

EFFECT OF QUINOCARB SUBSTANCE ON BLOOD PRESSURE AND HEART RATE IN RATS AFTER 7-DAY DOSING

Voronina Iu.V., Naboka O.I.

The National University of Pharmacy, Kharkiv, Ukraine

biology@ukrfa.kharkov.ua

Aim of the research - study of blood pressure in experimentally hypertensive rats and prospects of correction with Quinocarb - new derivant of quinoline-2-carboxylic acid.

Materials and methods of research. Was carried out the research at the 7-day dosing of Quinocarba, Hydrochlorothiazide and Enalapril on male rats. During the experiment animals were kept in a vivarium at the temperature 20-25 C, humidity less than 50%, natural light mode "day-night", in standard plastic cages on a standard diet. Comparator drugs were Hydrochlorothiazide granules which contain 5 mg of Enalapril maleate. Blood pressure and heart rate in the rat tail artery was recorded with a non-invasive method using blood pressure recorder BP Recorder («Ugo Basile», Italy). Based on the data in each series of research were formed uniform groups according to the level of blood pressure. On the day of the experiment was recorded baseline blood pressure of the rats, and right after that into their stomach was administered Quinocarb and reference drugs. Effects of drugs that are compared, were evaluated by the change in blood pressure from baseline, taking it to 100%. According to conventional approaches in biology anti-hypertensive response of the drugs was calculated as a whole in each experimental group and separately in the subgroups of rats in which blood pressure under the influence of the studied drugs was reduced by 5% or more from baseline. This allowed to assess more deeply the potential anti-hypertensive properties of Quinocarb. The drugs, that are compared, were administered once a day for 7 days. To the control group of untreated rats was daily administered intragastrically 0.9% saline solution in an equivalent volume (0.2 ml / 200 g). On day 7 after the experiment and in 4 hours after the last administration was recorded heart rate and blood pressure of the rats. Statistical analysis was

performed using the spreadsheet package of statistical analysis. Probability of difference between mean values was determined using Student's t test. Validity of the results was evaluated at the significance level of not less than 95% ($P \leq 0.05$).

Results and discussion. Quinocarb during 7-day administration in 66,7% caused a significant decrease in blood pressure. Individual lowering of blood pressure in these animals susceptible to therapy with Quinocarb fluctuated in the range of 12,8-29,3%. Average anti-hypertensive effect of Quinocarb substance was 17,8%, ie. it was higher than after a single dose. Average blood pressure in this period in rats of the given subgroup was significantly lower than baseline. Two rats were resistant to the anti-hypertensive effect of Quinocarb (decrease in blood pressure have been less than 5%). In this connection, when calculating the overall in the group average effect of the studied substance in 4 hours after the last administration was at an average 13% and was expressed in the increasing trend toward a reduction in mean blood pressure from baseline. At the same time, average reduction in blood pressure (ΔAD) in group significantly exceeds ΔAD in the untreated control.

In the group of animals treated with Enalapril, on the 7th day of administration blood pressure of all rats reduced by more than 5%, it means, that all the animals were susceptible to the action of Enalapril. Average anti-hypertensive effect of the drug was 19,8%. Mean blood pressure during this period in the whole group in Enalapril was significantly lower as for relative to the initial control and as for the Quinocarb, Hydrochlorothiazide and untreated control groups, but not statistically different from blood pressure in the subgroup of rats sensitive to therapy with Quinocarb substance.

7-day administration of Quinocarb and reference Hydrochlorothiazide and Enalapril drugs had no effect on heart rate.

Conclusions. In general, drugs, which are compared in 7-day dosing in sensitive experimentally hypertensive rats can be arranged in the following sequence by reducing the magnitude of the anti-hypertensive effect: Enalapril (19,8%) \geq Quinocarb (17,8%) \geq Hydrochlorothiazide (14,1%).