عنوان مقاله:

Brain-derived neurotrophic and immunologic factors: beneficial effects of riboflavin on motor disability in murine model of multiple sclerosis

محل انتشار:

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خلاصه مقاله:

Objective(s): In the present study, C۵۷BL/۶ female mice (n=۵۶) were used to explore the neuroprotective effects of riboflavin in motor disability of experimental autoimmune encephalomyelitis (EAE) as a model of multiple sclerosis. Materials and Methods: The animals were assigned into ۷ groups: sham-operated ۱ (SO۱), healthy mice receiving PBS (phosphate buffer saline); sham-operated ۲ (SO۲), healthy mice receiving PBS and riboflavin; sham treatment ۱ (ST۱), EAE mice receiving water; sham treatment ۲ (ST۲), EAE mice receiving sodium acetate buffer; treatment ۱ (T۱), EAE mice receiving interferon beta-۱a (INFβ-۱a); treatment ۲ (T۲), EAE mice receiving riboflavin; treatment ۳ (T۳), EAE mice receiving INFβ-۱a and riboflavin. After EAE induction, scoring was performed based on clinical signs. Upon detecting score ۰.۵, riboflavin at ۱۰ mg/kg of body weight and/or INFβ-۱a at ۱۵۰ IU/g of body weight administration was started for two weeks. The brain and spinal cord levels of brain-derived neurotrophic factor (BDNF), interleukin-۶ (IL-۶), and interleukin-۱۷A (IL-۱۷A) were studied using real-time PCR and ELISA methods. Results: BDNF expression and protein levels were increased in the brain and spinal cord of the T۳ group compared with the other groups (P<۰.۰۱). IL-۶ and IL-۱۷A expressions were increased in the brains of the T۳ and T۱ groups, respectively, compared to

the other groups (P<۰.۰۱). The daily clinical score was reduced significantly by riboflavin in both effector and chronic phases of the disease compared with that of the controls (P<۰.۰۵). Conclusion: Our findings showed that riboflavin is capable of suppressing the neurological disability mediated by BDNF and IL-۶.

کلمات کلیدی:

Brain-derived neurotrophic -factor, Experimental autoimmune -encephalomyelitis, Interleukin-۱۷A, Interleukin-۶, Motor disability, Riboflavin