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**Evaluation of Plasma Level of Brain-Derived Neurotrophic Factor and Interleukin-6 In Relapsing-Remitting Multiple Sclerosis Patients Compared to Healthy Subjects**

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Objective:Recent studies about neurodegenerative diseases, especially multiple sclerosis (MS), investigated the role of Brain-derived neurotrophic factor (BDNF) and Interleukin-6 (IL-6). IL-6 is the most important mental cytokine, and plays a key role in central nervous system (CNS) diseases. BDNF is a common member of neurotrophin family, and contributes to the development, maintainance and regeneration of neurons.

Design & Method:Forty-five relapsing-remitting MS (RRMS) patients, including 32 interferon-beta (INF-B) treated patients and 13 newly diagnosed patients, and 45 sex and age matched healthy controls were recruited. Plasma was isolated from peripheral blood and was assessed by ELISA method. Data was analyzed via SPSS ver.19.

Results: There were significant differences of BDNF (P-value=0.044) and IL-6 (P-value<0.001) plasma levels between patient group and healthy people. Nevertheless, treating by INF-B had not significant impact on the level of both BDNF and IL-6 in RRMS patients compared to healthy controls (P-value=0.716 and 0.623 for BDNF and IL-6, respectively). Furthermore, the increase of BDNF and IL-6 plasma levels in the patient group was directly correlated together (Correlation=0.508, P-value=0.008), that after parting patient group into the two groups, treated and untreated patients, we observed the direct positive correlation of BDNF and IL-6 plasma levels (Correlation=0.495, P-value=0.026).

Conclusion: INF-B treatment seems to be not effective in RRMS patients for up-regulating BDNF or IL-6. According to the possible effect of IL-6 on neuron regeneration by inducing BDNF, our findings proved the hypothesis that there is a positive loop between them.