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## Eosinophil in Zika Virus Infection

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The Zika virus infection, an infection caused by pathogenic Zika virus, is a present global problematic issue that is still not complete controlled. This arbovirus infection causes the problem around the world and there are many millions people around the world face up with the threat from Zika virus [1]. Although the disease can be asymptomatic in most case [2], the great concern is on its impact on pregnant women. If a pregnant woman gets Zika virus infection, the transplacental transmission of virus can be expected and the unwanted teratogenic effect on fetus is possible. The occurrence of abnormal infant with microcephaly leads the global discussion on the infection. Furthermore, the neurological complication due to the Zika virus infection is also reported and becomes important concern in clinical neurology. Based on those mentioned observed clinical abnormalities, the disease becomes the big public health issues that need the attention from everyone.

In medicine, the clinical problem due to the Zika virus is not complete known. We know only that the disease is an arbovirus infection that results in acute febrile illness and can manifest like a dengue infection. The similar clinical feature to dengue might result in missed diagnosis [1]. Focusing on blood abnormalities, the similar problem to dengue, atypical lymphocytosis and thrombocytopenia might be observable in Zika virus infection. Hence, it is difficult to differentially diagnose Zika virus infection from dengue infection. Nevertheless, the effect of Zika virus infection on other blood cells is little mentioned. Of 5 blood cells of human, the effect of Zika virus infection on eosinophil is little mentioned. According to the available report with data on complete blood count, there has never been any report showing the abnormal low or high eosinophil.

Nevertheless, there are some reports on eosinophil and dengue. For dengue, Wells et al. noted that "During the convalescent period, a progressive increase in eosinophils was noted [3]." It was also reported that eosinophils proportion in dengue patients with underlying HIV infection is higher than those without [4]. Since these observations on eosinophil is from dengue, a highly similar infection to Zika virus infection, whether the same observation exists in Zika virus infection is an interesting question that requires further systematic study in hematology. Nevertheless, there is interesting evidence from animal model study. The interesting report is the observation on abnormal tissue eosinophil in infected animals. In histological study of experimental animal infected with Zika virus, "variable perivascular inflammatory infiltrates composed of lymphocytes, eosinophils and plasma cells were observed in the joints and muscles of animal" was reported [5].

Indeed, the increased eosinophil count is clinical related to allergic reaction or parasitic infestation but not virus infection. The observation of eosinophilia should not be expected in Zika virus infection. Nevertheless, as a new emerging infection, we still lack for complete clinical data, the long term follow-up and collection of data is required to clarify the exact interrelationship between Zika virus infection and eosinophil. At least, it should be noted that there are new accumulated data on the possible relationship between Zika virus infection and the allergic disorder such as atopic dermatitis [6].

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