عنوان مقاله:

Study the effects of sesame oil on high-fat diet induced memory impairment and anxiety in male rats using behavioral models

محل انتشار:

هشتمین کنگره علوم اعصاب و پایه و بالینی (سال: 1398)

تعداد صفحات اصل مقاله: 2

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خلاصه مقاله:

Background and Aim : Consumption of high-fat diets is a pervasive threat to most communities that can affect the learning capacity of the brain, resulting in memory impairment and anxiety through oxidative stress and inflammation. As a potent antioxidant, similar to vitamin E and vitamin C, sesame oil (SO) has potential antioxidant properties, which can eliminate free radicals. In this study, the effect of SO on high-fat diet-induced memory impairment and anxiety in male Wistar rats was investigated.Methods : 80 Adult male Wistar rats, weighing from 200 g to 250 g, were divided into 8 groups (n=10 rats/group): 1- Control group, which was fed a standard diet (SD). 2- High-fat diet (HFD) group. 3- SD+0.5 ml/kg daily administration of SO. 4- SD+1 daily administration SO. 5- SD+2 ml/kg daily administration of SO. 6- HFD+0.5 ml/kg daily administration of SO. 7- HFD+1 ml/kg daily administration SO. 8- HFD+2 ml/kg daily administration of SO. SO was administered orally through gavage once a day. The experimental groups received their respective diets for 3 months. Finally, behavioral studies were undertaken, and associated oxidative stress was measured.Results : The passive avoidance learning test determined that STLr in the S-D+0.5 ml/kg SO and S-D+1 ml/kg SO groups increased significantly compared to the control group. The novel object test showed no significant difference between the experimental groups. The analysis of the time spent in the target quadrant (probe) of the morris water maze test revealed no significant difference between groups within the test day. The results of the Barnes test showed that the elapsed time to find the target hole has increased in the HFD group compared to the control group. In the elevated plus-maze test, the time spent in the open arms increased in the SD+0.5 ml/kg SO group compared to the control group. The oxidative stress test showed no significant difference in the malondialdehyde (MDA) levels; however, the total oxidant status (TOS), total antioxidant capacity (TAC), and THIOL levels were significant. TOS and TAC levels in the HFD group were higher and lower than the control group, respectively. TOS levels in the HFD+0.5 ml/kg SO, HFD+1 ml/kg SO, and HFD+2 ml/kg SO groups were lower than the HFD group. TAC levels in the S-D+2 ml/kg SO group was higher than the S-D+0.5 ml/kg SO group. In both

SD+SO groups and HFD groups, thiol levels were decreased compared to the control group.Conclusion : The data suggest that SO could enhance memory, while HFD disrupts learning. Also, SO could reduce the anxiety in the SD ... groups compa

کلمات کلیدی:

Memory; Learning; anxiety; Oxidative stress; Sesame oil; High-fat diet; Rat