THE EFFECT OF PRISTINE C_{60} FULLERENE ON COGNITIVE DYSFUNCTIONS IN 6-OHDA–INDUCED MODEL OF PARKINSON'S DISEASE IN RATS

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Oxidative stress is one of the key pathological triggers of Parkinson's disease **(**PD) [1]. One of the main physicochemical properties of C_{60} fullerene (C_{60}FAS) is the ability to scavenge a large number of free radicals [2]. We assumed that C_{60}FAS due to this capacity, can efficiently reduce neuronal degeneration and changes in autonomic and cognitive functions of CNS in rats with PD.

Studies were done on male Wistar rats (220-250 g, n=15). The PD was induced by either single unilateral stereotaxic injection of 12 μg 6-OHDA. The control group was injected 2 μl 0,9 % NaCl. The C_{60}FAS was given daily for 2-11 days i.p. at doze 75 mg/kg. The percentage of destroyed dopaminergic neurons was evaluated in apomorphine test (0.5 mg/kg, i.p.) 1 and 2 weeks after surgery and by IHC staining of tyrosine hydroxylase (TH)-positive neurons in SN. The rats body weight, the water intake and behavioral test – open field were evaluated too.

C_{60}FAS treatment increased the number of TH-positive cells vs. the placebo group. The body weight in the 6-OHDA-PD rats treated with C_{60}FAS increased by 7% *vs.* placebo. The water intake in C_{60}FAS-treated rats had tendency to increase *vs.* 6-OHDA. In open field test, we found that C_{60}FAS treatment decreased 3-fold ($P < 0.01$) the latent period of the leaving of the field center and 2-fold the number of visits to the field center from the periphery vs. rats with 6-OHDA-PD.

This work confirmed that treatment with C_{60}FAS improved emotional state of the rats while did not affect locomotor and explorative activity.

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