Dose related effects of doxepin on passive avoidance learning in rats

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Background and Aims: Studies have shown that Doxepin has anti-inflammatory effects and reduces oxidative stress. So given that other tricyclic antidepressants have been shown to have neuroprotective effects, this study aimed to investigate the dose related effects of Doxepin on passive avoidance learning in rats.
Methods: Old male Wistar rats were used in this study. Doxepin was administered intraperitoneally (1, 5 and 10 mg/kg) for 21 days. Passive avoidance learning test was used for evaluation of learning and memory. Rats received foot electrical shock on fifteen day, and step through latencies were evaluated one week after the electrical shock in retention phase.
Results: Administration of Doxepin considerably increased the step through latencies in the rats that received the doses of 1 and 5 mg/kg ($p < 0.05$). However, in the dose of 10mg/kg, there wasn't any significant change comparing to control group.
Conclusions: These results indicate that Doxepin has desirable effects on cognitive functions and these effects are dose related. Therefore, Doxepin can be considered as memory enhancers that understanding the underling mechanisms need further investigation.

Keywords: Doxepin; Tricyclic antidepressant; Learning and memory; Rat