Materials of Conference

RESEARCH OF ANTIHYPOXIC ACTIVITY OF BENZOTHIAZOLE DERIVATIVES

Tsublova E.G.[1], Nosko T.N.[2], Arbaeva M.V.[3]
[1] *Bryansk state engineering-technological academy, Bryansk, Russia*
[2] *N.M. Emanuel Institute of Biochemical Physics of Russian Academy of Science, Moscow, Russia*
[3] *Bryansk city polyclinic №4, Bryansk, Russia*

Tests were spent on white nondescript mice-male in weight 20-24 g.

Amino- and ethoxyderivatives of benzothiazole with laboratory names ABTI, EBTI and EABTI have been chosen for a research. Shown actions of compounds were compared to a reference substance (amthizole succinate). Test compounds were administered intraperitoneally in doses of 0.5-5 mg/kg, a reference substance in doses of 10-50 mg/kg. Antihypoxic activity of compounds was estimated on models acute hypoxia (hemic, histotoxic and normobaric hypoxia and hypercapnia) according to the Guidelines of experimental pre-clinical studies of new pharmacological compounds (under the editorship V.P.Fisenko, 2000).

As a result of done tests it is established, that on model of acute hemic hypoxia significant ($p < 0,05$) increase in lifetime of laboratory animals was observed under influence of compounds with name ABTI-1 (in a dose of 1 mg/kg) and EABTI-A1 (in a dose of 0.5 mg/kg). The positive effect was 27 and 9 % accordingly in comparison with the control. The reference substance (amthizole succinate) in the noted conditions of test in doses of 10 and 25 mg/kg did not show distinct antihypoxic action, but in a dose of 50 mg/kg significantly increased lifetime of mice by 28 % ($p < 0,05$). In conditions of acute histotoxic hypoxia compounds EBTI-3 and EABTI-A1 were effective. When administered EBTI-3 in a dose of 1 mg/kg lifetime of mice increased in 13 % in comparison with the control, when administered EABTI-A1 in a dose of 5 mg/kg increased in 25 %. Amthizole succinate in the noted conditions of test significantly ($p < 0,05$) increased lifetime of mice in following doses: 25 mg/kg (in 31 %) and 50 mg/kg (in 34 %). Among the test compounds in conditions of acute normobaric hypoxic hypoxia and hypercapnia increase of lifetime of mice was observed when administered compounds with name ABTI-3 in a dose of 0,5 mg/kg and EABTI-A1 in doses of 0,5 and 5 mg/kg. Thus laboratory animals lived longer animals of control group in 15, 33 and 26 %. Positive action of a reference substance (amthizole succinate) on this model acute hipoxia when administered in doses 25 and 50 mg/kg was 17 and 19 % accordingly compared with control values.

Thus, on the basis of the carried out researches it is established, that among the test benzothiazole derivatives the greatest positive effect in the noted conditions of test was at EABTI-A1. The value shown antihypoxic actions is comparable, and in some cases exceeds (on model acute normobaric hipoxia and hypercapnia) those of a reference substance known antihypoxant (amthizole succinate).

The work was submitted to international scientific conference «Prospects for the development of university science», Dagomys (Sochi), 20-23 September 2008, came to the editorial office on 28.07.2008.