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Genotype I and IV of dengue virus DEN-1 and its clinical manifestations in Surabaya

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Previous studies showed there were a Dengue Virus (DENV) distribution shift from DENV-2 to DENV-1 in Surabaya. This study analyzed genetic characteristics of DENV-1 and clinical manifestations. This was an analytical observational study with prospective cohort setting. The study was conducted in Dr. Soetomo General Hospital, from February to August 2012. DENV serotyping was done by real-time PCR using Simplexa™ 3M RT-PCR instrument. Viral load examination was done by two step real-time PCR in Applied Biosystem 7500 instrument. Positive samples were cultured in C6/36 cells. Positive culture samples were genotyped using envelope gene sequence. Dengue serotype distributions in 2012 were DENV-1 (67.9%), DENV-2 (9.5%), DENV-3 (4.8%), DENV-4 (7.1%), mixed DENV-1 & 2 (2.4%), DENV-1 & 3 (5.9%), and DENV-1 & 4 (2.4%). DENV-1 consisted of genotype I (66.7%) and IV (33.3%), genotype II, III and V were not detected. Comparison among DENV serotypes or DENV-1 genotype showed no significant differences in DF and DHF manifestations. In the children group, red blood cell count (RBC) was higher in DENV-1 genotype I than IV, but mean corpuscular hemoglobin (MCH), lymphocytes and albumin level were lower in genotype I. Viral load level was higher in genotype I than IV, unfortunately it was not significant. By analyzing E gene nucleotids sequences, each DENV-1 strain showed individual nucleotides and amino acid changes. From E gene sequences analysis, amount of amino acid substitutions had no implication in DF and DHF manifestations.

Biography

Puspa Wardhani is a Medical Doctor, finished Clinical Pathologist brevet from Airlangga University and PhD degree in 2013. She is Lecturer in Airlangga University and Medical Staff in Dr. Soetomo General Hospital in Surabaya. She is currently undergoing subspecialized brevet of microbiology and infectious disease. She has international journal publication and has been serving as an Editor Chief of local journal in Indonesia.

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