Original Paper

Effect of quercetin on learning and memory in STZ-induced diabetic rat

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Abstract

Background and Objective: Diabetes mellitus is common endocrine disease cause learning and memory impairment. This study was done to evaluate the effect of quercetin on learning and memory in STZ-induced diabetic rats was investigated.

Methods: In this experimental study, 40 male Wistar rats were randomly allocated into five groups: control, quercetin - treated control, diabetic and quercetin - treated diabetic (10 and 20 mg/kg/bw, intraperitoneally) for 14 days. Induction of diabetes was performed using 60 mg/kg/bw of streptozotosin, interapritonally. Passive avoidance and Y-maze tests were used for the evaluation of learning and memory.

Results: In passive avoidance learning, there was no significant difference in initial latency between diabetic and treated - diabetic groups. The mean of step latency in control group (383.57±19.26) significantly reduced to 128.86±10.38 in diabetic group ($P<0.05$). The mean of step latency in the treated diabetic group significantly increased in compare to the diabetic group ($P<0.05$). Step latency in quercetin - treated diabetic (10 mg/kg/bw) and (20 mg/kg/bw) groups increased to 316.67±23.76 and 397.50±31.21, respectively. The alternative percentage in diabetic group was significantly lower than control group ($P<0.05$), but in quercetin -treated diabetic groups it was higher than the diabetic group ($P<0.05$).

Conclusion: Administration of quercetin for 14 days enhances the capability of the memory storage, recall and improves short-term spatial memory in STZ-induced diabetic rats.

Keywords: Diabetes, Quercetin, Learning, Memory, Rat

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