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Poster Presentation

The Effect of Previous Endurance Exercise in Traumatic Brain Injury

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Abstract

Introduction: It has been suggested physical exercise exerts neuroprotection in traumatic brain injury (TBI). However little information is available about the effect of endurance exercise on brain edema, inflammation and oxidant activity in diffuse TBI. Therefore, we investigated the prophylaxis effect of endurance training against oxidative damage, inflammation and brain edema associated to neurologic outcome in diffuse TBI. **Materials and Methods:** A number of adult male rats of study sustained 8 weeks of treadmill training before TBI induced by Marmarou method. The brain edema (determined by brain water content), inflammation (evaluated by IL-1β level) and oxidative damage (determined by lipid peroxidation) were evaluated in all animals at 24 hours after TBI. Outcome neurologic was determined -1, and 1, 4 and 24 h post-TBI. **Results:** Animals with previous exercise developed less brain edema than animals without exercise following TBI. A reduction in IL-1β level was shown in group with exercise compared to group without exercise. A defect of neurologic outcome was observed following TBI in all times evaluated. Whereas this defect was not observed in exercised animals in any times. The level of lipid peroxidation was no different between and exercise and no exercise groups. **Conclusion:** The results of current study indicate the athletes probably have better neurologic outcome than non- athletes following diffuse TBI maybe part because of less development of brain edema and inflammation.

Keywords: Traumatic brain injury, Inflammation, Lipid peroxidation, Brain edema

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