

ZIKA VIRUS EPIDEMIC IN BRAZIL: STATE OF THE ART

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During the years of 2015 and 2016 Brazil was targeted by a unexpected zika virus (ZIKV) epidemic. Disease was recognized in early 2015 and ZIKV isolated in April. In September 2015 an increased number of microcephaly cases were noted and reported to the Ministry of Health (MoH). In October 2015 it was clear that an epidemic of microcephaly and other central nervous system (CNS) malformations was occurring in Brazil particularly in the northeast region, with very high increased of the incidence in the states of Pernambuco, Paraíba, Alagoas, Rio Grande do Norte, Ceará and others, but not in states of other geographic regions. The temporal association of the microcephaly cases and the occurrence of ZIKV epidemic in northeast suggested a potential link, but no scientific evidence was demonstrated. In November 2015 the Instituto Evandro Chagas (IEC) reported to the MoH the causality of ZIKV and microcephaly and other CNS malformations, by demonstrating the ZIKV RNA in the blood, brain, and viscera fragments of a newborn that die five minutes after borne, in Fortaleza, Ceará state. This represented the first documented finding of ZIKV in a patient with microcephaly. In the same report the IEC reported also the occurrence of two other deaths due ZIKV from patients with respectively Systemic Eritematous Lupus under long time use of steroids and Evans syndrome. These also represented the first documented deaths of adults caused by ZIKV. After these report several other cases were notified of both microcephaly cases and adults deaths to the MoH. The official numbers of ZIKV disease cases remains unknown, but an epidemiologic estimation of the MoH suggest that in 2015 between 500 thousands and 1.5 million infections occurred in Brazil, while in 2016 is estimated the report of 200 thousands infections. More than 80% of all ZIKV infections and 90% of microcephaly cases proceed from states of northeast region. And the reasons of this discrepancy remains to be determined. In conclusion, ZIKV is the causal etiologic agent of the microcephaly and other CNS malformations; ZIKV in persons with immunologic or autoimmune disorders can result in severe disease and deaths due cause severe encephalitis; the high levels of ZIKV antigens/RNAs are found in the brain of both babies with microcephaly and adult patients suggest an intense neurotropism. The immunologic mechanisms of this phenomenon remain to be determined, but suggest a proeminent Th2 response.