

Glucose Metabolism and Zika Virus Infection

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Editorial

The new infection is usually a big problem and challenge in medicine. The Zika virus infection, a new emerging mosquito borne disease, is the present big problem. The disease is caused by an arbovirus namely "Zika virus". In public health, the widespread of the disease cause several concerns at present. The disease can cause a dengue-like febrile illness and it additionally induces neurological complication as well as poses teratogenic property. At present, the Zika virus infection affects several countries around the world. The effect of Zika virus on metabolism is very interesting but little mentioned. The interesting issue is on the effect of Zika virus on glucose metabolism. Whether the pathogenic virus has any effect on blood glucose metabolism is interesting questing. On the other hand, where the blood glucose metabolism, especially those abnormal metabolisms has any interrelationship with Zika virus infection is also interesting issue. The important topic should be the effect of Zika virus on diabetes mellitus.

In fact, as a new emerging infection with widespread, it is no doubt that there are some Zika virus infected cases with underlying diabetes mellitus. According to a recent publication, diabetes contributes no additional risk for microcephaly in pregnant with Zika virus infection [1]. The occurrence of hyperglycemia has no interrelationship with the Zika virus infection [2]. Nevertheless, there is a recent new hypothesis regarding GLUT1, a membrane-bound protein, is the main glucose transporter across the blood-brain barrier, and the placenta [3]. Blonz recently proposed an interesting hypothesis that "Zika viral effect on GLUT1 could inhibit access to the glucose needed for normal rapid endothelial growth of the placenta and fetus [3]." To verify this hypothesis needs further systematic study. Blonz proposed that there should be some relationship of Zika virus and GLUT1, similar to that observed in dengue [3]. Blonz also discussed on the clinical finding of lower incidence of microcephaly in tropical Oceania that "Although speculative at this point, the habitual intake of GLUT1-independent medium-chain triglycerides from coconut might have mitigated the impact of the Zika virus in those outbreaks. The question then becomes whether sources of metabolic energy not reliant on GLUT1 functionality could help protect the fetuses of at-risk women in the current Zika epidemic [3]."

In non-pregnant subject, no abnormal blood glucose was observed from routine blood clinical chemistry test [4]. In a report on the case with imaging examination, no pancreas abnormality was also reported [4]. There has never been any report that the Zika virus can induce the episode of hypoglycemia or hyperglycemia. Also, there is no report on the interaction between Zika virus and antidiabetic drug including to insulin. Nevertheless, there is an interesting report on atypical lethal case of Zika virus infection with low blood glucose level as an observation in first presentation [5]. In that case the patient ends up with multiple organ failure [5]. Nevertheless, since there is a lack for research on this specific topic and there is an existence of interrelationship between diabetes mellitus and other common tropical arbovirus infection, the problem in Zika virus infection is warranted for further study [6].

Conflicts of Interest

None

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