

## THE EFFECT OF N-STEAROYLETHANOLAMINE ON AGE-RELATED AND DIET-INDUCED CHANGES OF PLASMA LIPOPROTEINS AND ADIPONECTIN LEVEL

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Adiponectin is adipokine secreted by the adipose tissue and it is shown to be down-regulated in states of insulin resistance and associated with the lipoprotein metabolism. Diet-induced obesity, as well as aging, influence adiponectin secretion and lipoprotein metabolism and consequently provoke cardiovascular diseases. That is why the aim of our study was to investigate the level of adiponectin and content of cholesterol of high-density lipoproteins (HDL) and low-density lipoproteins (LDL) in plasma of different age rats with high-fat diet (HFD)-induced insulin

resistance (IR) and their changes under N-stearoylethanolamine (NSE) administration.

The experimental model was induced in 10-month and 24-month-old rats by HFD and confirmed by the oral glucose tolerance test. NSE was administrated *per os* for 2 weeks. Plasma adiponectin level was measured using ELISA kit (Thermo Fisher Scientific, Austria). HDL and LDL cholesterol content was measured using commercial kits (Spinlab, Kharkiv, Ukraine) with calibrator (Spinreact, Spine). Experimental data were processed statistically using Stu-

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dent's t-test. The statistical significance was determined for  $P < 0.05$ .

The results of this study demonstrated that adiponectin level in plasma of 24-month-old rats was on 8 % higher than in 10-month-old rats. Prolonged HFD statistically significantly decrease plasma adiponectin concentration compared to control animals from younger and elder groups and NSE administration favors a considerable effect on its normalization in both age groups.

The long-term dietary fats overload caused the disturbance of the lipoprotein profile of 10-month-old rat plasma: almost 1.5 times increase of the content of plasma LDL compared to the control group was observed. The results of the experiment did not show statistically significant changes in plasma lipoprotein

level of 24-month-old rats after long-term HFD. NSE treatment reduced LDL level on 43 % and caused the growth of HDL content in plasma of younger rats with impaired insulin sensitivity.

It was demonstrated that prolonged HFD induces IR and leads to changes in adiponectin level in plasma of different age rats. Plasma lipoprotein profile changes were observed in younger rats, whereas no significant changes were detected in elder animals after dietary fats overloading. As far as NSE administration had a positive effect on the normalization of adiponectin level in both age groups and influence on plasma lipoprotein composition of 10-month old rats, we can consider NSE as a prospective agent for the treatment of obesity-induced and age-related metabolic disorders threatening the cardiovascular diseases.

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# МЕДИЧНА ТА КЛІНІЧНА ХІМІЯ

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