

Thesis Summary

Introduction

Benzene is an aromatic chemical compound used in the gasoline and plastic fuels industry and is found as an environmental pollutant in industrial wastes, cigarette smoke and car exhaust fumes. This chemical, which is in category A for carcinogenicity, is a common environmental pollutant, enters the body through inhalation and contaminated water and food, and causes blood and liver toxicity in humans, and a variety of blood disorders, including aplastic anemia. , Lymphoma and types of leukemias can be associated with it.

Material and methods

Thirty-six Swiss adult male mice were randomly divided into 6 groups of 6, including: control, sham (receiving benzene only), receiving quercetin only, and three groups receiving benzene and treated with different concentrations of quercetin (10, 50 and 100 mg / kg per day). Quercetin was given orally one hour before exposure to benzene. The interventions lasted 28 days and 24 hours after the intervention, anesthesia was performed and blood, bone marrow and liver samples were collected. Liver function enzymes were measured, liver tissue structure was studied, oxidative stress factors were measured, peripheral blood was analyzed, and the incidence of micronucleus in bone marrow and peripheral blood was assessed.

Results

Quercetin significantly reduced the amount of liver enzymes increased by benzene ($P < 0.05$) and improved the number of WBCs reduced by benzene. The percentage of micronucleus-containing cells increased by benzene inhalation in both peripheral blood and bone marrow decreased in quercetin-treated groups. QCN also improved benzene-induced histopathological changes as well as serum and liver oxidative stress.

Discussion

Quercetin with its anti-inflammatory and antioxidant properties was able to improve tissue damage and blood and liver toxicity caused by benzene and prevent the destruction of cell genetic material and the formation of micronuclei caused by it. Therefore, it can be considered as a protective supplement against blood and liver damage caused by benzene.

Key words

Quercetin, Hematotoxicity, Hepatotoxicity, Oxidative stress