

Relationship between caffeine intake, EDSS and fatigue scale in patients with multiple sclerosis

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Introduction: Multiple sclerosis (MS) is a chronic inflammatory autoimmune demyelinating disorder of the central nervous system (CNS). Due to the variable clinical course of MS, it is classified into relapsing and progressive phases and three phenotypes of relapsing remitting MS (RRMS), primary progressive MS (PPMS), and secondary progressive MS (SPMS). Caffeine is a central nervous system stimulant of the methylxanthine class. It is the world's most widely consumed psychoactive drug. Recent scientific evidences showed that caffeine intake could be associated with decreased mortality from cardiovascular and neurological diseases, diabetes type II, as well as from endometrial and liver cancer. Previous studies on consumption of caffeine and (MS) have yielded inconclusive results. We aimed to investigate whether consumption of caffeine is associated with disability of MS.

Method: 126 patients with diagnosis of MS (42 RRMS, 42 PPMS and 42 SPMS) with MRI assessment of brain and spinal cord were recruited from multiple sclerosis clinics in Kashani Hospital of Isfahan University of Medical Sciences, Isfahan, Iran included in the present study. A 168-item semi-quantitative food frequency questionnaire (FFQ) was used for assessment of dietary intake of caffeine. Medical history

questionnaire, EDSS and Fatigue questionnaire recorded from all participants.

Results: Mean \pm SD of EDSS and fatigue scale in SPMS and PPMS groups was significantly higher than RRMS group. Dietary intakes of caffeine in RRMS was higher than two other subgroups but not significantly. There was a negative significant association between caffeine intake and EDSS in RRMS subgroup ($r=-0.556$, $p=0.031$). In addition, there was a significant negative correlation between caffeine intake and Fatigue scale in all participants ($r=-0.312$, $p=0.028$). Other correlations were not significant. Age, gender, energy intake and blood pressure were not confounder variables.

Conclusion: Our study demonstrated that there is a negative significant correlation between intakes of caffeine with fatigue scale in all participants. In addition dietary intakes of caffeine can decrease EDSS in RRMS patients and caffeine consumption may exert a protective role against multiple sclerosis. The concern of high caffeine intake is dehydration induced caffeine. Further studies with larger sample sizes and other population needed to prove this correlation.

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