

CONTROL OF IMMUNOPHATOLOGY DURING ACUTE ARBOVIRAL INFECTIONS

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The recent explosive pandemic of chikungunya (CHIKV) followed by Zika (ZIKAV) virus infections occurring throughout many countries are the most unexpected arrivals of arthropod-borne viral diseases over the past 20 years. Transmitted through the bite of *Aedes* mosquitoes, the clinical picture associated with these acute arbovirus infections; including Dengue (DENV), CHIKV and ZIKAV, ranges from classical febrile illness to life-threatening disease. Though ZIKAV and CHIKV have previously been known as relatively benign diseases, the more recent epidemic events have brought waves of increased morbidity and fatality leading them to become a serious public health problem, like as currently observed with DENV. The host's immune response

plays a crucial part in controlling the infection but it may also contribute to promote viral spread and immunopathology. We assess the recent developments on the immune responses, with an emphasis on the early antiviral immune responses, to understand their possible Janus-faced effects in the control of virus infection and pathogenesis. We hypothesize that several innate immune cells subsets, including NK cells, are strongly involved during acute arbovirus infections. Improving our understanding of the immune mechanisms that control viral infections is crucial in the current race against the globalization of these epidemics. The emergence of co-infections and the unprecedented increase in magnitude in morbidity and mortality during recent major concomitant outbreaks are concerning new threats which need to be closely monitored.