

Abstract

Enteroviruses are prevalence between April and September in Taiwan. The prevalent duration even prolongs into November each year in southern Taiwan. Enteroviruses comprise 68 subtypes that individually cause a variety of disease entities although early symptoms are indistinguishable. It is mandating for us to identify specific early markers for early diagnosis of different enteroviruses. In this study, we attempted to develop a model for early diagnosis of different enteroviruses, especially enterovirus 71 (EV71) susceptible to central nervous complications. We recruited patients with suspicious enterovirus infection and drew blood for simultaneous detection of virus load and lymphocyte activation markers. In the initial year study, we had established the model with simultaneous assessment of virus load vs. leukocyte reaction. We had also enrolled 40 suspicious patients with enterovirus and 22 non-enterovirus patients for this study. 27/40 patients were cultured proved enterovirus infection, 9 of 27 enterovirus diseases were EV71, 6 were Coxsackie A₁₆ and the other 12 were Coxsackie B₃ cases, indicating that non-EV71 enterovirus were prevalent in the past year. Nineteen of the 40 patients received cerebrospinal fluid (CSF) examination, 3 of the 19 revealed aseptic meningitis. 2 of the 3 meningitis cases had detectable enterovirus RNA by real-time quantitative RT-PCR assessment. The fact that two meningitis patients were infants less than 2 months with detectable virus in the blood, suggest that small infants tend to have viremia, associated with central nervous system (CNS) involvement. For children beyond infant stage, few patients revealed detectable viremia in the blood may be due to too small sample size to draw a conclusion. Further studies on blood lymphocyte activation markers, we found that EV71 patients tended to have higher CD₄₀L on CD₄ T cells and Cox B₃ patients tended to have higher regulatory CD₄⁺CD₂₅⁺ T cells. Following the initial year result, in the next year study, we will collect more samples to prove that small infants tend to have viremia, resulting in higher morbidity (especially CNS involvement); and children with complication tend to have blood viremia, certain leukocyte activation marker(s).

Keyword: enterovirus 71, virus load, CD40L, complicated EV71, early prevention