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Abstract

Dengue virus infection is a major burden in Indonesia. The objective of this study was to find the association between dengue virus serotypes and type of infection in hospitalized children in Department of Child Health, Cipto Mangunkusumo Hospital (RSCM), Jakarta, Indonesia. A cross-sectional study was conducted from 2006 to 2010 (except 2008). Blood samples from patients diagnosed with suspected dengue infection were collected consecutively. The type of infection was determined by dengue serology rapid tests (Panbio Dengue duo cassette and/or Bioline SD Duo). The serotype was determined by RT-PCR. A total of 195 samples were collected. Of these, 31 (15.9%) were primary infection, 155 (79.5%) were secondary infection, and 9 (4.6%) could not be determined. RT-PCR showed 13 (6.7%) were DENV-1; 30 (15.4%) were DENV-2; 39 (20.0%) were DENV-3; 9 (4.6%) were DENV-4; and 5 (2.6%) were mixed infections (1 sample was DENV-1 + DENV-2 infection, 4 were DENV-1 + DENV-3 infection); and 99 (50.8%) were negative. Among primary infections, 22.6%, 16.1% and 6.5% of cases were caused by DENV-1, DENV-3 and DENV-2 respectively. Among secondary infections, 19.4%, 16.1%, 5.8% and 3.9% were caused by DENV-3, DENV-2, DENV-4 and DENV-1 respectively. In this study, all four serotypes were found between 2006 and 2010. Overall, DENV-2 and DENV-3 were the predominant serotypes in hospitalized children in the Ciptomangunkusumo Hospital, Jakarta. The majority of cases were of secondary infections (79.5%). We found that 53.8% of DENV-1 infections were primary while all DENV-4 infections were secondary infections. Statistical analysis showed that primary infection by DENV-1 was significantly higher compared to other serotypes. Whether primary DENV-1 tends to cause severe manifestation needs further study. More than 50% of primary and secondary dengue infections were PCR-negative. We recommend appropriate specimen collection and handling procedure to minimize the PCR-negative result. Continuous study is required to find the pattern of dengue virus serotype which infects children.

Keywords: Dengue virus infection; Children; Serotype; Indonesia.

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