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Evaluation of matrix metalloproteinase-9 plasma levels in untreated new Relapsing-remitting multiple sclerosis patients and their first-degree family

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Abstract

Matrix metalloproteinase, especially Matrix metalloproteinase-9 (MMP-9) has vital roles in the disruption of blood barrier, neuroinflammation and pathogenesis of multiple sclerosis (MS) patients. The goal of this study is to estimate the plasma levels of MMP-9 in the first-degree family of MS patients. 35 untreated patients with definite RRMS (Relapsing-Remitting Multiple sclerosis) according to the McDonald criteria, 24 healthy controls (HC) and 26 high-risk families of untreated RRMS patients were enrolled in the study. Plasma levels of MMP-9 were analyzed by ELISA (enzyme-linked immunosorbent assay). Although the plasma protein levels of MMP-9 were elevated significantly in the untreated RRMS group ($P < 0.05$, $P = 0.0203$) as compared to the control group, but the family of MS patients was not significance ($P = 0.208$). The mean plasma MMP-9 concentration for HC, untreated RRMS and high-risk group was 322.268 pg/ml, 611.926 pg/ml and 518.939 pg/ml respectively. MMP-9 was used to understand the role of this biomarker in the pathogenesis of MS in the high-risk group. It found that plasma levels of MMP-9 in the new cases of MS were increased considerably. Confirming the importance of MMP-9 as a predictive marker in the high-risk group will be needed more researches.

Keywords: First-degree family; Matrix metalloproteinase; Relapsing–remitting; Untreated multiple sclerosis; Vitamin D.

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