عنوان مقاله:

Iranian crack induces hepatic injury through mitogen-activated protein kinase pathway in the liver of Wistar rat

محل انتشار:

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نویسندگان:

Aliasghar Parvaresh Anbar - *Higher Academic Education Institute of Rab-e Rashid, Tabriz, Iran*

Tayyebeh Piran - *Higher Academic Education Institute of Rab-e Rashid, Tabriz, Iran*

Mehrdad Farhadi - *Neurosciences Research Center, Tabriz University of Medical Sciences, Tabriz, Iran*

Pouran karimi - *Neurosciences Research Center, Tabriz University of Medical Sciences, Tabriz, Iran*

خلاصه مقاله:

Objective(s): Iranian crack (IC) is a heroin-based substance manifesting various pathologic side effects. Herein, we aimed to investigate the mechanism of IC-induced liver injuries in Wistar rats. Materials and Methods: Twenty male Wistar rats were randomly divided into two groups: control, and IC (۰.۹ mg/kg/day/IP, for ۳۰ days). Mitochondrial reactive oxygen species (ROS) production was measured by DCF fluorescence staining. The expression of tumor necrosis factor-alpha (TNF-α), interleukin ۱β (IL-۱β), and phosphorylation of p۳۸ mitogen-activated protein kinase (p۳۸ MAPK) and c-Jun N-terminal kinase (c-JNK) were assessed by immunoblotting assay. The intensity of collagen fiber in the liver was also determined by Trichrome-Masson staining. Furthermore, serum levels of alanine aminotransferase (ALT), aspartate aminotransferase (AST), and alkaline phosphatase (ALP) activities were measured using colorimetric methods. Results: Our results showed that ROS production, p۳۸ MAPK, c-JNK phosphorylation levels, and expression of TNF-α and IL-۱β were significantly elevated in the liver tissue of IC group as compared to the control group. Moreover, collagen fiber and ALT activity were increased in the liver tissue of IC group compared to the control group. However, there was no statistically significant difference in the levels of ALP between two groups. In addition, there was a positive correlation between the intensity of collagen fiber and the ALT activity, and the levels of TNF-α and IL-۱β and liver enzymes activities including ALP, ALT, and AST.Conclusion: Our findings revealed that IC-induced liver cells injury is partially mediated by MAPK stress kinases. Therefore, regular liver examination in substance abuse is strongly recommended.

کلمات کلیدی:

Cytokines, c-JNK, Iranian Crack, Liver fibrosis, p۳۸ MAPK, Transaminase