

Abstract. Information is limited regarding differential serological responses after acute Zika virus (ZIKV) infections and prevalence of cross-reactivity with anti-dengue virus (DENV) assays comparing children and adults. Early convalescent sera from a cohort of suspected mild DENV cases between December 2016 and September 2018 at Bamrasnaradura Infectious Diseases Institute in Thailand were tested for nonstructural protein 1 (NS1)-based anti-ZIKV IgM and IgG ELISAs (Euroimmun), and in-house anti-DENV IgM- and IgG-capture ELISAs. ZIKV cases were identified by positive real-time reverse transcriptase-polymerase chain reaction on urine. Sera from 26 (10 children and 16 adults) ZIKV and 227 (153 children and 74 adults) non-ZIKA cases collected at the median duration of 18 days (interquartile range [IQR] 18,19) post-onset of symptoms were tested. Comparing pediatric ZIKV to adult ZIKV cases, the mean anti-ZIKV IgM ratio was higher (2.12 versus 1.27 units, respectively; $P = 0.07$), whereas mean anti-ZIKV IgG ratio was lower (3.13 versus 4.24 units, respectively; $P = 0.03$). Sensitivity of anti-ZIKV IgM and specificity of anti-ZIKV IgG in pediatric ZIKV were higher than in adult ZIKV cases (80.0% versus 43.7% and 79.1% versus 43.2%, respectively). No cross-reactivity with anti-DENV IgM- and IgG-capture ELISA were reported in pediatric ZIKV cases in our study, whereas 25% and 12.5% were found in adult ZIKV cases, respectively. Age-related ZIKV serological differences have been observed. Positive NS1-based anti-ZIKV IgM and IgG ELISA at the early convalescent phase could be useful for ZIKV diagnosis in children, even in a dengue endemic setting.