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NO-induced mechanisms of renal functions after the introduction of thiotreazolin

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NO is associated with the mechanism of action of some cardio-vascular drugs. Proceeding from the fact that there exists a close correlation between the cardio-vascular system and the renal functional activity, medicinal preparation, influencing the cardiac performance and vascular condition, may also change the function of the kidneys, it may be assumed that the renal effect of the cardioprotective medicine – Thiotreazolin (Ukraine) may also be mediated via NO. In order to determine a possible participation of arginine – NO – dependent mechanisms of regulating the renal activity, runs of experiments were carried out with a multiple – dose introduction (7 days) to rats of arginine (100 mg/kg) which is a biological substrate and activator for the formation of NO, as well as a simultaneous use of L-arginine and Thiotreazolin . The experiments were run under conditions of functional loading on the kidneys which was carried out via introducing running water into the rat stomach in an amount, constituting 5% of the body mass. L-arginine exerts an influence primarily on the vasculoglomerular apparatus of the nephron, an activation of the mechanism of glomerulo-tubular balance taking place under its action at that an elevation of the filtration load of nephrons with sodium ions by an adequate intensification of their transport in the proximal tubules in case of the activation of sodium – dependent mechanisms of urine acidification. A combined use of Thiotreazolin and L-arginine in case of water load are indicative of the fact that the renal effects of Thiotreazolin do not have a direct dependence on the NO formation in the kidneys. On the contrary, a well-known antioxidant action of Thiotreazolin, probably, blocks NO-dependent intrarenal generation of angiotensin II, favouring the diuretic and natriuretic effects of the drug under study.