



Inhibitory effect of berberine on apoptosis induced by measles AIK-HDC virus strain

K. Haratian*

Department of pathobiology, Alborz University of Medical Sciences, Karaj, Iran

Background and Aims: Measles virus (MV) is a highly contagious agent which causes a major health problem in developing countries. We studied the effect of berberine on the replication of an AIK-HDC strain of MV and its induced apoptosis in Vero cell lines.

Methods: In this study, toxicity of berberine on Vero cells was investigated first, resulted in determination of sub-lethal or non-toxic concentration zone of berberine for cells. Next, anti-viral effect of berberine at various time limits was evaluated and virus titer was determined at each stage either as 50% tissue culture infective dose TCID₅₀ or by plaque assay method. Using specific anti-measles IgG, anti-viral effect of berberine on MV replication cycle was evaluated through indirect immunofluorescence assay, meanwhile presence of viral RNA was investigated by RT-PCR and gel- electrophoresis.

Results: According to the experiments, berberine, at concentration of 50 μ M, markedly inhibited the cytopathic effect (CPE) induced by MV. Berberine also significantly inhibited apoptosis induced by MV. Berberine either influences replication of MV genome, or may inhibit virion formation.

Conclusions: These results suggest that the inhibition of CPE and apoptosis by berberine induced by MV may be associated with the effect of berberine on viral RNA genome. Therefore, it is suggested that MV infections can induce apoptosis through the activation of a common pathway that can be blocked by berberine or some of its ingredients.

Keywords: Measles; Berberine; CPE; Apoptosis