

P-653**Changes in fatty acid composition in spinal cord of ethidium bromide-treated rats as a multiple sclerosis (MS) model; GC-MS evaluation****Nafise Sadat Mirshafieyan¹, Majid Hassanpour-ezatti^{*1}, Hossien Dehgan²**

1. Department of Biology, Basic Sciences School, Shahed University, Tehran Iran

2. Medicinal Plants Research Center, Shahed University, Tehran, Iran

The compositions of fatty acids (FAs) in nervous tissues of animal models of MS may have important roles in the process and mechanisms related to the onset and progress of this disease. The purpose of this study was to evaluate the effects of ethidium bromide (ET), which used for induction of neurodegenerative symptoms in rats, on spinal FAs profile in rats. The present study used gas chromatography-mass spectrometry (GC-MS) analysis of fatty acid methyl esters (FAMES) to profile all detectable FA species present in rats spinal cord tissue homogenate after treatment with intraspinally injection of ET (0.02mg/ml). Quantitative analysis was done on spinal cord samples of normal and ET-treated rats (n=6 per group). GC-MS analysis of FAMES detected a total of 24 FAs and of these, 13 were fully quantifiable. The results showed significant alterations in ET-treated rat spinal cord FA concentrations. A total of 3 FAs were elevated in ET-treated samples with arachidic, oleic and eicosenoic acid increased most (100%; P=0.033). Docosahexanoic acid, Vaccenic acid and linoleic acid concentrations were decreased (47%; P=0.018) which accordance with the findings of others in other region of nervous after the onset of MS. Furthermore, our results appear to indicate that alteration of FAs at spinal level in ET model of MS in rats. These preliminary findings pinpoint FAs disturbances at spinal cord level have been occurred and may be potentially important in the pathology of MS.

Keywords: Fatty acid, Gas Chromatography-Mass Spectrometry, Ethidium bromide, Multiple Sclerosis, Spinal cord, Rats

P-654**Anti-inflammatory effects of levothyroxine in a rat model of multiple sclerosis****Mohammad Ali Mirshekar**

Department of Physiology, School of Medicine, Zahedan University of Medical Sciences, Zahedan, Iran

Objective: Multiple sclerosis (MS) is a CNS autoimmune disease. since metformin (Met) play a crucial role in development and physiological function of the CNS and reduces memory impairment, the effect of Met on the improvement of cognitive deficits of MS induced by lysolecithine was studied in rats.

Materials and Methods: 40 Wistar rats randomly divided into five groups, sham, Met, MS group, MS group receiving Met and positive control group. The Shuttle Box and Morris water maze were used to investigate passive avoidance and spatial memory. Also, the hippocampus level interleukin-6 (IL- 6) and TNF alpha were measured by a special kit.

Results: IL- 6 and TNF- α in the Met treated group showed a significant reduction compared to the MS group. Behavioral evaluation also showed that Met significantly improved the ability to store information and remind them in the passive avoidance and to improve spatial memory in the Morris water maze.

Discussion: It seems that treatment with Met is able to prevent cognitive deficits. Positive effects of Met may be due to decrements in TNF- α and IL- 6 concentrations as pro-inflammatory factor. these results suggest that Met can be used as an effective ingredient in the treatment of MS.

Keywords: Multiple sclerosis, Met, Inflammation, Cognition