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Investigation of the Antiviral Effect of Vepesid on HSV Type 2

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Abstract: Objective: Vepesid is a semisynthetic derivative of phodophylotoxin extracted from Phodophylum peltatum, which is in the group of plant alkaloids. In this study, the antiviral effect of Vepesid against herpes simplex virus type 2 (HSV-2) in in vitro conditions was investigated. Materials and Methods: In this investigation, a HEp-2 continuous cell line that was derived from human larynx cancer cells was used. The experiments were done in culture plates with smooth bases consisting of 96 wells. Cultivation of cells was realized in EMEM medium with 10% fetal bovine serum at an atmosphere of 37 ° C with 5% CO_2. The toxicity of investigated agents and sensitivity of HEp-2 cells were evaluated according to the Reed and Muench method. The 50% effective dose (ED_{50}) of the antiviral agent was expressed as the concentration that inhibits the cytopathological effect in half of the quadruplicate test cultures. Acyclovir was included as a positive control drug for HSV. The experiments were done in two stages. In the first stage, the concentration of Vepesid that did not affect proliferation was determined by means of morphological and biochemical parameters (pH, pCO_2, pO_2, Na^+). In the second stage, the antiviral effect of that dose was examined on 100 TCID{50} of HSV-2. Results: The concentrations of Acyclovir and Vepesid (3.12 µg/ml, 6.28 µg/ml) were toxic and 1.56 µg/ml of both agents did not affect cell proliferation. These amounts of Acyclovir and Vepesid inhibited viral reproduction and had no cytopathological effect on cells. Na+ content of the culture medium was 138 $\pm$ 2.54 mEq/L for the control group, 126 $\pm$ 1.65 mEq/L for the virus control, 142 $\pm$ 0.3 for the Acyclovir, 142 $\pm$ 0.4 for the Acyclovir + virus, 143 $\pm$ 1.1 for Vepesid, 141 $\pm$ 0.2 for the virus + Vepesid. LD50 of Acyclovir and Vepesid was found to be 71% for a virus titer of 100 TCID50. Conclusion: We found that Vepesid prevented the viral replication of herpes simplex virus type 2. We think that the study of Vepesid as the treatment for patients with herpes simplex virus (HSV) is very important in terms of its clinical and epidemiological nature.

Key Words: Vepesid, Acyclovir, HSV-2, lethal dose, cell culture.

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