PI28-Metabolic changes in oral cavity organs under hypoacidity Neporada KS, **Manko AN**, Sukhomlyn AA

Department of Biochemistry, Ukrainian Medical Stomatological Academy,

Poltava, Ukraine.

Email: manko_ann@mail.ru

Abstract: Recently many studies are conducted to identify the link between longterm proton pump inhibitors application and the development of metabolic disorders in the oral cavity organs. It is known that long-term reduction of gastric secretion leads to hypergastrinemia because of hypoacidity (Olbe L., 1989) and the development of metabolic disorders in the organs of the digestive tract. Experiments were carried out on 42 white rats-male, weight of 180 - 250g. Animals for 28 days received omeprazole (14 mg/kg of body weight, intraperitoneally). Development of hypergastrinemia was verified by the content of gastrin in the blood plasma of rats $(59.0 \pm 35.5 \text{ pg/ml}, \text{ compared with experimental})$ rats that were treated for 28 days by omeprazole only - $170,7 \pm 90,7$ pg/ml). In the homogenate of soft periodontal tissues and salivary glands of rats we determined the content of oxidative-modified proteins (OMP) (E.E. Dubinin, 2008). For the investigation of NO-ergic system in periodontal tissue and salivary glands under omeprazole-induced hypergastrinemia total activity of NO-synthase and the content of NO2- (which is the stable product of nitric oxide metabolism) (J.M. Hevel, 1991) were determined. In the soft periodontal tissues and salivary glands were shown the significant elevation of OMP (in soft periodontal tissues - 3.6 times (p < 0.05), and in the tissues of the salivary glands - 1.3 times (p < 0.05) relatively) compared to control rats. Omeprazole-induced hypergastrinemia caused decrease 1.2 times (p<0.05) NO-synthase activity in the periodontal soft tissues and enhancing of NO- synthase 1.45 times (p < 0.05) in the tissues of the salivary glands. So, long-term application of proton pump inhibitors leads to the development of hypoacidity and as a consequence to the development of metabolic changes in the oral cavity tissues: to the development of oxidative stress and disbalance of NO-ergic system in soft periodontal tissue and salivary glands.