Role of Proteinase-ingibitory system in the patogenesis of flu

Divocha V.A., , Basarab Y.A.

SE Ukrainian Research Institute for Medicine of Transport,Odessa, Ukraine
Ukrainian medical stomatological academy, Poltava, Ukraine

Introduction

Deproteinization of a flu virus is necessary for its penetration into a cell and this occurs for the account of trypsin-like proteinases of the host's cell. We assumed that this enzyme has an important role in morphogenesis of flu virus and considerably defines its pathogenic and virulent properties.

Objectives

to study the changes of proteinase and inhibitor activities in the development of influenzal infection at white mice previously infected with flu A virus.

Methods

We worked with virus of flu of A/PR/8/34 (H1N1) and white mice weighing 16-17 g. For infection of the animals we took virus 2,5-2 LD_{50} dose. Such a dose provided 100% death of the animals for the 6th day after infection. The animals were slaughtered and took lungs. Blood was taken in 15, 30 min., 1, 6 hours and further in 1, 2, 3, 4, 5, 6 days after infection. In parallel not infected animals were slaughtered and their lungs were taken according to the same terms. In lungs' homogenate and blood serum we defined infectious, hemagglutinating, proteinase and inhibiting activity and total protein.

Results

It has been is established that the level of trypsin-like proteinase and its inhibitor in the lungs and blood serum of not infected white mice were in balance at rather high level and did not change considerably during the whole period of supervision (6 days). At infection of white mice with virus of flu A/PR/8/34 (H1N1) there was a violation of proteinase-inhibitory balance. The most profound changes happened during the first hours after infection. There was the growth of proteinase activity and decrease of inhibitory activity. During the maximum accumulation of infectious titer of virus and its hemagglutinin, both proteinase and inhibitory activity was completely suppressed. The animals which didn't perish for 5-6 days increase of inhibitory activity and decrease in proteinase took place

Conclusion

Increase of proteinase activity during the first hours after infection led to increase of infectious and hemagglutinating activity. The increase of inhibitory activity in 5-6 days after infection leads to some arresting of influenzal infection