

Poster presentation

Influence of cholinergic system modulators on morphine state-dependent memory of passive avoidance in mice

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Background

In the step-down passive avoidance task and 24 hours after the pre-training administration of morphine, the memory is impaired. The administration of the same dose of morphine as pre-test treatment restored the memory. Since cholinergic system has been reported to be involved in several actions of morphine (e.g.: modulation of memory and analgesia).

Materials and methods

We have investigated the part played by the cholinergic modulator drugs, on the memory recall in mice. The locomotor activity of the animals was studied as well.

Results

The administration of atropine alone (as a peripheral/central muscarinic antagonist) showed no intrinsic activity. When the drug was co-administered with morphine, it prevented significantly the morphine-induced memory recall. Hexamethonium (as a peripheral nicotinic antagonist), showed neither intrinsic activity nor a significant change in the morphine-induced memory recall. Mecamylamine (as a peripheral/central nicotinic antagonist) did not show a significant effect when it was used alone, but when co-administered with morphine it prevented significantly the morphine-induced memory recall. The results with neostigmine (as a peripheral anticholinesterase) were similar to that of hexamethonium. Physostigmine (as a peripheral/central anticholinesterase), induced memory recall by itself. The memory recall of the step-down passive avoidance task was not related to the locomotor activity of the animals.

Discussion

It has been concluded that morphine-induced memory recall might be influenced by the central cholinergic activity.

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