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EFFECT OF SOMAN, ATROPINE AND PYRIDINIUM,1-((4-CARBAMOYL-PYRIDINIO) METHOXY) METHYL)-2-(HYDROXYIMINOMETHYL) DICHLORIDE MONOHYDRATE (HI-6) UPON VARIOUS BEHAVIOURAL PARAMETERS IN MICE. H.Arndt, H.Arbogast, M.Sprengard, T.Schulte-Herbrüggen, P.Daniel, L.Szinicz.

Disturbed function of various organs may be caused by compounds influencing cholinergic synaptic transmission. In order to study the underlying mechanisms, behavioural effects of the cholinomimetic agent soman, an acetylcholinesterase (AChE) inhibitor, were investigated without and after treatment of mice with the anticholinergic drug atropine and the AChE reactivator HI-6.

Groups of ten mice receiving either 0.9% saline s.c. and i.p., soman s.c. and saline i.p., or soman s.c. and antidote(s) i.p., were allowed to run for 60 min on a rotating mesh wire drum (14 rpm, 20 cm diam.) immediately after treatment. Various behavioural parameters according to Irwin (Psychopharmacol.13:222, 1968) were tested before injection and after the running period.

In soman-treated animals a dose dependent decrease of running performance, behavioural (activity, reflexes, visual placing), neurologic (muscle tone, tremor) and autonomic parameters (salivation, lacrimation) was observed. HI-6 improved running performance and visual placing only, whereas atropine abolished the effect of soman upon nearly all behavioural, neurologic and autonomic parameters.

The data show that most behavioural effects of soman, even the muscular ones, are responsive to atropine treatment documenting the muscarinic nature of these parameters.

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