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Pathogen detection in children with both mild and severe hand, foot and mouth disease: new factors influencing molecular assay

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The early diagnosis of Hand, foot and mouth disease (HFMD) relies on typical clinical manifestations, together with RT-PCR assays from throat swab, herpes fluid or feces. This study included 1,104 clinically diagnosed HFMD patients. Swabs from 348 cases, with 115 mild cases and 233 severe cases were chosen for EV71, CA16 and 14 different respiratory pathogens (RPs) detection using PCR or RT-PCR. Furthermore, eight cytokines were detected to evaluate immune activation in HFMD patients, and serum IgM antibody to EV71 and CA16 from mild and severe patients was detected. Our results showed that factors, such as age, time of the year and infection of non-EV71/CA16 enteroviruses (EV) all contribute to the pathogen detection. Besides, the EV71/CA16-positive rate in mild cases was much higher than in severe cases ($\chi^2 = 17.198$, $P = 0.000$). The positive rate of RPs in the mild group was much higher than in the severe group ($\chi^2 = 7.963$, $P = 0.005$). No interference between RPs infection and the identification of EV. The presence of cytokines was shown to be significantly higher in the severe group than in the mild group. ELISA indicated the positive rate of EV71/CA16-IgM in severe cases were much higher than in mild cases ($\chi^2 = 7.153$, $P=0.007$). The lower positive rates of EV and RPs in severe HFMD cases by molecular method were found to be due to stronger immune response. Therefore, ELISA are essential supplement to PCR or RT-PCR in order to increase pathogen diagnosis in HFMD, especially in severe cases.

Biography

Xiuying Zhao had completed her Ph.D in 2005 from department of Microbiology, the University of HongKong. She has been worked in the field of experimental diagnosis of variety kinds of infectious diseases such as Hepatitis, AIDS, SARS, Flu, and HFMD. She is now work as director in department of clinical laboratory, Beijing Tsinghua hospital, Tsinghua University. She has published more than 50 papers in Chinese or in English.

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