Glicirrizina, silimarina e ácido urso deoxicolico regulam a expressão de genes apoptóticos e estresse oxidativo em células HepG2 do hepatocarcinoma

Glycyrrhizin, silymarin, and ursodeoxycholic acid regulate a common hepatoprotective pathway in HepG2 cells.

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Abstract

BACKGROUND:

Glycyrrhizin, silymarin, and ursodeoxycholic acid are widely used hepatoprotectants for the treatment of liver disorders, such as hepatitis C virus infection, primary biliary cirrhosis, and hepatocellular carcinoma.

PURPOSE:

The gene expression profiles of HepG2 cells responsive to glycyrrhizin, silymarin, and ursodeoxycholic acid were analyzed in this study.

METHODS:

HepG2 cells were treated with 25 μM hepatoprotectants for 24 h. Gene expression profiles of hepatoprotectants-treated cells were analyzed by oligonucleotide microarray in triplicates. Nuclear factor-κB (NF-κB) activities were assessed by luciferase assay.

RESULTS:

Among a total of 30,968 genes, 252 genes were commonly regulated by glycyrrhizin, silymarin, and ursodeoxycholic acid. These compounds affected the expression of genes relevant various biological pathways, such as neurotransmission, and glucose and lipid metabolism. Genes involved in hepatocarcinogenesis, apoptosis, and anti-oxidative pathways were differentially regulated by all compounds. Moreover, interaction networks showed that NF-κB might play a central role in the regulation of gene expression. Further analysis revealed that these hepatoprotectants inhibited NF-κB activities in a dose-dependent manner.

CONCLUSION:

Our data suggested that glycyrrhizin, silymarin, and ursodeoxycholic acid regulated the expression of genes relevant to apoptosis and oxidative stress in HepG2 cells. Moreover, the regulation by these hepatoprotectants might be relevant to the suppression of NF-κB activities.

KEYWORDS:

Glycyrrhizin; Hepatoprotectants; Microarray; Silymarin; Ursodeoxycholic acid

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