EDITORIAL

ZIKA VIRUS INFECTION; VERTICAL TRANSMISSION AND FOETAL CONGENITAL ANOMALIES

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Zika virus (ZIKV) is an arbovirus belonging to *flaviviridae* family that includes Dengue, West Nile, and Yellow Fever among others. Zika virus was first discovered in 1947 in Zika forest of Uganda. It is a vector borne disease, which has been sporadically reported mostly from Africa, Pacific islands and Southeast Asia since its discovery. ZIKV infection presents as a mild illness with symptoms lasting for several days to a week after the bite of an infected mosquito. Majority of the patients have low grade fever, rash, headaches, joints pain, myalgia, and flu like symptoms. Pregnant women are more vulnerable to ZIKV infection and serious congenital anomalies can occur in foetus through trans-placental transmission. The gestation at which infection is acquired is important. ZIKA virus infection acquired in early pregnancy poses greater risk. There is no evidence so far about transmission through breast milk. Foetal microcephaly, Gillian Barre syndrome and other neurological and autoimmune syndromes have been reported in areas where ZIKA outbreaks have occurred. As infection is usually very mild no specific treatment is required. Pregnant women may be advised to take rest, get plenty of fluids. For fever and pain they can take antipyretics like paracetamol. So far no specific drugs or vaccines are available against ZIKA Virus Infection so prevention is the mainstay against this diseases. As ZIKV infection is a vector borne disease, prevention can be a multi-pronged strategy. These entail vector control interventions, personal protection, environmental sanitation and health education among others.

Keywords: Zika virus, congenital anomalies, foetal, vertical transmission

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Zika virus (ZIKV) is an arbovirus belonging to *Flaviviridae* family that includes Dengue, West Nile, and Yellow Fever among others. Zika virus was first discovered in 1947 in Zika forest of Uganda.[1] It is a vector borne disease, which has been sporadically reported mostly from Africa, Pacific islands and Southeast Asia since its discovery. In 2013, first major outbreak was reported in French Polynesia.[2] Brazil reported its first case in May 2015. Since then the virus is spreading rapidly and as of 27 January 2016 ZIKV transmission is occurring in 23 countries in South & Central America and Caribbean.[3] It is expected that rapid spread of ZIKA will continue until it reaches all the countries of the region where *Aedes* mosquito is present.

ZIKV infection presents as a mild illness with symptoms lasting for several days to a week after the bite of an infected mosquito. Majority of the patients have low grade fever, rash, headaches, joints pain, myalgia, and flu like symptoms.[4,5] Incubation period of Zika virus disease is not known but is speculated to be between 3–12 days.

ZIKV is mainly transmitted by: 1. Bite of female *Aedes egypti* mosquito,[6] 2. Human-mosquito- human, 3. Direct human to human transmission. (Sexual transmission through human semen has also been reported),[7] 4. By blood transfusion, and 5. Vertical transmission through placenta. (ZIKAV has been detected in the blood and tissues of the foetus/ infants).[8]

Pregnant women are more vulnerable to ZIKV infection and serious congenital anomalies can occur in foetus through trans-placental transmission.[9] The gestation at which infection is acquired is important. ZIKA virus infection acquired in early pregnancy poses greater risk. There is no evidence so far about transmission through breast milk.[10]

Foetal microcephaly, Gillian Barre syndrome and other neurological and autoimmune syndromes have been reported in areas where ZIKA outbreaks have occurred.[11] Brazil have reported 4 perinatal deaths associated with microcephaly in November 2015.[12] In October 2015 Brazil ministry of health has reported rapid increase in the number of babies born with microcephaly and declared it a public health emergency.[13]

Diagnosis is usually made by testing maternal serum by reverse transcription polymerase chain reaction (RT-PCR).[14] If ZIKA is identified in pregnancy, women should be subjected to detailed anomaly scan. Where foetal microcephaly or other brain abnormalities such as intra cranial calcification can be diagnosed on ultrasound. MRI and amniocentesis should be performed after careful counselling.

If PCR is negative then serial fortnightly ultrasound scan is advised to monitor foetal growth especially for head circumference (microcephaly is diagnosed if head circumference is more than two standard deviation below the mean for gestational age).

Foetal outcome is usually poor if anomalies are detected on ultrasound and MRI, and ZIKV PCR is positive on amniocentesis. Couple should be counselled for termination of pregnancy regardless of period of gestation.

If the woman has acquired infection in pregnancy after live birth, following test are recommended.

1. ZIKA Virus PCR on cord blood.
2. Placental tissue and cord tissue biopsy for ZIKA Virus RNA.
3. Histopathological examination of placenta and cord.

Babies born to women who have acquired infection in pregnancy should be followed up to childhood for any signs of ZIKA Virus Infection.

As infection is usually very mild no specific treatment is required. Pregnant women may be advised to take rest, get plenty of fluids. For fever and pain they can take antipyretics like paracetamol.

So far no specific drugs or vaccines are available against ZIKA Virus Infection so prevention is the mainstay against this diseases.

As ZIKV infection is a vector borne disease, prevention can be a multi-pronged strategy. These entail vector control interventions, personal protection, environmental sanitation and health education among others. Specific personal protective measures include: 1. Wearing full loose fitting light coloured clothes. Clothes can be treated with an insecticide for added protection, 2. Mosquito repellent like 50% DEET (diethyltoluamide) are safe for use by pregnant and lactating mothers, 3. Use of mosquito net impregnated with insecticides.[15] Pregnant women should avoid traveling to ZIKV epidemic areas[6]. Women living/traveling to areas with active ZIKA Virus transmission should avoid pregnancy.[7] Women returning from epidemic areas should avoid pregnancy for at least 28 days.

Recent reports suggest that chances of sexual transmission is high so if a woman or her partner has travelled to or living in country with ZIKA Virus epidemic, they must use effective contraception to avoid pregnancy and use barrier contraception to prevent against possible infection transmission . If the partner is tested positive for ZIKA Virus RNA pregnancy should be avoided for at least six months.

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