Research in Pharmaceutical Sciences, 2012;7(5)
School of Pharmacy and Pharmaceutical Sciences
Isfahan University of Medical Sciences
Proceeding of 13th Iranian Pharmaceutical Sciences Congress

The protective effect of Vitamin E and Selenium on liver tissue and liver enzymes in fructose- induced diabetic rats

A. Yosefi nasab[1,*], F. Ghassemi[2], H. Sadeghi[2]

[1]Islamic Azad University, Jahrom branch, Jahrom, Iran
[2]Department of Biology, Jahrom Branch, Islamic Azad University, Jahrom, Iran

Background and Aims: Oxidative stress is produced under diabetic conditions and is likely involved in the progression of liver damage. Vitamin E and selenium as well-known antioxidative nutrients, were used in this study to evaluate the protective effect of them on liver tissue and enzymes in diabetic rats.

Methods: In this study 35 male Wistar rats weighed 180 ± 20 g were divided into control, sham and 3 experimental groups (E, S and E+S). All of groups except control were fed 140 cc fructose 10% daily for 9 weeks. The rats in Sham group were injected physiologic serum intraperitoneally, in group (E) gavage vitamin E (0.5 mg/kg/b.wt), in group (S) were injected selenium (0.5 mg/kg/b.wt) intraperitoneally and group (E + S) were administrated vitamin E(gavage) and selenium (injected) for 9 weeks. Then blood samples from all groups were collected for biochemical analyzes. Using statistical software, SPSS 16, data were analyzed by ANOVA and Duncan test at the significant level of 0.01. Samples of liver were prepared and placed in tissue processor. Prepared serial sections (4µ thickness) mounted with binocular (10x, 40 x).

Results: According to our findings, aspartateaminotransfrase, alkaline phosphotase, Lactate dehydrogenase, HDL cholesterol (HDL), triglyceride, direct and total bilirubin and FBS were decreased significantly ($p<0.01$) in treatment groups especially in (E+S), in comparison to sham group. No changes in total protein, malondialdehyde and alanine aminotransferase levels were seen in any group. The damage due to diabetes, namely cytoplasmic hydropic in hepatocytes and Lymphocytic invasion around triad portal in sham group, was partly compensated in treatment groups. Further decline of destructive effects, were seen in the group (E + S), so that these alterations were near control's levels.

Conclusions: These results show that vitamin E and selenium may play a crucial protective role against diabetes type II.

Keywords: Antioxidant; Vitamin E; Selenium; Diabetes; Rat