

Letter to the Editor

Absence of Zika Virus Seroprevalence Among Blood Donors in Northern Cyprus

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Dear Editor,

Geographical modulations, especially in terms of climate change and population cause an increase in the infection rates of different mosquito-borne viral diseases including Zika, West Nile, Yellow Fever, Dengue, and Chikungunya [1]. The vector-borne viral infections are emerging global public health concern because of their easy and rapid spread across the continents. It has been reported that vector-borne diseases are responsible for more than 17% of all infectious diseases resulting in more than 700,000 deaths per year [2]. Until 60 years ago, Zika virus infections were not so remarkable as different outbreaks of disease occurred, including influenza, EBOLA, Severe Acute Respiratory Syndrome (SARS) and the Middle East Respiratory Syndrome (MERS). However, Zika virus (ZIKV) has recently become a global concern, due to its rapid pandemic potential [3]. Zika virus was first identified from a rhesus monkey in Zika Forest in Uganda in 1947 and following the first human isolation occurred in Uganda and Tanzania in 1952 [2]. The first Zika outbreak was reported from the Island of Yap, Federal Republic of Micronesia, in 2007 [4]. Since 2013 to 2015, ZIKV was becoming an emerging public health alert and has been reported from different countries including French Polynesia, some countries of Pacific and Brazil [5]. Since a large outbreak of Brazil in 2015, ZIKV spread across America, Africa and many regions of all over the world leading to the 2015-2016 ZIKV epidemic which has resulted in

declaration of “Public Health Emergency of International Concern” in 2016 [2].

ZIKV is now regarded as a great as well a significant danger and threat to general public health around the world, here we report the first study on evaluation of the prevalence of ZIKV infection in people in Northern Cyprus. We retrospectively analyzed a total of 91 serum samples of Turkish Republic of Northern Cyprus citizens that were randomly collected from blood bank of Near East University, Nicosia in 2019. Zika virus Ig G antibody against ZIKV was investigated by using enzyme linked immunosorbent assay (ELISA) technique in clinical samples. The commercially available human anti-Zika virus Ig G ELISA (R&D Systems, USA) kit was performed on the samples collected according to the manufacturer’s protocol. The optical density (OD) of each sample was obtained by microplate reader (VERSA max microplate reader, USA) within 15 minutes after preparation of the plates at 450 nm with a correction wavelength at 540 nm. According to the human anti Zika Ig G ELISA results, limit of detection level is given as > 0.200. The OD results obtained higher than 0.200 are accepted as positive against for Zika virus Ig G antibody, while the OD results below 0.100 and between 0.100-0.200 are assessed as negative and equivocal results respectively for ZIKV Ig G antibodies. The ethical approval of the study was taken from Health Sciences Institute Committee of Near East University with the decision no NEU/2019/73-914. The

statistical analysis of the data was performed using SPSS Ver 13.0 (SPSS Inc., Chicago, IL, USA). The Pearson correlation coefficient and the Fisher's chi-square test were used to determine any statistical significance and tests with a p-value less than 0.05 were considered statistically significant.

Among all participants, 60 (66%) and 31 (34%) of the patients were male and female respectively with the mean age 42.96 (range 18-90) and the standard deviation (SD) 18.77. Out of the 91 clinical samples measured, the mean SD of OD value was calculated as 0.012 ± 0.01 . The highest and the lowest OD values obtained were 0.094 and 0.00 respectively. According to the calculated net OD values of the patients, all samples were determined as negative for the human anti-Zika Ig G ELISA test. Cyprus is an island that is located in the the Mediterranean Sea and has been divided into two different parts named as Northern Cyprus and Southern Cyprus due to the conflict of two regions. (6). Despite lack of scientific report on the presence of *Aedes* mosquitoes in Northern part of the island since 1946, different studies have been carried out on mosquitoes in Southern part of the island. Four different species of *Aedes* mosquitoes including *Aedes aegypti*, *Aedes detritus*, *Aedes mariae* and *Aedes caspius* have been reported in Republic of Cyprus [7].

We believed in that ZIKV could be present in Northern Cyprus because, due to the legal human transition between the two parts on the island and the arrival of various people for education, tourism and employment from all over the world could lead the country to become a cosmopolitan country where various infectious could be emerged. Although there is no study on *Aedes* mosquitoes, Cyprus may be one of a potential high risk area for ZIKV infection as in addition to being vector-borne infection, ZIKV transmission can also occur via blood transfusion, mother to baby during pregnancy and via sexual contact [8]. Most people infected with ZIKV is asymptomatic or have only mild symptoms and blood donors may not know they have been infected thus; they may present a risk to blood safety as virus can be passed from person to person [9]. Besides the risk of transmission transmitted ZIKV, the arthropod borne virus is also associated with Guillain-Bare syndrome and many other neurological complications during pregnancy [10]. Since 2015, there has been an increase in ZIKV-associated microcephaly and other birth defects in the newborn [11]. In our study, we did not involve pregnant women because we believed that blood donors would be the best study group for a first study to detect possible asymptomatic ZIKV infections.

Our study is quite important, as it presents the first epidemiological data on Zika virus infections in Northern Cyprus. Although, we have no available data in the literature on *Aedes* mosquitoes in Northern part of the island, we still believe that there may be asymptomatic ZIKV infections in the North side due to the presence of mosquitoes in Southern part and possible transmission of the infection apart from vectors. Our study stated that there is no ZIKV infection in Northern Cyprus up to now. However, as human migration to Cyprus continues, further research involving larger study groups with different citizens, especially those from the ZIKV endemic regions, is needed to determine ZIKV infections in Northern Cyprus.

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