THE INFLUENCE OF DONEPEZIL AND EGB 761 ON THE INNATE IMMUNITY OF HUMAN LEUKOCYTES. EFFECT ON THE NF-κB SYSTEM

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The influence of donepezil and Ginkgo biloba special extract EGB 761 on two mechanisms of innate immunity, natural antiviral resistance of human leukocytes ex vivo and NF-κB activation, was studied. Correlation between the innate immunity of leukocytes and NF-κB activation was investigated. The effect of the two drugs on resistance of human leukocytes to vesicular stomatitis virus (VSV) infection was also assessed. Two groups of healthy blood donors (n=30) were distinguished: one with resistant leukocytes (n=15) and one (n=15) with leukocytes sensitive to VSV. The degree of natural resistance of human peripheral blood leukocytes (PBLs) was determined by studying the kinetics of VSV replication. NF-κB activation was assayed by immunocytochemical staining. Efficiency of donepezil and EGB 761 was determined by a special regression model. The toxicity of the preparations to PBLs and the cell lines L929 and A549 and their effect on the different viruses was established. Results showed that donepezil used in concentrations of 10-50 ug/ml and EGB 761 of 25-100 ug/ml stimulated resistance of human leukocytes. At the same concentrations both preparations decreased activation of transcriptional factor NF-κB. Correlation between innate immunity of PBLs and NF-κB activation was observed. Comparison of the effects of these two drugs showed that EGB 761 is more effective in stimulating leukocyte resistance. Donepezil and EGB 761 regulated innate immunity of human leukocytes by stimulating resistance and modulating NF-κB activation. The natural drug was more efficient in stimulating innate antiviral immunity of human leukocytes. The results of obtained by us are important from point of view new therapeutic strategies to prevent neuronal damage.