

# The Effect of Multiple Sclerosis (MS) on Central Nervous System (CNS)

Ali Ahmadi\*

Department of Medical Sciences, Islamic Azad University Sari Branch, Iran

## INTRODUCTION

Dear Editor,

Multiple sclerosis (MS) is an autoimmune disorder of the CNS in which myelin components are specifically targeted by the immune system and lead to the destruction of myelin axons and associated debilitating symptoms [1-3]. Also, according to studies, no effective treatment for this disease has been found. Therefore, a safe and effective treatment option for MS is needed. Also, the central nervous system (CNS) is separated from the immune system by a blood-brain barrier and is traditionally considered “immune system protection”, and immune cells are also able to target the brain and lead to CNS autoimmune disorders Pahan et al. [4]. An article measuring the effects of cinnamon on MS mice used cinnamon and the brown bark of the cinnamon tree, which has been used as a spice or flavoring around the world for centuries. In addition, medieval physicians used cinnamon for medical purposes to treat a variety of disorders such as osteoarthritis, cough, hoarseness, sore throat, etc. Also, according to the findings of various articles, the results show that widespread inflammation, Loss of regulatory T cells (Tregs), autoimmune Th1 and Th17 cell hyperactivity, failure of the cerebral blood-brain barrier (BBB) and blood-spinal cord barrier (BSB), and loss of light-protective molecules in the CNS are some of the symptoms that Demystifying manifestations are required in MS [1-3]. Interestingly, NaB treatment is able to inhibit the expression of proinflammatory molecules in cultured astrocytes and microglia [4]. Reversal of NaB by inhibiting NF- $\kappa$ B activation and expression of nitric oxide synthase (iNOS) by mevalonate, 3-hydroxy-3-methylglutaryl-coenzyme A and farnesyl pyrophosphate, mediators of the mevalonate pathway, in active astrocytes suggests that NaB. It has an inflammatory effect by inhibiting the cholesterol-biosynthesis pathway However, although NaB is able to lower cholesterol levels, cholesterol has no role in inhibiting NaB-mediated iNOS [4]. Also, in an article by Brahmachari et al. [4], they measured the effects of cinnamon on mice with MS in which

NaB reduced NF- $\kappa$ B activation and iNOS expression in glial cells by reducing p21ras activation, according to which oral administration of cinnamon powder [5] and drinking water containing NaB metabolite [4] suppresses iNOS and IL-1 $\beta$  expression *in vivo* in the spinal cord and cerebellum of EAE mice, these findings suggest that cinnamon is able to reduce *in vivo* inflammation in rat CNS EAE is also another feature of neurodegenerative disorders such as Alzheimer’s disease (AD) and Parkinson’s disease (PD), cinnamon and NaB. It also improves hippocampal function in an animal model of AD [6] and from nigrostriatum. Animal model PD Protects [7].

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**Address for correspondence:** Ali Ahmadi, Student, Student Research of Medical Committee, Department of Medical Sciences, Islamic Azad University Sari Branch, Iran

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