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Pharmacokinetic profile of promising acetylcholinesterase reactivators K027 and K203 in experimental pigs

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Abstract

Standard treatment of organophosphorus compounds (OPs) poisoning includes administration of an anti-muscarinic (atropine), anticonvulsive (diazepam) and acetylcholinesterase reactivator (oxime). From a wide group of newly synthesized oximes, oxime K027 and oxime K203 seem to be perspective compounds in some specific OPs intoxication. The available *in vitro* and *in vivo* preclinical data indicate that both oximes may be considered for potential human use. The main aim of this study was to established plasmatic concentration curves of both oximes after intramuscular (i.m.) and intragastric (i.g.) application with subsequent pharmacokinetic analysis and study distribution after (i.m.) application on a non-rodent animal model (experimental pigs; 1500 mg/animal).

According to the results, both oximes had similar C_{max} (K027: 106 ± 19 µg/mL and K203: 111 ± 8 µg/mL) in T_{max} 19 ± 5 min, respectively in 22 ± 3 min. Bioavaibility of oxime K027 calculated as AUC_{total} (8389 ± 1024 min.µg/mL) was halved compared to oxime K203 (16938