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Combined Effect of an Antioxidative Agent (Ionol) and Rimantadine on Experimental Influenza Virus A(H3N2) Infection in Mice

A. S. Galabov[1], V. Savov[2], G. Koinova[2], L. K. Chetverikova[3], V. Hadjiathanassova[1], T. A. Kramskaya[3] and M. Behar[1]. [1]Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; [2]Faculty of Physics, St. Kliment Ohridski University of Sofia, Bulgaria; [3]Institute of Experimental Medicine, Russian Academy of Medical Sciences, St. Petersburg, Russia

Comparative study on the level of free radical lipid peroxidation (LPO) products in brain, lungs, lever and blood of mice infected with influenza A(H3N2) virus was carried out. A marked increase (in the blood mostly) of malonyl dialdehyde concentration, clearly virus dose-dependent, was found. A prophylactic 3-days course with ionol (4-methyl-2,6-ditretbutylphenol), 45 or 75 mg/kg i.p. daily, resulted in an inhibition of this LPO activation and some protective effect as well. Rimantadine, administered orally (single dose 15 mg/kg) in a routine treatment course (5 times starting on the day of virus inoculation), exerted no significant effect on LPO. Combination ionol + rimantadine demonstrated a stronger protective action. Experimental evidence was obtained on perspectiveness of antioxidative agents application in the treatment of influenza, separately or in combination with antivirals.

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In Vitro and *In Vivo* Inhibition of Ortho- and Paramyxovirus Infection by a New Class of Sulfonic Acid Polymers Interacting with Virus-Cell Binding and/or Fusion

S. Ikeda[1], S. Verma[2], P. Mohan[2], J. Neyts[1] and E. De Clercq[1]. [1]Rega Institute for Medical Research, Katholieke Universiteit Leuven, B-3000 Leuven, Belgium and [2]Department of Medical Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, Illinois 60680, USA.

We investigated activity of a series of sulfonic acid polymers [i.e. poly(4-styrenesulfonic acid), poly(vinylsulfonic acid), ..] against respiratory syncytial virus (RSV) and influenza A virus *in vitro* and *in vivo*. The compounds were found to inhibit the replication of RSV and influenza A virus in HeLa and MDCK cells, at concentrations of 0.16-4.0 μg/ml, respectively, without being toxic to the host cells at concentrations up to 100 or 200 μg/ml. The mode of antiviral action of the sulfonic acid polymers can be ascribed to inhibition of virus-cell fusion (influenza A virus), or inhibition of both virus-cell binding and fusion (RSV). The sulfonic acid prototype PAMPS [poly(2-acrylamido-2-methyl-1-propane-sulfonic acid)], when administered intranasally to mice, as a single dose of 10 or 50 mg/kg, together with the virus, completely inhibited influenza A virus replication in lungs and virus-associated lung consolidation, and completely protected mice, including severe combined immune deficiency (SCID) mice, against influenza A virus-associated mortality.