Comparison of protective effect of hydroalcoholic extract of Anethum graveolens and Berberis vulgaris on serum level of ALT and AST in lipopolysaccharide induced liver injury in rats

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Abstracts

Background and Objective: The prevalence of liver disease is increasing in the world and mortality rates of chronic liver disease is high. Alanine transaminase (ALT) and aspartate aminotransferase (AST) serum levels are two markers of liver injury. One of the materials that induced liver injury is lipopolysaccharide. Earlier studies have shown that *Anethum graveolens* and *Berberis vulgaris* have antioxidant properties. The aim of the present study was to compare protective effect of hydroalcoholic extract of *Anethum graveolens* and *Berberis vulgaris* on serum levels of ALT and AST in lipopolysaccharide-induced liver injury in the Wistar rats.

Materials and Methods: In this experimental study, forty eight Wistar rats (200-250g) were randomly divided into six groups of eight each: control, lipopolysaccharide (LPS), LPS plus hydroalcoholic extract of A.graveolens (LPS+AG), LPS plus hydroalcoholic extract of B.vulgaris (LPS+BV), only AG without LPS application (AG) and only BV without LPS application (BV). Four groups (LPS+AG, LPS+BV, AG, BV) received 200 mg/kg/day of extracts for one week. On the last day, one hour after the last injection of extracts, three groups (LPS, LPS+AG, LPS+BV) received 5 mg/kg of lipopolysaccharide. After 6 hours, the serum levels of ALT and AST were examined. Data were analyzed by SPSS version 16, using one-way ANOVA and Tukey-Kramer test. A p-value <0.05 was set as significance level.

RESULTS: The obtained data showed that the levels of ALT and AST enzymes in the LPS group significantly increased, compared with control group ($p<0.001$) and also the levels of these enzymes in the LPS+AG and LPS+BV groups increased ($p<0.05$), whereas in these groups (LPS+AG and LPS+BV) the levels of ALT and AST significantly decreased compared with LPS group ($p<0.05$). The comparison of LPS+AG and LPS+BV groups showed that there is no significant difference between these two.

CONCLUSION: This study showed that hydroalcoholic extract of Anethum graveolens and Berberis vulgaris have a protective effect against lipopolysaccharide induced liver injury. Actually hydroalcoholic extract of Berberis vulgaris is a little more effective than Anethum graveolens but there is no significant difference between them.

Keywords

Anethum graveolens - Barberis vulgaris - Alanine transaminase - Aspartate aminotransferase - Lipopolysaccharide - Liver injury