

## EFFECTS OF N-STEROYLETANOLAMIN IN IRRADIATED FEMALE RATS

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The problem of finding substances with radioprotective properties does not lose its relevance due to the saturation of Ukraine by nuclear facilities, emergencies or terrorist acts in which can cause irradiation of significant population, on the one hand, and a limited number of far from perfect radioprotectors, on the other hand. Over the past 20 years in the scientific literature a large array of data on compounds with adaptogenic effect – N-acyletanolamins was accumulated. Peculiarity of this class of minor lipids is that they are normally in the body in extremely small quantities, whereas under pathological conditions their content may be increased by several orders. These substances have a wide range of biological effects, including their inherent membrane protective, antioxidant, cardioprotective, immunomodulating, anti-inflammatory and other properties.

Endogenous C18 N-acyletanolamins presented in the body, are weak ligands of cannabinoid CB1 receptors, but they are able to activate TRPV1-receptors and thus act as endogenous modulators of TRPV1. Many biological effects of compounds of this class is realized by extrareceptor way. Unlike unsaturated C18 N-acyletanolamins, saturated 18:0 N-steroylethanolamine (NSE) does not activate TRPV1 under any experimental conditions but with its properties can be considered as a cannabinimetic compound. Currently, very little is known about the biological effects of NSE.

We investigated the influence NSE on some indices of antioxidant protection and the endocrine system in irradiated rats. Females random breed of white rats for seven days (1st group) and seven days after (2nd group) of one-time X-ray irradiation at a dose of 2 Gy received daily oral suspension of NSE at a dose of 50 mg/kg. Intact (third group) and unirradiated rats that received within 7 days of NSE (4th group) and irradiated, which did not receive NSE (5th group) were used as control.

In the period equal to the 8th day after irradiation, all animals removed from the experiment by guillotine. In plasma protein content was determined, antioxidant enzyme activity (catalase, superoxide dismutase and glutathione peroxidase) and concentration of estradiol, progesterone and 11-oxycorticosteroid.

Irradiation of rats resulted in a slight decrease in total protein content, significant drop in catalase activity compared with intact animals, increased activity of superoxide dismutase and activity and significant decrease of glutathione-peroxidase activity with the increasing level of TBA-active products. In exposed female rats significantly increased levels of progesterone, little was changed concentrations of estradiol and more than three times increased concentration of 11-oxycorticosteroids.

NSE restored catalase activity to the level in intact animals, but only under conditions of use after exposure (2nd group), did not significantly affect the activity of superoxide dismutase and irrespective of the application – before or after radiation – predetermined 2.7–3 times increase of glutathione peroxidase activity. Under the influence of NSE levels of progesterone and 11 – oxycorticosteroids normalized, other indices were not subjected to significant changes.

Thus, antiradiational properties are inherent to NSE that deserve further intensive study.