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Zelkova serrata Makino improves the behavioral disorder in rats subjected to transient global cerebral ischemia

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느티나무가 전뇌허혈을 유발한 백서의 행동실험에 미치는 효과

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Objectives

The effects of the **Zelkova serrata Makino (ZS)** on hippocampal injury and Morris water maze (MWM), passive avoidance and rotarod in rats were investigated following global cerebral ischemia (induced by four vessel occlusion for 10 minutes).

Materials and Methods

1. Water maze test;

   The water maze consists of a circular pool filled with water and a submerged platform onto which the rat can climb to emerge from the water and escape the necessity of swimming.

2. Passiv avoidance test;

   After habituation to this apparatus the animals are placed into the safe compartment for an acquistion trial and a footshock is delivered as soon as the animal enters the grid compartment

3. Locomotor activity

   Counting the number of quadrants being crossed or the number of beams having been interupted gives a measure of locotor activity

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Results

These results suggest that ZS might have an ameliorative effect on the memory deficits in the water maxze, passive avoidance test, and rotarod after global cerebral ischemia.

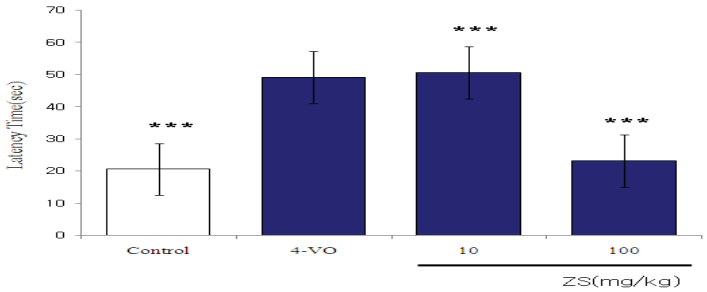

Figure 1. Comparison of acquisiotion performance on the Morris water maze task among the four groups of rats. The last day performed for the acquisition test. Rats were treated with ZS(10, 100mg/kg, i.p. n=7) for 3 days after induction of cerebral ischemia. Significance with Tukey's test following a repeated ANOVA is indicated as ***p<0.01.

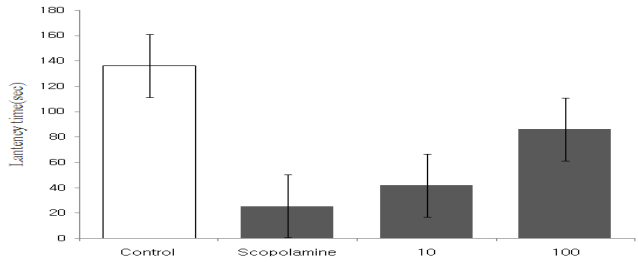

Figure 2. Global cerebral ischemia induced alterations in learning and memory on passive avoidance (n = 7). Data are mean ± S.E.M. Group I (benzamide + GCI), Scopolamin (1mg/kg of scopolamine injected +vehile)
10 (10 mg/kg of ZS treated), 100(100mg/kg of ZS treated),

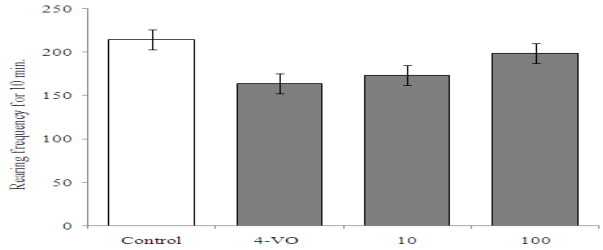

Figure 3.The spontaneous locomotor activity in the control rats was 224 ± 18 counts/10 min which significantly decreased in the vehicle-treated 4-vessel occluded rats. The spontaneous locomotor activity was significantly improved at the dose of 100 mg/kg of ZS. However, 100 mg/kg dose showed significant improvement in the spontaneous locomotor activity