Частина І

ТЕЗИ

STUDY OF DIURETIC PROPERTIES OF YLIDENHYDRAZIDES OF 7,8-SUBSTITUTED 3-ARALKYLXANTHINES DERIVATIVES

Aleksandrova K. V., Sinchenko D. M., Levich S. V., Bilyaev M. O., Sosedka D. V.
Zaporozhye State Medical University, Zaporizhzhya

According to WHO, cardiovascular pathologies occupy first place in the world for prevalence. Diuretics are one of the most effective and available medicines that become a compulsory component of the treatment of hypertension. Nowadays, this pharmacological group includes a wide range of medicines: saluretics, potassium-sparing diuretics, osmotic diuretics etc. However, despite the high efficiency, all of the above drugs exhibit undesirable side reactions, and some of them are characterized by a rather high toxicity. Therefore in recent years scientists conduct search of novel low-toxic diuretics among heterocyclic derivatives. One of the most prospective objects with potential diuretic properties are xanthine derivatives. Their diuretic effect is caused by their antagonism to adenosine receptors. Some xanthines decrease reabsorption of Na^+ and Cl^- in the proximal nephron, that lead to the increasing of the blood plasma volume and to stretching of hollow veins of right atrium and to reflex inhibition of secretion of antidiuretic hormone.

Based on the foregoing the aim of our work was study of diuretic activity of 7,8-substituted 3-aralkylxanthines derivatives.

Our research was carried out on the Department of Biological Chemistry of Zaporozhye State Medical University. As objects for research we used novel 3-aralkylxanthines with different substituents in positions 7 and/or 8 of xanthine heterocycle, which had been obtained in our laboratory earlier.

Research of diuretic effect of the compounds was carried out by Berkhin's method on Wistar rats weighing 160-210 g. To study the diuretic effect we used series of animals (7 rats in each group). During experiment animals were kept on a standard ration with free access to the water. Two hours before experimental procedure, they were kept without food and water. Then, experimental compounds in the form of an aqueous solution (3 ml per 100 g body weight, xanthine derivative dose - 30-50 mg/kg) were injected to the rats using intragastric probe. As a reference drugs we used hydrochlorothiazide and furosemide in doses of 25 mg/kg and 20 mg/kg, respectively. Urine was collected every 2 hours for 4 hours and its volume was observed.

Obtained results showed that studied compounds had different diuretic effects and some of them exceeded reference drugs. Also we have discovered that effect of xanthine derivatives depended on their structures. The most pronounced influence was caused by substituent in 7 position. For example, phenacyl consisted xanthines were more active than alkyl containing analogues.

Research in this direction are continued.