عنوان مقاله:

The effect of aerobic training and eugenol supplementation on the PI۳K/AKT/mTOR pathway in skeletal muscle of male rats poisoned with chlorpyrifos

محل انتشار:

مجله دانشگاه علوم پزشکی شهرکرد, دوره 25, شماره 3 (سال: 1402)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Mohadeseh Behnam Moghadam

Hasan Matinhomaee

Mohammad Ali Azarbayjani

خلاصه مقاله:

Background and aims: Chlorpyrifos (CPF) is an insecticide that is widely used in the world. The purpose of this research was to investigate the effect of ۴-week aerobic exercise and eugenol supplementation on the phosphatidylinositol-۳-kinases/protein kinase/mammalian target of rapamycin (Pi۳K/AKT/mTOR) pathway on the skeletal muscle of male rats poisoned with CPF. Methods: Overall, ۱۲-week-old female rats were used in this experimental research. The rats were randomly divided into ۸ groups (۸ rats in each group), including healthy control, toxic control, poison solvent, corn oil solvent, poisoned+eugenol, poisoned+aerobic exercise, and poisoned+aerobic exercise+eugenol. Moderate training was in the range of ۵۰-۶۰% VO۲ max, including ۵ training sessions per week (treadmill). Poisoning was performed with CPF poison with a dose of ۳ mg/kg, and the dose of eugenol was determined to be ۲۵۰ mg/kg. Results: There was no significant difference between the groups in terms of mTOR and AKT expression (P=۰.۳۶۹, P=۰.۵۹). However, the expression of PI۳k in the poisoned control group was lower than that in the healthy control group (P=۰.۰۴۹). In addition, the expression of PI۳k was higher in the poisoned+eugenol+exercise group compared to the poisoned control group (P=۰.۰۰۹). The corn solvent group also had a higher PI۳k expression in comparison to the poisoned control group (P=۰.۰۲۵). Finally, there was no significant difference among the other groups. Conclusion: In general, ۴ weeks of CPF poisoning caused a significant decrease in PI۳K, but it did not have a significant effect on AKT and mTOR. Based on the finding, ۴ aerobic exercises and eugenol consumption could significantly increase in PI۳K, while it had no significant effect on AKT and mTOR.

کلمات کلیدی: