

Influence of ovariectomy on the MIF levels of spinal cord injury induced central pain syndrome in female rats

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Background and Aims: In this study, the role which Microphage immigration factor(MIF)plays as inflammation cytokine in spinal cord injury and its relationship with central pain syndrome resulting from impairment and also the impact exerted by sexual steroids' on the surface of the cytokines are discussed.

Methods: This Quasi – Experimental study conducted in 100 female rats divided into groups (1-Sham 2-spinal cord injury3-Ovariectomized 4-spinal cord injury+ Ovariectomized 5-sham+ Ovariectomized. Rate in all group are made unconscious in IP form and gotten access to their brain- spinal cord fluid (CSF) with laminectomy technique during 3rd,7th,14th,21th and 28th days after spinal cord injury, MIF is evaluated in a brain- spinal cord fluid (CSF)using ELISA technique. Also 3 behaviors tests such as Open Field, Tail Flick and Von Ferry were conducted. The data were analyzed by GraphPad Prism5.

Results: In open field, movement in healthy group decreased in comparison to the spinal cord impaired group which seemed to be meaningful. In Ovariectomized, such a decrease occurred which was also meaningful. In tail flick test, in impaired group, Hyperalgesia occurred which appeared to be meaningful. It also occurred in Ovariectomized as well. In von ferry test, the impairment was meaningful only in Ovariectomized. MIF level started to increase in Sham group which was meaningful in comparison to Sham Ovariectomized group; while, this cytokine declined in other groups. It was meaningful in Ovariectomized.

Conclusions: Findings showed sexual hormones play an important role in decline of Alodynia and Hyperalgesia, which was apparent in tail flick and von ferry tests.spinal cord injury play an important role in increase MIF concentration until seventh day but in Ovariectomized this MIF remained high.

Keywords: Central pain syndrome; MIF; Ovariectomy; Spinal cord injury