

drug metformin, had more evident positive results of indices of insulin resistance, glycemia, glycosylated hemoglobin, decreased blood pressure. We noted a downward trend in total cholesterol, low-density lipoprotein cholesterol and triglycerides. Metformin had a positive effect on carbohydrate and lipid metabolism. Those patients had a more significantly decreased body mass index, OT, waist circumference, the circumference of the hips and their ratio, lose weight.

**Conclusion:** Group with chronic pancreatitis on the background of metabolic syndrome,

had more evident positive dynamics indices of insulin resistance, glycemia, glycosylated hemoglobin, decreased dyspeptic syndromes. It is reasonable to include metformin in the complex therapy of patients with MS associated with chronic pancreatitis. Use of metformin for patients with metabolic syndrome in combination with chronic pancreatitis can reduce symptoms of disease and improve quality of life.

**Disclosure of Interest:** All authors have declared no conflicts of interest.

## CYTOPROTECTIVE EFFECT OF NOVEL 4-THIAZOLIDINONE DERIVATIVES AGAINST STRESS CONDITIONS IN SMALL INTESTINE OF RATS

I.I. Ilkiv<sup>1</sup>, R.B. Lesyk<sup>2</sup>, O.Ya. Sklyarov<sup>1</sup>

<sup>1</sup>Department of Biochemistry, Danylo Halytsky Lviv National Medical University, Lviv 79010, Ukraine; <sup>2</sup>Department of Pharmaceutical, Organic and Bioorganic Chemistry, Danylo Halytsky Lviv National Medical University, Lviv 79010, Ukraine, ira9ilkiv@gmail.com

**Key words:** Stress, H<sub>2</sub>S, 4-thiazolidinone-based derivatives, small intestinal mucosa

**Introduction.** Stress affects the integrity of the intestinal barrier and increases its permeability, reduces mucosal blood flow due to catecholamines driven vasoconstriction, leading to hypoxia and nitroso-oxidative processes. The experimental data demonstrates that H<sub>2</sub>S can exert protective actions against injury induced by various factors. The purpose of this investigation was to explore the role of 4-thiazolidinone-based derivatives as a novel donors of H<sub>2</sub>S in promoting the resolution of inflammation in small intestine.

**Methods.** The experiment was performed on 40 white rats. Water-immobilization stress (WIS) during 5 h was used to induce GI damage. A series of 4-thiazolidinones (Les-5054 and Les-5055) were administered at a single dose 10 mg/kg per os 30 minutes before modeling WIS. The activity of NO-synthases, arginase, myeloperoxidase, the content of nitrite anion (NO<sub>2</sub><sup>-</sup>), L-arginine and MDA were determined in homogenates of small intestinal mucosa (SMI). The study was approved by local bioethics committee 16/03/2015 № 3.

**Results.** The activity of iNOS in WIS increased about 3 times (p<0,01), as well as the content of MDA for 44 % (p<0,01) and NO<sub>2</sub><sup>-</sup> more than

2 folds (p<0,01) as compared to the indices of the control group. Les-5054 on the background of WIS effect decrease activity of iNOS for 21 % (p<0,01) as well as content of MDA and NO<sub>2</sub><sup>-</sup> (p<0,01), 23 % and 27 % respectively) and increase the activity of cNOS for 48 % (p<0,01) compared with indices of stress group. Parameters of NO-synthase system in Les-5055-treated group showed the same tendency as under the effect of Les-5054.

**Conclusion.** In the present study, we investigated the effect of novel 4-thiazolidinone derivatives (compounds Les-5054 and Les-5055) on various intestinal events occurring in association with stress-induced intestinal damage. It was observed an intensification of lipid peroxidation, myeloperoxidase activity, accompanied by increase of iNOS activity, NO production and decrease of H<sub>2</sub>S content in rats with WIS group. In animals treated with compounds Les-5054 and Les-5055 the reduction of the activity of iNOS, myeloperoxidase, intensity of lipid peroxidation and increased generation of H<sub>2</sub>S were revealed.