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Poster Presentation

Expression of Cannabinoid Receptor 1 (CB1) in Animal Model of Multiple Sclerosis (EAE) Treated with Hemp Seed Oil

Mohammad Reza Shiri-Shahsavar[1, 2*], Iman Goraki[3], Sharareh Khangaldi[4], Zeynab Aliyari-Serej[3], Mohammadjafar Maleki[3], Abbas Ebrahimi-Kalan[3], Mohammad Pourhassan-Moghaddam[3]

[1]Department of Nutrition, School of Health, Qazvin University of Medical Sciences, Qazvin, Iran

[2]Cellular and Molecular Research Center, Qazvin University of Medical Sciences, Qazvin, Iran

[3]Neuroscience Department, Faculty of Advanced Medical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran

[4]Department of Nutrition, School of Nutrition, Tabriz University of Medical Sciences, Tabriz, Iran

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Abstract

Multiple sclerosis (MS), as an auto-immune disease, is confined to the central nervous system and is usually accompanied with debilitating condition in MS patient. The rate of disease in the females is more than males (2:1), and it is diagnosed between 20 to 40 years old. Phototherapy, as a traditional remedy, is used to treat different pathological conditions including MS. Hemp seed oil, as an herbal drug, is used in this study to alleviate the symptoms EAE as an animal model of MS through alteration of the gene expression of Cannabinoid receptor 1. In this study 24 female C57bl/6 mice randomly divided into three groups: healthy group (group 1), Control group (group 2) and experimental group or hemp seed oil group (group 3). Immunization of all mice after one week acclimation in laboratory environment has been induced with Hooke kit except group 1. One day before of induction, feeding with hemp seed oil initiated and continues for 4 week in standard condition. Clinical score recorded daily through the study and in 28 days after immunization, all mice sacrificed after ketamine/xylazine anesthesia and spinal cord tissue removed for molecular and histopathological evaluation. Data analyzed with SPSS and ML win and P value <0.5 determined as significant. We observed significant differences in clinical scores between the control and experiment groups (p values < 0.001). Also, the expression of CB1 showed a statistically significant increase in the experiment group. In the present study, Hemp seed oil, due to its immunological effects, caused a decrease in the levels of inflammatory factors during the progress of multiple sclerosis in EAE animal model. Moreover, the clinical findings confirm the above result, showing a decrease in debilitating conditions of the disease. Therefore, administration of hemp seed oil alleviates the symptoms of the disease and it is useful for control of the inflammatory and auto-immune diseases. Nevertheless, it seems that additional research is needed to confirm the findings by clinical trials.

Keywords: Multiple Sclerosis, EAE, CB1, Gene Expression, Hemp Seed Oil

Corresponding Author: Mohammad Reza Shiri-Shahsavar

Email: *nutshiri@gmail.com*

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