

In vitro Evaluation of the Synergistic Antiviral Activity of Amantadine Coupled with Magnesium Lithospermate B against Enterovirus 71 Infection

Authors : Wen-Yu Lin, Yi-Ching Chung, Jhao-Ren Lin, Tzyy-Rong Jinn

Abstract : It is well known that enterovirus 71(EV71) causes recurring outbreaks of hand, foot and mouth disease and encephalitis leading to complications or death in young children. And, several enterovirus 71 (EV71) of hand foot and mouth disease (HFMD) with high mortalities occurred in Asia country, such as Hong Kung (1985), Malaysia (1997), Taiwan (1998) and China (2008) that EV71 results in severe neurological complications and sudden death in infants and young children. However, there are still no effective drugs and vaccines to reduce and inhibit EV71 infection. Therefore, the development of specific and effective antiviral strategies against EV71 has become an urgent issue for the protection of children from the hazards of the HFMD. As reported, amantadine is effective in prophylaxis and treatment of the EV71 infections. Thus, the aim of this study was to further evaluate the synergistic antiviral activity of amantadine coupled with magnesium lithospermate B (MLB) against enterovirus 71 infection. In a preliminary test, it is shown that the infected RD cells were treated with amantadine after virus absorption, at concentrations of 3 and 5 μ M of amantadine suppressed EV71-induced CPE to 13% and 23%, respectively at MOI of 3. Alternatively, at concentrations of 5 μ g/ml of MLB combined with 3 and 5 μ M of amantadine apparently suppressed EV71-induced CPE to 45% and 63%, respectively at MOI of 3. Thus, amantadine coupled with MLB may have the potential for further study to development as the chemopreventive reagents against EV71 infection.

Keywords : amantadine, Enterovirus 71, magnesium lithospermate B, RD cells, synergistic effects

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