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Antiviral Activity of a Series of Cobalt Containing Complexes against Herpesvirus Infection In Vitro and In Vivo.

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A group of crystalline, cobalt containing complexes (Chai-Tech Corp., Greenvale, NY, USA) were found to have activity in vitro against herpes simplex virus types 1 and 2 (HSV-1, HSV-2) cytomegalovirus, varicella zoster virus, and Epstein Barr virus. Individual compounds had different activities against the various herpesviruses and no single compound was identified that had potent broad spectrum herpesvirus activity. Three of the compounds (CTC-23, CTC-76, CTC-82) that had EC_{50} values of 2-10 μg/ml against HSV-2 in human foreskin fibroblast cells were tested for topical activity against genital HSV-2 infections of mice and guinea pigs. In mice, 1% CTC-23 administered three times daily reduced vaginal virus titers if treatment was begun at 6h, but not 24h after infection. In guinea pigs, topical therapy with 2% CTC-23, CTC-76 or CTC-82 was highly effective in reducing vaginal virus titers and external genital lesion scores when treatment was begun 6h post infection. Little activity was observed if treatment was delayed until 24h post infection. When treatment was begun 6h after infection, the CTC compounds were at least as effective as 5% ACV, however, ACV was more effective if therapy was delayed for 24-48h. Selected compounds were also evaluated for activity against systemic infections in mice. These results indicate that these cobalt containing compounds have in vitro and in vivo activity and suggest that additional studies be conducted to determine their potential for clinical use.

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Antiviral Activity of Piracetam, Y.M. Centifanto, Tulane University School of Medicine, New Orleans, Louisiana (USA)

The effect of Piracetam (2-oxo-1 pyrrodiline acetamide), a nootropic drug, on herpes simplex virus (HSV) infections was examined. We found that HSV replication on Vero cells was totally inhibited by the drug, even when added 6 hr pi. The drug needed continuous contact with the infected cell to exert its effect, suggesting a virustatic mode of action. Three types of experiments were conducted for the in vivo studies: 1) In the hairless guinea pig model of herpetic recurrent disease, cellophane stripping of a previously infected area induces the appearance of recurrent herpetic lesions. Topical application of a 10% Piracetam to these areas inhibited lesion formation by 70% as compared to the control; 2) Using the same system, the drug at 20 mg/kg was given either orally or in the drinking water, prevented lesion formation; 3) Female guinea pigs were infected in the genital area with HSV-1 (333) strain. After the primary lesions subsided, and in the period of spontaneous recurrent lesions, the animals were given oral doses of Piracetam for three consecutive weeks. We found that the drug was effective in reducing the number of recurrent lesions on the treated animals by more than 50%. Additional experiments with different doses are now in progress. It is important to note that Piracetam has a more definite inhibitory action on recurrent lesions as compared to a very mild action on primary disease. We theorize that this beneficial effect on the prevention of recurrent lesions may be related to their reported cholinergic functions.