

TITLE: MOLECULAR AND SEROLOGICAL SURVEILLANCE OF DENGUE AND ZIKA IN FEBRILE PATIENTS FROM SÃO JOSÉ DO RIO PRETO, SÃO PAULO, BRAZIL

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ABSTRACT: Arthropod-borne viruses (arboviruses) comprise a critical public health threat worldwide, representing more than 17% of all human infectious diseases and accounting for more than 700,000 deaths per year. São José do Rio Preto, is a Brazilian city, belonging to São Paulo state that is located in an endemic area for dengue virus (DENV) and with co-circulation of several arboviruses, including Zika virus (ZIKV) and chikungunya virus (CHIKV). Aiming to detect patterns and mechanisms of viral circulation, we carried out an epidemiological, molecular, and serological surveillance of DENV, ZIKV, and CHIKV, in 2019 and 2020, in São José do Rio Preto. We performed the molecular diagnosis of 4,231 samples, of which 39 were positive for DENV-1, 1,340 were positive for DENV-2, one was positive for DENV-4, one sample represents a co-infection of DENV-1 and DENV-4, four were positive for ZIKV, and two were positive for CHIKV. Our data showed DENV-2 as the predominant circulated serotype during the two years of the study. In order to identify previous dengue or Zika infections, we evaluated the presence or absence of anti-dengue and anti-Zika antibodies in 1,085 of these samples. The serological diagnosis was performed by applying the ELISA (Enzyme-Linked Immunosorbent Assay) methodology, using different kits following the manufacturer's recommendations. A total of 75% of the analyzed samples had convalescent-phase antibodies (IgG) for DENV, and 7% of the samples had convalescent-phase antibodies (IgG) for ZIKV. This study showed the circulation of different arbovirus in São José do Rio Preto, indicating the establishment of transmission and reinforcing the importance of surveillance health system using molecular and serological approaches to better understand viral dynamics and as a tool to predict further epidemics.

Keywords: Dengue, Zika, molecular diagnosis, serological surveillance

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