

Abstract

Dengue fever is an acute infection transmitted by mosquitoes. It will cause fever, muscle pain, joint pain, headache, rash and leucopenia. In addition to the typical dengue fever, there are two clinical syndromes, dengue hemorrhage fever (DHF) and dengue shock syndrome (DSS). Those will result in hemorrhage and shock respectively due to the permeability of vascular increases. The syndromes of DHF and DSS are induced by the infection of different serotype dengue virus. So far, there are four serotypes found, such as DEN-1, DEN-2, DEN-3 and DEN-4. There are two methods, ELISA and PCR, in clinical laboratory to diagnose if patients infected by dengue virus. The PCR method can directly detect dengue virus in blood. The other method of ELISA can detect IgM and IgG antibodies produced by patients after dengue virus infection. However, patients' bloods should be pretreated to extract viral RNA before using PCR method to detect dengue virus. Thus, how to extract dengue virus RNA by a fast, convenient, and cheap method is the important process to be concerned. Therefore, it is very important to compare the methods used in laboratories at present with newly developed method of magnetic bead to find out which method could fast, highly sensitively, and automatically analyze a large amount of samples. This will be very helpful to improve the technique of detecting dengue virus efficiently.

We compared three methods for extracting dengue virus RNA. Column extraction method obstructed the columns when samples were treated with absolute alcohol. Removal of turbid samples in column was complicated and time-consuming. In addition, the steps have high risk of samples contamination. The problems of column extraction method didn't occur in magnetic bead method. However, there are no differences of extracting efficiency between magnetic bead method and column method. The labor work method has the best RNA extracting efficiency, but it can't treat massive samples at a time. Moreover, contamination and variation of efficiency exist in different technicians. Therefore, we recommend that the magnetic bead can be used for the routine extraction of RNA from large series of serum samples, which can extract dengue virus RNA automatically and fast.

Keywords : dengue ; uantitative real time PCR ; RNA extraction