) editors. Dengue and Zika: Control and Antiviral Treatment Strategies. Springer May 29.

6 Pattnaik A, Sahoo BR, Pattnaik AK (2020) Current Status of Zika Virus Vaccines: Successes and Challenges. Vaccines 8(2):266.

7 Nejati J, Bueno-Marí R, Collantes F, Hanafi-Bojd AA, Vatandoost H, Charrahy Z, Tabatabaei SM, Yaghoobi-Ershadi MR, Hasanzehi A, Shirzadi MR, Moosa-Kazemi SH (2017) Potential risk areas of *Aedes albopictus* in south-eastern Iran: a vector of dengue fever, zika, and chikungunya. Front Microbiol 5(8):1660.

8 Song BH, Yun SI, Woolley M, Lee YM (2017) Zika virus: history, epidemiology, transmission, and clinical presentation. J Neuroimmunol 15:308:50-64.

9 Weaver SC (2017) Emergence of epidemic Zika virus transmission and congenital Zika syndrome: Are recently evolved traits to blame?. M Bio. 8;8(1).

10 World Health Organization (2016) Zika situation report. World Health Organization, Geneva, Switzerland. http://www.who.int/emergencies/zika-virus/situation-report/6-october-2016/en/ .