48. RESEARCH OF SMALL QUATERNARY ACHE INHIBITORS AS PRETREATMENT OF OP POISONING

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Small quaternary AChE inhibitors are used (e.g. pyridostigmine) or scoped (e.g. SAD-128) for pretreatment against organophosphate intoxication [1]. The pretreatment is based on competitive inhibition of AChE prior to organophosphate (OP) poisoning. Consequently, the OP can not influence the inhibited AChE and is degraded by other esterases. Although various competitive inhibitors are used globally, pyridostigmine still remains the most broaden. Its side effects including gastrointestinal effects (nausea, intestinal obstruction), increased bronchial secretion, cardiac arrhythmia or cholinergic crisis are well described. Moreover, some bisquaternary competitive inhibitors (e.g. SAD-128) were used to decrease lethal effects of OP poisoning *in vivo*. The further studies dealing with SAD-128 showed its increased ability to interact with brain muscarinic acetylcholine receptors as allosteric inhibitors [2].
The small molecules derived from quaternized pyridine, quinoline and isoquinoline were designed as AChE inhibitors. Their ability to inhibit AChE or BChE was determined *in vitro* using IC_{50}. The IC_{50} data were compared within each group of compounds with emphasis on selectivity AChE *versus* BChE. The overall study will be presented.

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Key Words/ Phrases: OP, AChE, pretretment, small inhbitor.

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49. BEHAVIORAL EFFECTS OF NERVE AGENTS: LABORATORY ANIMAL MODELS

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Diverse and often subtle behavioral consequences have been reported for humans exposed to nerve agents. Laboratory studies of nerve agent exposure offer rigorous control over important variables, but species other than man must be used. Nonhuman primate models offer the best means of identifying the toxic nervous system effects of nerve agent insult and the countermeasures best capable of preventing or attenuating these effects. Comprehensive behavioral models must evaluate preservation and recovery of function as well as new learning ability. The throughput and sensitivity of the tests chosen are important considerations. A few nonhuman primate studies will be discussed to elaborate recent successes, current limitations, and future directions.

Key Words/ Phrases: nerve agents, behavior, learning, monkey

50. ANTIMICROBIAL ACTIVITY OF THE ROOT, STEM BARK AND SEED EXTRACTS OF *MORINGA OLEIFERA* LAM

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Organic extracts (Hexane, dichloromethane, ethyl acetate, methanol) and the aqueous extracts of *Moringa oleifera* Lam or horseradish (root, stem bark and seed) were tested against five bacterial strains using the disc diffusion method and against three fungal strains. The water extracts of the seed was active against a wide range of organisms tested. Hexane and ethyl acetate extracts of the stem bark exhibited moderate activity. Of the fifteen extracts screened, five (33.3%) showed activity against *Staphylococcus aureus* ATCC 25923 and against *Trichophyton mentagrophytes* while two were active against *Microsporum gypseum*. The minimal inhibitory concentration (MIC) values for the water extracts ranged from 6.25 to 50 mg/ml. The good activity observed on the water extract explains the success in