

## Poster Presentation

### **The Effect of Boswellia Serrata Extract and AKBA (Acetyl-11-keto- $\beta$ -Boswellic Acid) on the Neurological Scores, Brain Edema and Brain -Blood Barrier after Severe Traumatic Brain Injury in Male Rats: the Role of IL-1 $\beta$ and IL-10**

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#### **Abstract**

Gladiolus plant is a tree from the family of Khorrasa. Boswellia serrata reduces glutamate-induced peritomeria edema. It also has potent antioxidant properties and immunosuppression, and anti-apoptosis in the central nervous system, and can be used to treat neurodegenerative diseases such as Alzheimer's disease, Huntington's disease, Parkinson's disease and dementia. However, its precise mechanism is still unknown. In this study, we investigated the effects of neural protection of the condor plant after induction of cerebral inflammation in rats. The male Albino wistar rats received different doses of Boswellia serrata (125, 250, 500 mg/kg, i.p.). All animals were intubated before surgery. In the TBI groups, diffuse TBI was induced by Marmarou method using a TBI induction device. The severe TBI was induced using a weight 450 gr. In the sham groups, all stages of induction of TBI were performed except dropping weight on the head. The disruption of Blood brain- barrier (BBB) was evaluated 6 h post- TBI. The neurologic score (VCS) and brain water content, the beam-walk –balance task (WB) were determined before trauma (Pre), on trauma time (D0), and first day (D1) and second day (D2) and third day (D3) post- TBI. 24 hours After TBI anaesthetized animals were sacrificed and the brain was removed for IL10 and IL-1B Elisa assay. Our results showed that traumatic brain injury led to significant brain edema and disrupt of blood brain- barrier and neurological defect and vestibulomotor dysfunction in the rat brain and decrease IL1B and increase IL-10 in brain tissue. Boswellia serrata (250, 500 mg/ kg) could attenuated brain edema, improved BBB and vestibulomotor dysfunction in compare with TBI control group ( $P < 0.001$ ) but in 500 dose results were better. These findings showed that Boswellia serrata has a prominent role in TBI outcome's and perhaps protect neurons through modulating inflammatory and antioxidant pathways

**Keyword:** Boswellia Serrata, TBI, Neuroprotective, IL, Rat

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