عنوان مقاله:

The effect of ۱۲ weeks of aerobic exercise and caloric restriction on Nrf۲ protein expression in non-alcoholic fatty liver disease in rats

محل انتشار:

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خلاصه مقاله:

Background and aims: One of the most common causes of liver disease is non-alcoholic fatty liver disease (NAFLD), and its prevalence along with serious clinical problem is a growing. No studies have been conducted on the effect of calorie restriction (CR) and aerobic exercise (AE) on nuclear factor erythroid-related factor ۲ (Nrf۲) in rats with NAFLD. The present study aimed to assess the effects of ۱۲ weeks of CR and AE on Nrf۲ protein expression in rats with NAFLD. Methods: A total of ۴۰ rats participated in this study, and ۳۲ of them developed NAFLD by feeding fatty food (۳۴% fat, ۱۹% protein, and ۴۷% carbohydrates) for eight weeks. Rats were classified into five groups: sham, control, CR, AE, and calorie restriction-aerobic exercise (CA). First, ۶۰% of the daily diet was given to the CR and CA groups. AE was done for ۱۲ weeks, five sessions per week on a treadmill for rats. Oil red, hematoxylin-eosin (H & E) staining, and protein expression levels in the groups were evaluated. To analyze the data, one-way ANOVA was used at a significance level of P<۰.۰۵. Results: The results showed a significant difference between the liver fat of the control group and other groups (RC: P=۰.۰۰۱, AE: P=۰.۰۰۱, RA: P=۰.۰۰۱). In healing liver damage, the control group was significantly different from the CA group (P=۰.۰۰۲). Regarding the Nrf۲ protein expression, the CA group had significantly higher expression than the CR group (P=۰.۰۲۸), however there was no significant difference between the CA and AE groups (P=۰.۴۴). Conclusion: The findings revealed that AE through CR can cause recovery for NAFLD.

کلمات کلیدی: