

4th International Conference on

HEPATOLOGY

April 27-28, 2017 Dubai, UAE

Examining the effect of selenium in improving nonalcoholic fatty liver disease in rats**Hossein Kargar Jahromi, Faezeh Sadeghian and Mohsen Manochehri**
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Statement of the Problem: Nonalcoholic Fatty Liver Disease (NAFLD) was detected by Ludwig et al. in the people with no history of alcohol consumption for the first time in 1980. Nowadays, NAFLD is hepatic manifestation of metabolic syndrome. Clinical manifestations of metabolic syndrome include type 2 diabetes, obesity, dyslipidemia and hypertension. Given the prevalence of risk factors for metabolic syndrome, nonalcoholic fatty liver disease is the most common cause of liver disease in society. Epidemiological studies reported prevalence of NAFLD as 2.8% in Iranian population. In this study, the effect of selenium in improving NAFLD was investigated in rats.

Methodology & Theoretical Orientation: In this experimental study, 40 adult Wistar rats were divided into 5 groups, each consisting of 8 rats. The five groups were control, high-fat diet and high-fat diet treated with 0.25, 0.5 and 1 mg/kg doses of selenium (for 20 consecutive days). Selenium was fed by gavage to the rats. At the end of the experiment, the rats were weighed. Blood samples were taken from heart of the rats (Blood samples were obtained by cardiac puncture). Finally, serum ALT, AST, ALP, LDL, HDL, TG and TC levels were measured. Five-micron tissue sections were prepared from liver tissue. The sections were stained with hematoxylin and eosin. The collected data were analyzed using ANOVA and Duncan's test at $p \leq 0.05$ significance level.

Findings: The results showed that mean serum concentration of TG, TC, LDL, ALT, AST and ALP significantly increased in the group receiving high-fat diet compared to control group. TC, LDL, ALT and ALP serum concentration significantly decreased in the groups receiving 0.5 and 1 mg/kg selenium compared to the group receiving high-fat diet. TG and AST serum concentrations significantly decreased in the group receiving 1 mg/kg selenium compared to the group receiving high-fat diet. All doses of selenium had no effect on mean serum levels of HDL. The best dose of treatment was 1 mg/kg.

Conclusion & Significance: The results showed that selenium with antioxidant properties reduces and prevents damaging effects of fatty liver in rats.

Biography

Hossein Kargar Jahromi has a PhD in Comparative Histology. He is a member of Research Center for Noncommunicable Diseases, Jahrom University of Medical Sciences, Jahrom, Iran and Zoonoses Research Center, Jahrom University of Medical Sciences, Jahrom, Iran.

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