

Abstract

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Performed at: University of defence in Brno, Faculty of Military Health Sciences in Hradec Králové, Department of Toxicology and Military Pharmacology

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Title of diploma thesis: Evaluation of the efficacy of quarternary acetylcholinesterase reactivators in vivo

NPL belongs to compounds of organic phosphorus and they are very common cause of poisoning as organophosphorus nerve agent. They can be absorbed by various routes - inhaled, ingest or by transdermal penetration. The problem is ineffective therapy and there is still no broad-spectrum reactivator able to efficiently restore AChE activity after intoxication by various organophosphates that will penetrates into CNS.

The main aim of this experiment was to determine and compare the reactivating efficacy of two newly developed oximes K869 and K870 with commonly used oximes K160 and HI-6 against intoxication of sarin.

The activity of reactivation was determined by standard spectrophotometric Ellman's method with using male Wistar laboratory rats. The results were evaluated as percentage of reactivation acetylcholinesterase inhibited by sarin in rat's blood, brain and diaphragm.

In conclusion, we find out, that oximes K869 and K870 are less efficient in comparison with currently used HI-6. Therefore newly synthesized oximes cannot be recommended for the treatment.