COMPARISON OF ANTIPARKINCON ACTIVITY OF THE N-DECYLTROPINE (IEM-1556) AND LEVODOPA IN RATS WITH ROTENONE-INDUCED PARKINSONISM

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Rotenone-induced parkinsonism in rats is a common animal model of parkinsonism for the study of the anti-Parkinsonian action of new substances. N-decyltropine (IEM-1556) when administered orally in a dose of 10 mg/kg significantly exceeds the anti-Parkinsonian activity of levodopa in a dose of 20 mg/kg, since 3 times more than levodopa reduces the number of rats with severe oligokinesia, and in contrast to levodopa completely eliminate severe catalepsy in rats with rotenone-induced parkinsonism. IEM-1556 is a safer agent than levodopa, since it eliminates the lethality of rats throughout the experiment, whereas levodopa increases the lethality of rats by the end of the experiment. Preliminary anesthesia of the gastric mucosa by 1% lidocaine almost completely eliminates the antiparkinsonian activity of IEM-1556 in a dose of 10 mg/kg and does not affect the anti-Parkinsonian activity of levodopa in a dose of 20 mg/kg. Consequently, stimulation of gastric, probably vagal afferents underlies the antiparkinsonian action of IEM-1556 in a dose of 10 mg/kg, but not levodopa. Based on the results of the conducted experiments, IEM-1556 can be proposed as a potential alternate for levodopa in Parkinsonism patients resistant to levodopa.

BIOGRAPHY

Valery Gmiro is the leading Researcher of Institute of Experimental Medicine (Russia). He has published more than 150 papers in reputed journals. The main scientific interest concerns the Chemistry and Pharmacology of biologically active compounds. He is the USSR State Prize Winner for the investigations in the field of Physiology of Synaptic Transmission. During the last years, he has been working on the problem of the creation of adaptogenic drugs acting through activation of afferent nerves. These drugs were shown to be effective tools to study the mechanisms of transmission of afferent signals and may be of interest in clinical usage.

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