

184

TREATMENT OF MICE INFECTED WITH INFLUENZA AND PARAINFLUENZA VIRUSES BY AEROSOLIZED APROTININ

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Aprotinin, a proteinase inhibitor, was previously shown to prevent the cleavage of viral fusion protein, to reduce activation of virions and to protect the mice lethally infected with influenza virus when it administered by the intraperitoneal route (for review see: Zhirnov O.P., J.Med.Virol., v.21, 161-167, 1987).

We have shown now that mice infected with lethal doses of influenza A/Aichi/2/68 (H3N2) virus or paramyxovirus Sendai/960 were protected by aerosolized aprotinin. Infected mice were exposed in aprotinin small-particle aerosol (80-90% of droplets were 3 μ m, a particle size optimal for deposition on the alveolar epithelium) for 30-45 min at 4.5 hour intervals for 7.5 days. Aprotinin - Gordox(R) was purchased from Gedeon Richter, Hungary. Protective effects were about 50% and 30% for mice infected with 10 and 250 LD50, respectively, for either of both viruses used. Pathological lesions in the lungs of infected mice were markedly reduced under aerosol treatment. This treatment caused also a normalisation in the rate of body weight gain, which was shown earlier to be a good indication of the recovery of mice.

185

Efficiency of Antioxidant Agents in Prevention and Treatment of Experimental Influenza in Mice

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Experimental evidence is presented concerning the significant role of activation of lipid peroxidation in pathogenesis of influenza infection in mice. Intensive accumulation of lipid peroxidation products was detected not only in lung, but also in brain and liver of infected animals. Similar tendency was observed in mice with stress-induced influenza aggravation. Administration of substances with antioxidant or antihypoxic properties led to a marked protection in influenzavirus infected mice and to reduction of the stress-induced disease aggravation as well. The protective effect of such agents is probably based on a correction of both lipid peroxidation processes and antioxidant defence mechanisms. These studies were carried out using mathematically designed experiments. Possible use of antioxidant and antihypoxic agents in prevention and treatment of influenza is discussed.