

Immunotherapy for Zika Virus Infection **Viroj Wiwanitkit***

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The Zika virus infection is an important problem in medicine at present. The Zika virus is an arbovirus that is transmittable by mosquito and is common in tropical countries around the world for years. The new evidences show that the disease also has other possible unusual modes of transmissions such as sexual transmission and vertical transmission. The disease can cause unwanted neonatal Zika syndrome (infants with abnormal microcephaly) and the neurological complication in adult cases. It is the urgent requirement for diagnosis and management of Zika virus disease in correspondence to its worldwide epidemics at present. The management of this disease is still not conclusive. Most of therapeutic management for Zika virus infection is still not specific. No effective antiviral drug against Zika virus is presently available. Also, there is no therapeutic preventive and therapeutic vaccine. There are many proposals on new possible antiviral drugs and managements. The use of immunotherapy for Zika virus infection is very interesting. In fact, the immunopathogenesis plays important role in Zika virus infection and the immunopathology is the basic focus in development of new drug against Zika virus. For the use of immunotherapy, the basic approach of antibody therapy should be mentioned. In fact, the antibody therapy is a main immunotherapy that is proved effective for several viral diseases. In Zika virus infection, there are many ongoing studies on immunopathogenesis and the host immunity response. It is shown that the Zika virus infection is similar to its closely related arbovirus, dengue virus, which is also the present problem in the tropic countries around the world. In a recent report, it was shown that "dengue human monoclonal antibody prevents severe pathologies and death from Zika virus infections [1]." Zhang et al. noted that the antibody "prevents the structural rearrangement of the E proteins during the fusion event-a vital step for infection [2]." Sappapue et al. proposed that "neutralizing human antibodies can protect against maternal-fetal transmission, infection and disease, and reveal important determinants for structure-based rational vaccine design efforts [3]." Similar observation was also presented by Yu et al. [4].

Focusing on therapeutic vaccine, it is also another interesting attempt to combat Zika virus infection. There are many on-going researches on preventive and therapeutic vaccines against Zika virus. The computational epitope identification was widely done [5] and there are already some available vaccine candidates. "Modified mRNA Vaccine" is under developed and becomes another hope for management of the Zika virus infection [6]. For DNA vaccine, Dowd et al. mentioned that "vaccination with DNA expressing the pre-membrane and envelope proteins of ZIKV was immunogenic in mice and nonhuman primates, and protection against viremia after ZIKV challenge correlated with serum neutralizing activity [7]." Of interest, although there are many advance laboratory where the ongoing vaccine research is run, there is still no success in production of Zika virus preventive or therapeutic vaccine. Comparing to the previous situation of atypical influenza outbreak, the success in development of vaccine seems to be later. With the mentioned advents in immunotherapy approach, the new management against Zika virus is expected to be available in the near future.

Conflict of Interest

None.

References

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