عنوان مقاله:

VITAMIN D ADMINISTRATION, COGNITIVE FUNCTION, BBB PERMEABILITY AND NEUROINFLAMMATORY FACTORS IN HIGH-FAT DIET-INDUCED OBESE RATS

محل انتشار:

سومین کنگره بین المللی و پانزدهمین کنگره تغذیه ایران (سال: 1397)

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خلاصه مقاله:

Background and Aim: The aims of current research were to investigate the effects of vitamin D administration on cognitive function, NF-κB, BDNF concentration in the hippocampus and BBB permeability in high-fat diet-induced obese rats.Methods: Forty male Wistar rats were divided into two groups: either control diet or high-fat diet for 16 weeks; then each group was randomized into two groups including: CD + Migliol, CD + vitamin D, HFD + Migliol and HFD + vitamin D. Vitamin D was administered at 500 IU kg-1 dosage for 5 weeks. Also, weight changes measured weekly. Five weeks after supplementation, Morris water maze test was performed to examine cognitive function. Moreover, BBB permeability was characterized by Evans blue dye in the hippocampus. NF-κB and BDNF concentrations in the hippocampus were determined using ELISA kits. Serum vitamin D concentration was also measured.Results: HFD led to significant impairments in learning and memory reduction measured by MWM test. Accordingly, increased NF- B (P=0.01) and decreased BDNF concentrations (P=0.04) was occurred in the hippocampus of HFD in comparison to CD group. Vitamin D supplementation reduced NF- B concentrations (P=0.001) and BBB permeability (P=0.03); while, BDNF concentrations increased (P=0.002) in the hippocampus of HFD + D group. Moreover, vitamin D led to a significant weight reduction (P=0.02) in HFD + D in comparison to HFD group. Vitamin D per se did not influence these changes in the hippocampi of rats fed CD + D versus CD.Conclusion: Vitamin D reversed HFD-induced cognitive impairments by reduction of the NF-κB and elevation of BDNF concentrations and modulation of the BBB permeability in rats hippocampus.

کلمات کلیدی:

Obesity; Cognitive function; NF-κB; BBB; BDNF; Vitamin D

لینک ثابت مقاله در پایگاه سیویلیکا: