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9-tert-butyl-apomorphine (DTBA) as an effective soluble compound with antioxidant activity for treatment of experimental Parkinsonism

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Objective: To evaluate antiparkinsonic effect of the investigated compound were used two different model of experimental Parkinsonism in white rats: 1st – classical model with overdose of neuroleptic drugs and 2nd – new one, with injection the initiator free-radical oxidation (FRO), FRO - Fe-ascorbate mixture, into *substantia nigra* of the brain.

Background: One of the causes of Parkinsonism might be activation of lipids peroxidation (LPO). But there might take place and other FRO initiator reactions, apart from LPO inhibition, that should also be considered – of radical fragmentation processes. The bifunctional organic compounds like dopamine in particularly can undergo FRO, that is reactions of radical fragmentation. In former investigations we were found, that the products of free-radical oxidation (FRO) of dopamine on adding Fe-ascorbate *in vitro* resulted in predominant formation 4-(2-aminoethyl)-benzoquinone-1,2 along with other products.

Results: Treatment of dopamine with Fe-ascorbate mixture resulted in predominant formation 4-(2-aminoethyl)-benzoquinone-1, 2 along with other products. The new fenol's derivative DTBA inhibit FRO of dopamine *in vitro*: Antioxidant activity of DTBA in 10 times exceed the same one of dibunolum. This compound (DTBA) has not negative reaction (vomiting, nausea) that caused by Apomorphine. Animals treated with the new phenol derivative DTBA demonstrated considerably faster recovery from catalepsy.

Conclusions: In the mechanism of Parkinsonism development an important role may belongs not only LPO but FRO (that is reactions of radical fragmentation) of dopamine initiated by non-heme Fe and phenol derivatives with AO-activity might be used as affective means for the treatment of Parkinsonism.

Biography

G Shilau has completed his PhD at age of 29 years old from Byelorussian State Medical University. He worked as Senior Scientific Worker in the Laboratory of The Biochemistry of Neurohormones over Mention University and then as leading Scientific Worker, Central Scientific-Investigating Laboratory of Byelorussian Medical Postgraduate Academia. Currently, he works as deputy Director of the Center of Medical Information EOCEN and continues his scientific work in close cooperation with Laboratory of free-radical process chemistry of the Research Institute of Physical Chemical Problems of the Belarussian State University. He has published more than 40 papers in reputed journals.

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