## Original Paper

# Protective effects of Desmopressin acetate on retention of spatial memory deficits induced by post-traumatic stress disorder in Rats

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## Abstract

**Background and Objective:** Post-traumatic stress disorder (PTSD) impairs spatial learning and memory. Desmopressin acetate ameliorates the cognitive deficits induced by electroconvulsive shock. This study was designed to evaluate the protective effects of Desmopressin acetate on retention of spatial memory deficits induced by post-traumatic stress disorder in rats.

**Materials and Methods:** In this experimental study twenty one male Wistar rats were used. Animals were trained for 5 consecutive days in Morris water maze and then were randomly assigned in three groups (Vehicle + Sham, Saline + PTSD and Desmopressin acetate + PTSD) and tested in a probe 60 sec in 24h after the last acquisition trial. The groups of PTSD+Desmopressin acetate rats and vehicle+sham, saline+PTSD were injected Desmopressin acetate (10 micro gr/kg body weight) and saline (IP), respectively. Injections performed ten minute prior to PTSD and spatial memory was tested ten minutes later. Data were analyzed using SPSS-16, One-Way ANOVA and Tukey tests.

**Results:** The platform location latency of the Desmopressin acetate+PTSD group was significantly shorter (4.24 sec) than the control group ($P<0.05$) and also, had significantly smaller average proximity values (33.87 cm) compared to the saline+PTSD group ($P<0.05$). Desmopressin acetate + PTSD spent significantly more time (21.65%) in the target zone ($P<0.05$).

**Conclusion:** This study indicated that Desmopressin acetate blocks the ability of PTSD to impair spatial memory retention.

**Keywords:** Post traumatic stress disorder, Morris water maze, Learning, Spatial memory, Desmopressin acetate

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